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Examples of

STATEWIDE TRANSPORTATION PLANNING PRACTICES

U.S. Department of Transportation
Federal Highway Administration
Federal Transit Administration

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Introduction

Purpose

In providing mobility for people and goods, all levels of government are confronted with a rapidly changing focus and set of constraints. The transportation sector is faced with new legislative mandates as reflected by the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991. ISTEA, coupled with the Clean Air Act Amendments (CAAA) of 1990, provides an impetus for change in transportation planning and project implementation. This new legislation has directed the focus of transportation planning away from providing capacity for vehicles to efficiency for multi-modal movement of people and goods, use of management systems in decision making, an enhanced role for metropolitan planning organizations (MPOs), air quality considerations, a new requirement for statewide transportation planning, and other important elements. Much of the ISTEA focus is new to local and State government and requires a carefully crafted response.

Statewide transportation planning is one of the mechanisms for change that ISTEA provides. Statewide transportation plans integrate planning for multiple transport modes to balance the mobility needs of the State with future revenue sources. To support this requirement, the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) have issued statewide transportation planning rules. These rules identify twenty-three factors to be addressed in statewide plans. The twenty-three factors to be considered are as follows:

1. The transportation needs (strategies and other results) identified through the management systems;
2. Federal, State, or local energy use goals, objectives, programs, or requirements;
3. Strategies for incorporating bicycle transportation facilities and pedestrian walkways in appropriate projects throughout the State;
4. International border crossings and access to ports, airports, intermodal transportation facilities, major freight distribution routes, national parks, recreation and scenic areas, monuments and historic sites, and military installations;
5. The transportation needs of non-metropolitan areas (areas outside of MPO planning boundaries) through a process that includes consultation with elected officials with jurisdiction over transportation;
6. Any metropolitan area plan developed pursuant to 23 U.S.C. 134 and section 8 of the Federal Transit Act, 49 U.S.C. app. 1607;
7. Connectivity between metropolitan planning areas within the State and with metropolitan planning areas in other States;
8. Recreational travel and tourism;

9. Any State plan developed pursuant to the Federal Water Pollution Control Act, 33 U.S.C. 1251 et seq. (and in addition to plans pursuant to the Coastal Zone Management Act);
10. Transportation system management and investment strategies designed to make the most efficient use of existing transportation facilities (including consideration of all transportation modes);
11. The overall social, economic, energy, and environmental effects of transportation decisions (including housing and community development effects on the human, natural, and man-made environments);
12. Methods to reduce traffic congestion and to prevent traffic congestion from developing in areas where it does not yet occur, including methods which reduce motor vehicle travel, particularly single-occupant motor vehicle travel;
13. Methods to expand and enhance appropriate transit services and to increase the use of such services (including commuter rail);
14. The effect of transportation decisions on land use and land development, including the need for consistency between transportation decision making and the provisions of all applicable short-range and long-range land use and development plans (analyses should include projections of economic, demographic, environmental protection, growth management, and land use activities consistent with development goals and transportation demand projections);
15. Strategies for identifying and implementing transportation enhancements where appropriate throughout the State ;
16. The use of innovative mechanisms for financing projects, including value capture pricing, tolls, and congestion pricing;
17. Preservation of rights-of-way for construction of future transportation projects, including identification of those corridors for which action is most needed to prevent destruction or loss (including strategies for preventing loss of rights-of-way);
18. Long-range needs of the State transportation system for movement of persons and goods;
19. Methods to enhance the efficient movement of commercial motor vehicles.
20. The use of life-cycle costs in the design and engineering of bridges, tunnels, or pavements;
21. The coordination of transportation plans and programs developed for metropolitan planning areas of the State under 23 U.S.C 134 and section 8 of the Federal Transit Act with the statewide transportation plans and programs developed under this subpart, and the reconciliation of such plans and programs as necessary to ensure connectivity within transportation systems;
22. Investment strategies to improve adjoining State and local roads that support rural economic growth and tourism development, Federal agency renewable resources management, and multipurpose land management practices, including recreation development; and
23. The concerns of Indian tribal governments having jurisdiction over lands within the boundaries of the State.

Although the statewide planning factors to be addressed by the States are specific, ISTEA provides latitude to incorporate them based on individual State needs and experiences. Each State will address these twenty-three statewide planning factors from its own perspective of preparedness. Some States have addressed issues of statewide transportation planning within their existing institutional framework for many years. Others have little experience in integrating multi-modal systems at the statewide level.

The latitude provided by ISTEA has allowed the development of several innovative approaches and practices in response to ISTEA statewide transportation planning. This report has been prepared in the interest of disseminating information about these innovative practices across the country. With this information, States will be better able to assess their own efforts and make modifications as deemed necessary to improve or streamline their own practices.

A similar effort is underway regarding a special project funded out of ISTEA on Model Intermodal Transportation Planning Grants. Concurrent with this study on example statewide transportation practices, four other related projects concerning how ISTEA requirements are being addressed by the States and MPOs are underway. The projects are funded by either FHWA and FTA, or the National Cooperative Highway Research Program (NCHRP). These studies are:

- *Synthesis of Intermodal Statewide Transportation Planning (FHWA/FTA);*
- *Procedures MPOs Use to Consider 15 Factors in Developing Plans and Programs Under ISTEA (NCHRP);*
- *Analysis of MPO Institutional Capacity (FHWA/FTA);* and
- *Innovative Practices for Multimodal Transportation Planning for Freight and Passengers* (NCHRP).

The compilation of these projects will result in a broad set of documentation of good ISTEA transportation planning practices.

Approach

Although all States are working hard to prepare plans that meet ISTEA requirements as well as their own needs, some have employed particularly innovative or unique approaches that may be of interest and benefit to other States.
Identification of the practices presented here involved a lengthy investigation process. To facilitate this project, elements of the twenty-three planning factors were grouped into the following eight categories:

Coordination of Statewide and Metropolitan Planning

- MPO structure
- facility issues

- planning issues
- commercial vehicles
- conflict resolution

Form and Content of Statewide Transportation Plans and Improvement Programs

- forecasting
- modal diversity (diversification of modal considerations in planning and programming)
- Statewide Transportation Improvement Program (STIP) coordination

Comprehensive Transportation Planning

- land use issues
- modal coverage (consideration of all modes, e.g. surface, air, water)
- protection of transportation investment

Management Systems

- integration of management systems into planning process
- needs assessment

Public Involvement

- non-urban issues
- tribal governments
- stakeholders interests

Social, Economic and Environmental Issues

- energy
- water pollution control act
- various other Federal acts and concerns

Transportation System Management (TSM) and Operations

- bicycle and pedestrian
- recreation trails and tourism
- TSM protection of prior investments
- congestion management
- transit service
- commercial vehicles

Investment and Finance Issues

- alternate financing
- life-cycle analysis
- investment strategies

An initial set of 24 States was identified for interview based on recommendations from FHWA headquarters and field staff. Over sixty phone interviews concerning various

combinations of the eight categories presented above were conducted. Interviews focused on approaches to addressing the specific requirements of each category and the overall approach to statewide transportation planning. Results of these interviews were documented and presented to a review panel to determine which States' approaches to carry forward for further investigation. The review panel included representatives from State Departments of Transportation (DOT) representatives, and FHWA, and the Federal Transit Agency (FTA) staff.

The review panel identified those States and practices the contractor should further investigate. The States that were identified by the review panel were contacted a second time and asked to provide more detailed information on specific practices. In addition, information was requested concerning the planning environment within the State, the organizational structure of the State Department of Transportation (DOT), and the resources committed to the preparation of the statewide transportation plan. The results of this second tier investigative review were documented in a report and forwarded to FHWA for final selection of those practices presented in this report. The following criteria was used to select statewide planning practices for inclusion in this report:

- Unique Features - Has the State developed any unique or innovative approaches to addressing the category?
- ISTEA - Does the approach employed meet or exceed ISTEA requirements within the category?
- Ease of Update/Maintenance - What level of effort or resource commitment is required to update and/or maintain the process or system?
- Transferability/Applicability to Other States - Can the approach be exported to other States; is it dependent on supportive institutional structures unique to the State?
- Level of Effort - Measure of time, money, staff or other resources required to effect the process/approach.

Summary

The most valuable aspects of each State's approach, as documented in this report, are included in this summary, along with a brief explanation of each category. These highlights only provide a snapshot of the innovative and unique processes developed by each State in addressing the particular statewide transportation planning category. The case studies included in this report are yet broader summaries of the State's practices. While these case studies are summaries, they do present valuable information on particular practices. State contacts have been included at the end of each case study for further information.

Coordination of Statewide and Metropolitan Planning

ISTEA requires that statewide planning be done in coordination with a multitude of organizations and interests. Such interests and organizations include metropolitan

planning organizations, commercial vehicle organizations, railroads, and airport operators. Issues involved include forecasting, coordination, and if required, conflict resolution. Each of these considerations is important to successful planning at the State level. The following case studies demonstrate examples of coordination in planning efforts.

Florida - The Florida DOT (FDOT) took an approach to outline a process of cooperative planning, developing an understanding of the tools required to accomplish the objectives and to recognize the contribution of interest groups to the planning process. It is an example of a technique for cooperative intermodal planning.

Iowa - The Iowa DOT took an approach to create a method whereby local governments could have their interests represented through specially formed organizations, while at the same time, take advantage of the past background of multi-modal planning. In the spirit of ISTEA, the process is far more bottom up than previously done. This cooperation, along with a public involvement program incorporating innovative communication, has created a new openness in the process, which was an aim of the Iowa DOT. The approach of providing an Iowa DOT staff planner to each regional planning affiliation (RPA) and MPO also helped them coordinate and communicate effectively.

Form and Content

Statewide transportation planning should be done in a fashion that considers long-range needs, addresses scenarios and modes, and can be integrated with the State Transportation Improvement Program (STIP) process. The following States have demonstrated a thorough understanding of these requirements.

Florida - FDOT took an approach to outline a method of accomplishing multimodal planning and a special effort for intermodal planning. Models are being developed and the policy and planning process is bringing new projects of statewide significance to the forefront, such as high speed rail.

Texas - The Texas approach provides an example of integrating long range planning with short term programming. Through definition of major transportation corridors, performance measures, and project selection criteria, Texas is developing the statewide transportation plan as a tool to assist in investment decision making. The plan provides a statewide vision and direction for long term transportation investments without limiting options to specific projects.

Comprehensive Transportation Planning

Good transportation planning recognizes that transportation is fundamental to all facets of human endeavor. Every person and business is a “customer” of the transportation

system. In turn, every action by a government or private enterprise has some effect on the transportation system. At the same time, the actions undertaken by transport system providers influence the response by users of the transportation system. As a result, transportation planning is made better by being more comprehensive in its coverage and understanding of basic relationships.

Among the different contributing factors associated with comprehensive planning are land use issues, transportation modes included in the planning process, and planning efforts used to prioritize investments.

Washington - The Washington approach to statewide transportation planning places a great deal of emphasis on developing cooperative relationships between the State, local jurisdictions, and non-State-owned facility owners and operators. The synergistic effect of bringing these groups together and cooperatively proposing solutions to the State's integrated transportation system needs should prove an effective means of benefiting all interests. By seeking to coordinate the planning of systems outside the State's jurisdiction with systems owned by the State and not attempting to control but to guide development of the various other modes, the statewide transportation system should develop into an almost seamless multimodal network capable of efficiently moving people and goods.

Wisconsin - Among the most interesting areas of the Wisconsin approach is the method of addressing goods movements. This consists of expansion of the sources of information for origins and destinations of goods movements
followed by the development of database models for preparing forecasts. As this process and model structure becomes refined, its application could be of great value. Additionally, the policy papers and guidelines to MPO planning provide a valuable approach for dealing with difficult subjects. The policy papers outline alternatives and examine possible outcomes, thus allowing decision-makers to readily deal with policy implications.

Management Systems

ISTEA and subsequent rulemakings mandate the development of six State management systems and the Traffic Monitoring System for Highways
(TMS/H). The six management systems are as follows:

- Pavement Management (PMS)
- Traffic Congestion Management (CMS)
- Bridge Management (BMS)
- Public Transportation Facilities & Equipment Management (PTMS)
- Highway Safety Management (SMS)
- Intermodal Facilities and Systems Management (IMS)

States are responsible for developing and integrating these systems in coordination with MPOs, and, in the case of the PTMS, in association with agencies receiving funds under

the Federal Transit Act. The management and monitoring systems are intended to function as a group of integrated database and decision support systems to improve the quality of information provided to decision-makers at the State and local levels and, therefore, to assist decision-makers in their efforts to improve the efficiency and safety of the transportation system.

California - Management systems will affect decisions made in the planning process by bringing additional information and new analytical tools to the decision-making process. Management systems will not alter the responsibility for identifying preferred policies or selected projects. The availability and use of management systems will, however, influence policy development and the project priority and selection process at both the State and regional levels.

By making the systems available to the private sector, it is also hoped that management systems will affect private sector transport decisions, resulting in better integration of all transport decisions and, ultimately, a more efficient
transport system. Making management systems available to the private sector may have other benefits including:

- Providing better insight into how the private sector makes decisions and what the State can provide to improve the efficiency of goods and people movements serviced by the private sector; and
- Innovations and enhancements to the management systems that, if adopted by the State, could improve the functionality of the systems for all users.

Colorado - Colorado's modular, proof of concept approach to systems development appears to offer a high value for a limited up-front investment. Before proceeding to full-scale implementation, Colorado is testing each element of its proposed systems. This deliberate approach allows systems development to benefit from system integration efforts currently underway at CDOT, facilitates system refinement prior to full data collection or analytical development, and takes advantage of the knowledge base developing around the country. The approach is designed to provide checkpoints throughout the system development process to allow for constructive changes prior to full-scale implementation.

Missouri - The value of Missouri's approach lies in the utilization of information engineering technology and the State's efforts to integrate the management systems in the development process. The information engineering methodology should produce valuable decision support tools for future transportation planning and programming efforts.

New Jersey - The New Jersey example has three elements of particular interest and value. The first is to divide the IMS into two branches, i.e. person and goods transport. Through this process, New Jersey feels that it can be more responsive to the particular

needs of both areas. The second element is the development of a system that will provide a means of comparing the results of the different management systems. The third element of value is the use of an international trade model to assist in the depiction of future travel demand.

Considering the role of international trade in United States commerce and the desire to be competitive, this approach can have value to other States.

Public Involvement

ISTEA requires that statewide planning be carried out with the opportunity for input of the public and transportation stakeholders. The spirit of ISTEA legislation is to involve the public during the transportation system planning process and to provide a means for citizens to have their views known in a constructive fashion.

Idaho - The most valuable aspect of Idaho's approach is the open forum modal exhibit format. This approach removes conflicts between modes and ideas, allows for more constructive comments, and provides participants with a starting point from which to develop a vision for the State's future transportation network.

Iowa - Iowa uses a two way fiber optic communication system to conduct meetings and hear concerns and issues which allows the entire State to communicate unfettered with interpretation and relay by others. A unison of voice is possible and the public reacts positively to the ability to share concerns with citizens from throughout the State. As these systems become more widespread, the economics could become quite positive. Travel time is minimized for both staff and the public.

Wisconsin - Important features of Wisconsin's public involvement program are comprehensive and can be addressed in other State programs. These include:

- Listening sessions to gain undirected input;
- The identification of audiences and different means of gaining and maintaining contact;
- The provision of forums and expert groups to harness input and gain insights and information; and
- The use of the media, as an advertiser to reach out to the public.

Because the State process is mandated by a consent decree, an intense program was undertaken that was very demanding and could be viewed as more extensive than required in other States. However, the structure of the WisDOT process is an example that can be employed in other States while the level of intensity can be sized to fit the State requirements.

Social, Economic and Environmental Issues

Transportation, like all human activities, affects the environment. The quality of which is a principal concern for the States. Traditionally, States have addressed these issues at the project level, under the assumption that quality of life issues and the effect the transportation system has on the environment is localized. Historically, many DOTs addressed major environmental issues at the project level. ISTEA, however, requires that the statewide planning process consider the effect of transportation on the environment, energy use, and water quality.

Oregon - The interagency coordination that took place in development of the Oregon Transportation Plan (OTP), the State's energy plan, the Transportation Planning Rule (TPR), and the Oregon Benchmarks is of most use concerning Oregon's efforts in addressing socioeconomic and environmental issues. Each of the agencies responsible for the various statewide plans was involved in the development of the OTP, and the Oregon DOT (ODOT) was involved in the development of each of the other plans.

Washington - The value of Washington's approach is its understanding of the relationship between environmental, energy and transportation issues. Many States address these issues in separate, detached platforms. The Washington experience illustrates how State policy concerning seemingly different topics can be integrated to form one consistent vision.

Wisconsin - While the Wisconsin approach is not required by National Environmental Policy Act (NEPA) or FHWA, as States and cities become more concerned and aware of environmental issues, there may be a greater interest in tackling environmental issues early in the planning process. The WisDOT effort attempts to address the systems level issues at a stage prior to segmentation. Necessarily, the approach is "broad brushed" and conceptual. It remains to be seen if this comprehensive environmental process creates value for public consideration of plan alternatives, but it will prove to be an interesting exercise, adding to the professional understanding of addressing environmental concerns.

Transportation System Management and Operations

Transportation system assessments typically find that the transportation system, while appearing to be saturated, is operating at less than peak efficiency. Minor investments can either preserve the system for future needs or enhance the operation to a more optimal level. This is desirable since these actions can assist day to day travel and forestall the time when major investments are more urgently required. Additionally, other strategic investments for specific new facilities or programs can be made that relieve existing problems. These types of actions can include provisions for such things as bike facilities or actions to reduce travel through incentives for transit and carpooling. Departments of transportation continue to stress the importance of transportation system

management (TSM) as a sensible process and in accordance with requirements originating in the 1970s. ISTEA requires that TSM be a part of the statewide planning process.

Arkansas - Arkansas is taking an active role in transit and intermodal planning in a rural environment. Its approach to problem identification and investigation and strategies for problem resolution may offer models for other rural States facing similar problems.

Washington - There are many valuable aspects of Washington's approach to statewide transportation planning. With respect to TSM and traffic operations, a valuable point expressed by the statewide multimodal transportation plan and the State transportation policy plan is identifying preservation of existing facilities as the number one project funding priority. In addition, the State has illustrated an extensive understanding of freight mobility needs and their effect on the State economy. The State's Intelligent Vehicle Highway System (IVHS) strategic plan is expected to provide large returns in increased traffic operation efficiency and will benefit private and public sector transportation interests.

Wisconsin - Wisconsin's approach focuses on setting a relational framework between the State and regional or local agencies; recognizing the value of local knowledge and basic local jurisdiction for most TSM and operations planning. Hence, authority and responsibility is appropriately vested. Additionally, the State's guideline documents set direction for each MPO without mandating policy.

Investment and Finance Issues

ISTEA regulations require that the statewide planning process considers financial strategies, life cycle analysis, and investment strategies in the statewide planning process. Departments of transportation are addressing these issues in a variety of ways. As a result of requirements to constrain MPO plans and State Transportation Improvement Plans (TIPs), the shortfall in funding typical at both levels creates an interest in innovative financing strategies.

Colorado - Colorado's statewide plan is being developed in such a way as to encourage consideration of lower cost alternatives to maximize the efficiency of the existing transportation system. The investment strategy being developed will provide a basis for constrained plan development. The investment strategy will likely include three general scenarios, providing flexibility and allowing the State to modify its capital investment plans over time in response to changing revenue levels.
The analytical tools provided by management systems, policy guidance contained in the plan, and the mobility corridor concept provide mechanisms through which to focus investment in response to need and utility.

Wisconsin - From the investment and finance standpoint, Wisconsin's planning effort

addresses the financial implications of the plan. The costs of the plan were a constraint and through consideration of alternative funding programs, a moderate increase in funding is proposed. Valuable graphical techniques were used to illustrate the cost of the system in the context of total transportation cost.

Observation

It is hoped that the sharing of the information presented in this document will enhance the approaches States use in addressing statewide transportation planning, and the twenty-three planning factors in particular. These examples of statewide transportation planning, and those included in previous versions of this report, will likely be used in development of future FHWA training courses and Federal guidance. Statewide transportation planning as required by ISTEA is in its infancy across the country. The sharing of experience gained by individual States will help the practice evolve into a process that both enhances the intricate transportation network across the country, and provides the tools required to effectively allocate transportation resources.

I. Coordination (Statewide / MPO)

ISTEA requires that statewide planning be done in coordination with a multitude of organizations and interests. Such interests and organizations include metropolitan planning organizations, commercial vehicle organizations, railroads, and airport operators. Issues involved include forecasting, coordination, and if required, conflict resolution. Each of these considerations is important to successful planning at the state level. The following case studies demonstrate examples of coordination in planning efforts.

Coordination (Statewide/MPO)
Florida Statewide Transportation Planning Process

State Setting

For many years, Florida's increasing population growth has created transportation problems. The challenge to Florida has been to keep pace with this growth. The number of additional people - an average of 822 new residents per day over the past decade, combined with a 149% increase in drivers and a 177% increase in registered vehicles - has created suburban sprawl and an inadequate transportation infrastructure in the rapid growth areas. A growth rate of nearly 600 persons per day is forecasted through the year 2020. Compounding the impact of the implied travel demand growth of these statistics is the unique settlement patterns. Much of the growth continues in the southern part of the State, and statewide, 80% of the population lives in proximity to the sea coasts. Much of Florida's economy is based on tourism. But the State's thriving tourist sector also creates its own travel demand, thus adding to congestion and accessibility problems.

In response to these tremendous changes, Florida has recognized a need to address planning issues in a comprehensive fashion. The State developed a new planning framework that includes:

- New comprehensive planning and growth management laws, requiring each level of government to prepare plans, including transportation elements, which meet the management concurrency requirements.
- More than 500 local and regional jurisdictions are preparing plans. These identify the range of facilities, services, and policies proposed at the local level. As an initial step in the State planning process, FDOT mapped the local plans to evaluate their underlying policies and consistency between jurisdictions.
- Adopting its own State legislation that corresponds to ISTEA. The Florida legislation requires FDOT to prepare goals and objectives for the development of the State transportation system and to prepare statewide plans.

Approach
Florida's overall approach is illustrated in the following exhibit. The approach to developing the statewide plan is described in five overall steps. Public involvement was part of each step.

Step 1 - Establish Future Directions of the Transportation System. Florida began with a review of the State and Federal laws and policies. This review was coupled with an initial public involvement program and a review of FDOT's transportation partners plans, as well as current State goals and objectives. The State then analyzed the setting by documenting and examining trends for growth, environment, and transportation system performance. With the setting documented, FDOT developed an understanding of key issues and possible alternative policy directions. The issues and policies were evaluated and the State adopted new goals and policies.

Step 2 - Development of the Florida Transportation Plan . At the State level, FDOT developed modal plans encompassing all surface modes and air. The process for development of the modal plans was keyed from the identification of statewide corridors, which encompass intermodal facilities and major passenger and freight corridors. The statewide system then was comprised of a mix of facility types. Then, multi-modal options were determined through a special planning process.

Step 3 - Development of Regional and Local Plans. In this step the State prepared regional analysis tools for multi-modal and intermodal planning. The regional agencies then worked with local governments to prepare small area plans, and develop plans for congestion management, systems management, and capital improvements. At this stage, regional analysis was conducted to determine multimodal and intermodal elements within the regions.

Step 4 - Adopt Programs and Budgets. A bottom up approach to programs and budgets was undertaken. Local programs drawn from the long range plans are prepared along with the programs from partners in the process. Continuing differences between local and State plan were reconciled at this point. Through combination, and input from FDOT, MPOs prepare the TIP. From the assembled TIPs, FDOT prepares the STIP.

Step 5 - Provide Facilities and Service. The State continues in its approach of providing assistance to transit providers, other partners, and managing its own facilities.

Facility Issues - Florida is taking a special interest in facility issues. The focus of the FDOT's intermodal planning effort is on the provision of adequate intermodal facilities to address the transference of goods and people from one mode to another. Within Step 2 as described on the previous page, Florida has conducted a special intermodal planning process. The process includes preparation of forecasts of demand, and the identification of needs, the identification of strategies, policies, and actions to develop intermodal facilities.

MPO and Local Government Role - Within Step 3, Florida has worked with others on the State planning process. Roles and responsibilities for FDOT and MPOs are identified. The MPO sizes range from population in the millions to several newly created MPOs as a result of the 1990 census. Communication between the State staff and the MPO is aided through a standing advisory council. The way the MPO relates to the State and local governments is established through statewide comprehensive planning and growth management laws. Additionally, specific responsibilities are identified between planning functional units in the FDOT so that communication with MPO and local governments is aided. As a start to the planning process, FDOT simply incorporated each MPO plan into the State inventory process. Should there be conflicts between the State plan and these local plans, a resolution process is undertaken.

ISTEA Requirements

ISTEA requires that the planning process, in order to be cooperative, address such elements as coordination with MPOs. Among these elements are relations with MPO planning, forecasting, consideration for the existing intermodal facilities, and where necessary, conflict resolution procedures. The Florida effort fulfills these requirements and is an example of an organized approach to integrate the issues and needs of interest groups into a multi-modal planning process.

Value
The effort is valuable. FDOT took an approach to outline a process of cooperative planning, developing an understanding of the tools required to accomplish the objectives and to recognize the contribution of interest groups to the planning process. It is an example of a technique for cooperative intermodal planning.

Administrative Implications
The planning effort required a significant commitment of State resources. The effort involved DOT planning staff, district office staff, local and regional planning staff, and consultants. This effort has been expended while other duties have continued.

Adaptability
The process is adaptable to other States. The technique of incorporating local and regional plans into the State planning base, combined with an intermodal planning process, has caused non-highway projects of statewide significance to be incorporated into the long-range plan and into a program of early action items. These projects include a high speed rail proposal.

Cautions
Florida has its own ISTEA-type legislation at the State level. This, combined with an ever burgeoning population growth, has given momentum to intermodal planning since many transportation facilities in the State have capacity operational problems. Because of the State legislation and increased demand from the rapidly growing population, other

States may not find Florida's technique directly transferable but will still be able to adopt the approach used to statewide transportation planning.

Further Information

Mr. Terry Kraft
FDOT Office of Policy Planning
605 Suwannee Street, MS 28
Tallahassee, FL 32399-0450
Telephone: (904) 488-8006

Coordination (Statewide/MPO)
Iowa Statewide Transportation Planning Process

State Setting

Iowa has over 112,000 miles of road and over 25,000 bridges in its highway and road system. Traffic on this system ranges from less than 50 vehicles per day to over 90,000. About one-third of the road system is paved. In addition to the regular system designations of National Highway System (NHS) and Surface Transportation Program (STP), Iowa has also designated a Commercial and Industrial Network (CIN) which is comprised of 2,330 miles of primary highways that connect the State's regional growth areas and carry a significant amount of the State's commercial traffic. The CIN does not include the interstate system.

All indices of highway travel continue to increase in Iowa. Vehicle miles traveled (VMT), truck tonnage, and average daily traffic continue to grow throughout the State. While the total number of miles of railway has stabilized in recent years, the tonnage of freight continues to grow. In contrast, Amtrak rail ridership has gradually decreased since 1985. Iowa shares important waterway freight transportation systems on the Mississippi and Missouri Rivers. Freight tonnage on the system fluctuates substantially from year to year. The Iowa transportation system also includes airports and pipelines, which fulfill a critical niche.

Iowa DOT has previously prepared statewide multi-modal transportation plans. The plans provided policy direction rather than recommendations for specific improvements. Based on this multi-modal policy framework, Iowa DOT historically has evaluated needs and improvements on a modal basis. Iowa has continued to update these modal plans periodically. While these plans primarily focused on each mode, they did begin with a common set of goals, data, and economic analysis. The aim of the new planning process under ISTEA is to bring these plans into an intermodal linked framework so that the entire system will be energy efficient, environmentally responsible, and financially feasible.

Approach

Iowa's Department of Transportation Staff and Commission developed a planning process to be followed in addressing the statewide plan. While the State already had regional planning groups and MPOs, the Commission allowed counties to form new regional planning affiliations (RPAs) for the purpose of developing the regional plans and program and input into the State plan. This gave counties an ability to address State planning issues from a more regional perspective than just as a single county or community. RPAs were given great latitude in developing their own goals, policies, and priorities. The process the Iowa DOT has undertaken consists of the following steps:

! As an introduction of the statewide transportation planning process to the MPOs and RPAs, Iowa conducted a series of informational/educational workshops for MPO/RPA staff. Workshops were then conducted in each of the 18 RPAs across the State and held with their policy and technical committees. The important aims of these meetings were to discuss the role of the regions in the planning process and to begin to develop a partnership in the development of the statewide plan.

! Establish a committee to advise the State on long-range planning issues. The committee included providers, users, public officials, and others affected by the transportation system. The committee focused on identifying priority issues to be addressed in developing the long-range plan. Committee meetings provided a forum for interchange of ideas and also required that Iowa DOT staff brief the participants of Federal procedures in funding and planning.

! Work with the State plan advisory committee to identify issues and finalize the statewide plan outline.

! Conduct a series of initial public listening meetings throughout the State to hear the concerns of the public and interest groups. Informational open houses were held prior to the meetings. Iowa DOT facilitators, DOT staff, and RPA/MPO staff hosted the meetings.

! Prepare a multi-modal fact book reporting on statistics for all modes of Iowa transportation. The fact book has been used as a resource for the State plan advisory committee, the regions, and the public.

! Conduct modal plan reviews and updates.

! Conduct second and third rounds of public meetings to inform and discuss the results and directions of the continuous planning process.

! Prepare the draft plan for commission review and finalize the plan based upon commission and public input.

Facility Issues - The Iowa modal plans cover the range of travel modes including highway, highway transit, rail freight, rail passenger, air, waterways, and pipelines. The plans deal with the land-side of airport travel demand, and the recreational aspects of travel through its program of scenic byway systems and coordination with tourism groups. Iowa has few military facilities, national parks, or national monuments that attract substantial visitation.

Forecast Models - The State does all the transportation demand forecasting. Traditional forecasting is limited to the MPO models since these are the areas of the State that demonstrate the most dynamics of economics, population, and travel demand. No statewide models are currently being used. The DOT helps the MPOs and the RPAs to deal with growth and development issues but these are viewed as principally the responsibility of the local government.

MPO and Local Government Role - The role of the MPOs and RPAs is critical to the Iowa approach. The planning process is essentially bottom up with top down identification of some constraints, such as funding forecasts. Iowa DOT staff were assigned to each RPA to assist in their efforts, to help deal with coordination issues

between regions, and with the overall mission and directions of Iowa DOT planning. Additionally, Iowa DOT does the forecasting of future State highway travel demand for each of the regions; thus, a continuity of procedures and emphasis follows through from one region to another.

The MPOs, RPAs, and Iowa DOT have conducted training workshops to exchange ideas and to learn the procedures and underlying policies of ISTEA. These workshops were chaired by Iowa DOT staff and focused on planning and project programming issues. Part of the process was making each region familiar with ISTEA and Federal program terminology, and aware of funding limitations for the many transportation programs.

Additional MPO training sessions were held on the subject of management systems. The MPOs serve on committees for each management system.

Goods Movements - Iowa has used Reebie data (proprietary database for the origin and destination of commodity movements) to aid in addressing goods movements issues and commercial vehicle needs. The DOT is addressing intermodal coordination on a policy and corridor basis.

ISTEA Requirements

ISTEA requires that the planning process, in order to be cooperative, address such elements as coordination with MPOs. Among the elements are relations with MPO planning, forecasting, consideration for the existing intermodal facilities, and where necessary, conflict resolution procedures. The Iowa effort is a continuing process that addresses Iowa's current transportation situation, and develops a framework for ongoing multi and intermodal planning.

Value

The approach is valuable. Iowa DOT took an approach to create a method whereby local governments could have their interests represented through specially organized organizations, while at the same time take advantage of the past background of multi-modal planning. In the spirit of ISTEA, the process is far more bottom up than previously done. This cooperation, along with a public involvement program incorporating innovative communication, has created a new openness in the process, which was an aim of Iowa DOT. The approach of providing an Iowa DOT staff planner to each RPA and MPO also helped them coordinate and communicate effectively.

Administrative Implications

The planning effort required a significant commitment of State resources. The effort involved DOT planning staff, district office staff, local and regional planning staff, and consultants. This effort has been expended while other duties have continued.

Adaptability

The process is adaptable to States that have or are developing individual modal plans as a step in the State plan. Still other States may be using a bottom up approach whereby regions develop plans and provide input into the statewide plan. Iowa's approach in this instances has been to provide guidance through workshops, staff involvement, and coordination. This has assured consistent direction and early resolution of conflicts.

Cautions

Iowa has a strong history of multi-modal plan development. The process of establishing regional planning affiliations was time and schedule consuming. Since many in these regions had little on no prior experience in ISTEA issues, much effort was expended in educating the participants.

Further Information

Mr. Stan Peterson
Office of Advance Planning
Programming and Planning Division
Iowa Department of Transportation
800 Lincoln Way
Ames, IA 50010
Telephone: (515) 239-1386

II. Form and Content

Statewide planning should be done in a fashion that considers long range needs, addresses scenarios and modes, and can be integrated with the State transportation improvement program process (STIP). Each State is developing procedures and programs to address these elements. The following case studies demonstrate how States are now addressing form and content in planning efforts.

Form and Content
Florida Statewide Transportation Planning Process

State Setting
For many years, Florida's increasing population growth has created transportation problems. The challenge to Florida has been to keep pace with this growth. The number of additional people - an average of 822 new residents per day over the past decade, combined with a 149% increase in drivers and a 177% increase in registered vehicles - has created suburban sprawl and an inadequate transportation infrastructure in the rapid growth areas. A growth rate of nearly 600 persons per day is forecasted through the year 2020. Compounding the impact of the implied travel demand growth of these statistics is the unique settlement patterns. Much of the growth continues in the southern part of the State, and statewide, 80% of the population lives proximate to the sea coasts. Much of Florida's economy is based on tourism. But the State's thriving tourist sector also creates its own travel demand, thus adding to congestion and accessibility problems.

In response to these tremendous changes, Florida has recognized a need to address planning issues in a comprehensive fashion. The State developed a new planning framework that includes:

- New comprehensive planning and growth management laws, requiring each level of government to prepare plans, including transportation elements, which meet the management concurrency requirements.
- More than 500 local and regional jurisdictions are preparing plans. These identify the range of facilities, services, and policies proposed at the local level. As an initial step in the State planning process, FDOT mapped the local plans to evaluate their underlying policies and consistency between jurisdictions.
- Adopting its own State legislation that corresponds to ISTEA. The Florida legislation requires FDOT to prepare goals and objectives for the development of the State transportation system and to prepare statewide plans.

Approach
Florida's overall approach is illustrated in the following exhibit. The approach to developing the statewide plan is described in five overall steps. Public involvement was part of each step.

Step 1 - Establish Future Directions of the Transportation System. Florida began with a review of the State and Federal laws and policies. This review was coupled with an initial public involvement program and a review of FDOT's transportation partners plans, as well as current State goals and objectives. The State then analyzed the setting by documenting and examining trends for growth, environment, and transportation system performance. With the setting documented, FDOT developed an understanding of key issues and possible alternative policy directions. The issues and policies were evaluated and the State adopted new goals and policies.

Step 2 - Development of the Florida Transportation Plan. At the State level, FDOT developed modal plans encompassing all surface modes and air. The process for development of the modal plans was keyed from the identification of statewide corridors, which encompass intermodal facilities and major passenger and freight corridors. The statewide system then was comprised of a mix of facility types. Then, multi-modal options were determined through a special planning process.

Step 3 - Development of Regional and Local Plans. In this step the State prepared regional analysis tools for multi-modal and intermodal planning. The regional agencies then worked with local governments to prepare small area plans, and develop plans for congestion management, systems management, and capital improvements. At this stage, regional analysis was conducted to determine multimodal and intermodal elements within the regions.

Step 4 - Adopt Programs and Budgets. A bottom up approach to programs and budgets was undertaken. Local programs drawn from the long range plans are prepared along with the programs from partners in the process. Continuing differences between local and State plan were reconciled at this point. Through combination, and input from FDOT, MPOs prepare the TIP. From the assembled TIPs, FDOT prepares the STIP.

Step 5 - Provide Facilities and Service. The State continues in its approach of providing assistance to transit providers, other partners, and managing its own facilities.

Forecast Models and Long Range Needs - Florida is updating its statewide highway forecast model to incorporate other modes. The model will include the standard auto, truck, and inter and intracity public transit modes. Air travel will be modeled and airport ground side demand simulated as special generators. The model will also address high speed rail and Amtrak service. Freight movements will also be modeled. Bicycle and pedestrian movements will not be modeled. The following table illustrates the relationship of the State model to urban area models. The left column illustrates the mode to be modeled and the center and right columns illustrate the relationship. The intent is to provide for the capability for forecasted values of trip making to be directly imported into urban models as external stations and special generators (depending upon mode). Each urban area could use these "external" values in the urban area model to the extent that it applies.

Since the model is not yet operational, sketch planning procedures and spreadsheet analysis tools have been developed for use.

Goods Movements - Truck, rail, port, and pipeline movement for selected commodities are to be modeled on a spreadsheet calculation basis. This is not included in the highway network model because an extensive database is required that is not readily compatible with highway models. A commodity base is expected to serve as a useful way to simulate freight movement flows. The categories include agriculture, chemicals, construction equipment, construction materials, manufacturing, miscellaneous service, and waste. Needs for adequate goods movements are normally generated from MPO planning analysis, where the additive affect of people transport and freight transport demand creates a joint need for facility improvement. Presently many urban areas do not have sophisticated multi-modal planning models in place. Hence, Florida will continue to address the assessment of needs for goods movements in a traditional way until such time as improvements can be made.

STIP Process

Florida has a refined process by which projects are initiated and progress from planning and programming to construction. Annually, Florida develops a five-year work program, which shows each project from inception through construction.

Each MPO and county selects projects in their jurisdiction for inclusion into the work program. The MPO and the State hold a series of public meetings and hearings to solicit input into the project selection process. A hearing is held in every county. After the series of hearings, a tentative work program is submitted to the State legislature for funding. Even though the work program is for five years, the legislature only approves the first year. Through this process, if a project is "questioned," the transportation commission is required to review the project issues. Should a satisfactory solution not be found, then the State conflict resolution center would be called upon to assist in resolution. However, since most projects are generated at the local level with the benefit of substantial public input, conflict at this point in the process is rare.

Prior to submission of the work program to the legislature, the program is balanced to the expected cash available. Identification of the available funds results from a funding conference involving State officials.

ISTEA Requirements

Florida is addressing the requirements of ISTEA in the areas related to form and content.

Value

The effort is valuable. FDOT took an approach to outline a method of accomplishing multimodal planning and a special effort for intermodal planning. Models are being developed and the policy and planning process is bringing new projects of statewide significance to the forefront, such as high speed rail.

Administrative Implications
The planning effort required a significant commitment of State resources. The effort involved DOT planning staff, district office staff, local and regional planning staff, and consultants. Approximately 16 full time equivalent FDOT staff have been devoted to the effort. A consultant has been retained to assist in the development of models, and another to assist the planning effort through assignments of specific staff.

Adaptability
Much of the process is adaptable to other States. The models that are under development will contribute to an understanding of procedures for estimating freight movements and the importance of intermodal planning. The Florida STIP process is illustrative of how an existing process of developing improvement programs can accommodate the requirements of ISTEA.

Cautions
Florida has its own State legislation that corresponds to ISTEA. This, combined with an ever burgeoning population growth, has provided momentum to intermodal planning since many transportation facilities in the State have capacity operational problems. Other States may not likely be in this situation.

Further Information
Mr. Terry Kraft
FDOT Office of Policy Planning
605 Suwannee Street, MS 28
Tallahassee, FL 32399-0450
Telephone: (904) 488-8006

Form and Content
Texas Statewide Transportation Planning Process

State Setting
In 1991 the Texas Legislature merged the Department of Aviation, the Texas Motor Vehicle Commission, and the Department of Highways and Public Transportation to form the Texas Department of Transportation (TxDOT). The department was assigned responsibilities for aviation, highways, limited public transportation, the Gulf Intracoastal Waterway, and high speed rail. The same legislation that established the DOT also required the department to develop a statewide transportation plan and to enter into memorandums of understanding with other State agencies regarding transportation services planning.

The Texas DOT has capacity for more than 15,000 full time equivalent employees. This staff is responsible for nearly 77,000 State highway miles, inspection and maintenance of over 33,000 bridges on the State system, replacement and rehabilitation of over 14,500 bridges not on the State system, and providing technical assistance to 240 communities across the State relating to building, maintenance, and upgrading of general aviation airports. Other duties are related to the Gulf Intracoastal Waterway and motor vehicle permitting and registration.

Prior to the 1991 State legislation reorganizing the department and the passage of ISTEA, Texas had no long range statewide transportation planning and currently has limited long range statewide transportation planning staff. The statewide transportation plan as proposed will consist of a policy document to be finalized by January 1, 1995, followed by a technical report identifying major travel and investment corridors and outlining investment strategies to be used over the life of the plan later in 1995. These investment strategies will be based on a series of performance measures currently under development.

Approach

Forecasting
TxDOT has overall responsibility for all travel demand forecasting in the State. Larger MPOs maintain regional models and provide output to TxDOT for review. The State has developed the “Texas Model” for statewide forecasting, while engineering districts and MPOs operate TranPlan for alternatives evaluations.

Modal Diversity
The statewide transportation plan will focus on improving connections between modes. Modes included in the plan are air, rail, highway, transit, bicycle, pedestrian, water, pipeline, and telecommunications. The plan will define major transportation corridors and develop standards for each facility type to be evaluated in the corridor. These standards will provide an objective set of criteria by which transportation investment decisions can

be based. The standards will function as project selection criteria to be used in ranking and prioritizing projects across the State.

Statewide Transportation Improvement Program (STIP) Integration

The statewide transportation plan is not intended to be a programming document. Through the establishment of performance measures and project selection criteria, the plan will present the process by which project programming will be based. As each STIP is prepared, proposed projects will be evaluated based on the criteria established in the plan. The exhibit on the following page is an example of the format of previous STIP documents. It is intended that the statewide plan be updated annually and the performance measures and project selection criteria be evaluated and modified if needed within each update. Periodic review of the performance measures and project selection criteria provides the flexibility required of an effective long range plan. Annual review may be too frequent to test investment decision assumptions.

ISTEA Requirements

The process appears to provide for the long range transportation planning needs of the State. Responsibility for travel demand forecasting rests with the State and district engineering offices to assure consistent use of assumptions and evaluation of results. Every transportation mode operated in the State will be addressed with accompanying performance measures in the plan. Finally, the plan provides the framework from which project programming for the STIP is to be based. This final point is important in a State as diverse and expansive as Texas to assure objective distribution of transportation funds.

Value

The Texas approach provides an example of integrating long range planning with short term programming. Through definition of major transportation corridors, performance measures, and project selection criteria, Texas is developing the statewide transportation plan as a tool to assist in investment decision making. The plan provides a statewide vision and direction for long term transportation investments without limiting options to specific projects.

Administrative Implications

TxDOT is governed by a three-member Transportation Commission appointed by the governor. This commission develops agency policy and oversees the agency. The executive director is responsible for the daily operation of the agency. The agency is divided into twenty-five engineering districts across the State. District engineers play a significant role in relating State policy to local officials.

As part of an agency reorganization in early 1994, the department initiated three projects in direct response to the 1991 State transportation legislation and ISTEA: initiate a strategic plan; develop a statewide transportation plan; and “re-tool” the entire department by analyzing it from a business perspective. Through these three efforts,

combined with other new initiatives, the department envisions a transition to a total internal and external customer service organization meeting the transportation needs of the entire State of Texas.

A consultant team has been retained to develop the statewide transportation plan. The team and plan development are overseen by one full time TxDOT staff person with assistance from three other staff members contributing less than 20% of their time to the project. Consultant budget for the development of the plan is $1,700,000, of which $500,000 is expected to be spent in 1995 for plan revision. It is expected that two staff positions will be added in 1995 to help in the continued maintenance of the plan. Total resources expended in 1994 (including TxDOT staff and consultant budget) are estimated at $1,300,000. 1995 expenses are estimated at $700,000 for a total development cost of $2,000,000.

Adaptability

This effort can easily be adapted by other States. TxDOT has been fortunate in having the support of the State legislature in the transportation plan's development, but other State departments of transportation should be able to utilize the same process-based approach to statewide transportation planning with or without equivalent legislative support. As discussed above, a process-based plan provides flexibility that a programming-based plan may not. This type of approach is most effective where transportation system needs have not been demonstrated to the level required for evaluation of alternatives. As stated earlier, the Texas approach provides direction without attempting to program projects before the problem has been adequately defined.

Cautions

Annual review and manipulation of the project evaluation criteria and performance measures may be too frequent to provide a historical measure of the effectiveness of policy and funding decisions. There do not appear to be any other cautions in the Texas approach to addressing the statewide planning factors related to form and content.

Further information

Jack Foster
Transportation Planning and Programming Division
Texas Department of Transportation
P.O. Box 5051
Austin, Texas 78763-5051
Telephone: (512) 465-7466 / Facsimile: (512) 467-3952

III. Comprehensive Transportation Planning

Good transportation planning recognizes that transportation is fundamental to all facets of human endeavor. Every person and every business is a "customer" of the transportation system. In turn, every action by a government or private enterprise in a minor or major way affects the transportation system. At the same time, the actions undertaken by transport system providers influence the response by users of the transportation system. As a result, transportation planning is made better by being more comprehensive in its coverage and understanding of basic relationships.

Among the different contributing factors associated with comprehensive planning are land use issues, transportation modes included in the planning process, and planning efforts used to preserve investments. The following case studies demonstrate comprehensive planning efforts.

Comprehensive Transportation Planning
Washington Statewide Transportation Planning Process

State Setting
In 1990, the Washington State Legislature adopted a Growth Management Act. This act establishes a bottom-up approach to land use and transportation planning in the State.

The Act requires local jurisdictions to adopt comprehensive plans inclusive of:

- A land use element designating a proposed land use distribution plan;
- A housing element recognizing the vitality and character of established residential neighborhoods;
- A capital facilities plan element inventorying existing public capital facilities and projecting future needs;
- A utilities element inventorying existing and proposed utilities including, but not limited to, electric, telecommunication, and natural gas lines;
- A rural element designating non-urban growth lands and natural resources; and
- A transportation element that implements and is consistent with the land use element.

The transportation element of the comprehensive plan must provide sufficient capacity and provide for appropriate levels of service as required by the land use element. As a minimum, the transportation element must include sub-elements outlining land use assumptions used in estimating travel; inventories of modal facilities; level of service standards for all arterials and transit routes; requirements for bringing substandard facilities to minimum level of service standards; minimum ten year traffic forecasts; identification of system expansion needs and system management needs; a comprehensive financing plan; intergovernmental coordination efforts; and demand management strategies.

In addition to the comprehensive plan requirements, the Act also requires development of six-year transportation improvement programs and development of regional transportation plans. The State department of transportation (WSDOT) is charged with developing standards for the regional transportation plans in cooperation with regional transportation planning organizations (RTPOs), facilitating coordination between RTPOs, and identifying and jointly planning improvements and strategies within corridors important to people and goods movement on a regional or statewide basis. The regional transportation plans must be consistent with the local transportation plans and the statewide transportation plan.

The statewide transportation planning legislation passed in 1993 outlines the role of WSDOT and provides specific guidance on statewide transportation planning. The act requires WSDOT to prepare a transportation policy plan, a statewide multimodal transportation plan (same as the ISTEA statewide transportation plan) and several modal specific plans. As specified in the legislation, the statewide multimodal transportation plan will consist of two components: a "State-owned" component guiding State investment for highways, bicycle and pedestrian facilities, and State ferries; and a "State-interest" component defining the State interest in aviation, marine ports and navigation, freight rail, intercity passenger rail, bicycle transportation and pedestrian walkways, and public transportation. The State-interest component also will recommend actions in coordination with appropriate public and private transportation providers to ensure that the State interest in these transportation modes is met. The relationship between the various local, regional, and State plans to the programming process is illustrated in the following exhibit.

Approach

Comprehensive transportation planning includes those planning factors identified in ISTEA addressing land use issues, modal coverage, and protection of transportation investment. The approach followed by Washington is inclusive of elements specifically addressing these factors.

Land Use Issues

Through the growth management act, the statewide transportation plan must be directly consistent with the transportation elements of the local comprehensive plans and the regional transportation plans. The base factor in the entire transportation planning process in the State is the local comprehensive plan. The growth management act specifically States that the transportation elements of the comprehensive plans must be developed consistently with the land use element and must provide for a level of service consistent with the land use assumptions. Through this process, land use issues are resolved at the local level.

Land use decisions will also drive future travel forecasts used for the statewide plan. The interim final Statewide Multimodal Transportation Plan states that future travel forecasts will be land use based and generated by the regional transportation planning organizations.

Modal Coverage

The 1993 statewide transportation planning legislation outlines how the statewide transportation plan will be developed. Within this legislation are directives for addressing various modes determined to be of statewide significance. The legislation requires development of a statewide multimodal transportation plan, a transportation policy plan, and several mode-specific plans. Within the statewide multimodal transportation plan, WSDOT must develop policy to guide State investment for State highways, bicycle and pedestrian facilities, and the State ferry system as part of the State-owned facilities component. The state-interest component will define the State's interest in aviation, marine ports and navigation, freight rail, intercity passenger rail, bicycle transportation and pedestrian walkways, public transportation, and recommend actions in coordination with providers to ensure that State interests in these modes are met.

The mode specific plans being prepared as part of the statewide transportation planning process are as follows:

- Aviation Plan - coordinate statewide aviation planning and identify program needs for public use and State airports;
- Marine Ports and Navigation Plan - assess the transportation needs of the State's marine ports, including navigation, and identify transportation system improvements needs to support international trade and economic development;
- Freight Rail Plan - identify mainline issues and corridors subject to potential abandonment, establish service or line preservation criteria, recommend priorities for distribution of State rail assistance and State rail banking program funds, and identify existing intercity rail rights-of-way that should be preserved for future transportation use;
- Intercity Passenger Rail Plan - analyze and recommend improvements to existing service including depot improvements, potential service expansions, and ways to achieve higher train speeds;
- Bicycle Transportation and Pedestrian Walkways Plan - propose a statewide strategy for addressing bicycle and pedestrian transportation, including integration of bicycle and pedestrian pathways with other transportation modes, intergovernmental coordination in the provision of such facilities, the role of such facilities in reducing traffic congestion, and an assessment of statewide bicycle and pedestrian transportation needs; and the
- Public Transportation Plan - articulating the State vision and providing quantifiable objectives and benefit indicators, identifying public transportation goals, recommending mechanisms for intergovernmental coordination in planning for public transportation and coordinating public transportation with other transportation services and modes, recommending criteria for existing Federal authorizations administered by WSDOT to transit agencies, and recommending a statewide public transportation facilities and equipment management system.

Throughout the transportation planning process, from the local transportation plan

elements of the comprehensive plans to the statewide transportation plan, emphasis is placed on identification and analysis of potential multimodal connections. Specific connections include interfaces between ports and freight rail, HOV facility connections with public transportation, and bicycle and pedestrian connections with public transportation and intercity passenger rail.

Protection of Transportation Investment

A major element of the State-owned facilities component of the statewide multimodal transportation plan is the system preservation element. This element will establish structural preservation objectives for the State highway and bridge system. Current and future structural deficiencies will be identified and recommended funding levels will be proposed along with specific actions needed to preserve the structural integrity of the State highway system. This element will drive the preservation component of the STIP and biennial WSDOT budget request to the State legislature.

ISTEA Requirements

The WSDOT planning process outlines a program to meet ISTEA statewide transportation planning factors related to land use, modal coverage and protection of existing transportation investments. By State law, land use issues are addressed at the local level through the comprehensive planning process. All local, regional, and State transportation plans must be prepared in a consistent manner with the land use assumptions contained in the various comprehensive plans. The separate modal plans being prepared as part of the statewide multimodal transportation plan will address issues of State concern related to the specific modes, and outline procedures to be followed to assure State needs are integrated into future planning efforts by the modal owners and operators. Finally, specific objectives will be defined to assure the continued protection of existing State highway facilities.

Value

The Washington approach to statewide transportation planning places a great deal of emphasis on developing cooperative relationships between the State, local jurisdictions, and non State-owned facility owners and operators. The synergistic effect of bringing these groups together and cooperatively proposing solutions to the State's integrated transportation system needs should prove an effective means of benefiting all interests. By seeking to coordinate the planning of systems outside the State's jurisdiction with systems owned by the State and not attempting to control, but guide development of the various other modes, the statewide transportation system is expected to develop into an almost seamless multimodal network capable of efficiently moving people and goods.

Administrative Implications

The Washington State Transportation Commission consists of seven members appointed by the governor. This commission is responsible for recommending statewide transportation policy to the legislature, adopting the statewide transportation plan, and guiding the State's transportation program. The statewide transportation plan itself is

developed by the Planning and Programming Service Center (PPSC) of the State Department of Transportation. The PPSC prepares the plan in cooperation with representatives from modal specific divisions of the department and input from district offices. Total budget in FY 1994-1995 (July 1, 1993 - June 30, 1995) for development of the Statewide Multimodal Transportation Plan is $5,776,000.

Adaptability

Adaptation of the Washington approach to comprehensive transportation planning may prove difficult for those States lacking mandated land use planning and coordinated transportation planning. Flexibility of the Washington process is also limited by the bottom-up approach to transportation planning. The process is most effective when supported by State legislation.

Cautions

The only formal link between the statewide multimodal transportation plan and the transportation elements of the local comprehensive plans is the regional transportation plans. The regional transportation plans are prepared by regional planning organizations under guidance provided by the State department of transportation. The legislation authorizing creation of the regional planning organizations states that the regional transportation plans must be consistent with the comprehensive plans and the statewide plan. In effect, when writing guidance for development of the regional plans, the State is limited to language that meets the needs of the various local plans as a primary goal and those of the State as a secondary goal.

In addition, the transportation elements of the comprehensive plans drive the transportation element. Future transportation plans must meet the needs of future land use recommendations without regard to capacity to provide the transportation services whether they be added highway capacity or public transportation.

Further information

Charles Howard
Washington State Department of Transportation
Planning and Programming Service Center
Transportation Building
P.O. Box 47300
Olympia, Washington 98504-7300
Telephone: (360) 705-7958 / Facsimile: (360) 705-6813

Comprehensive Transportation Planning
Wisconsin Statewide Transportation Planning Process

State Setting
Statewide transportation planning has been practiced for some time in Wisconsin. Planning in the past has been largely dominated by policy plans, State highway system plans, airport system plans, and rail policy plans. However, the plans were single mode in character, and coordination between modes in these planning efforts was minimal. ISTEA issued a call for a more intermodal and comprehensive approach to State transportation planning, to which Wisconsin has responded.

Wisconsin State policies and requirements reinforce the comprehensive nature of the Wisconsin transportation planning process. Wisconsin has its own environmental protection act (WEPA), modeled after the national act. In theory, all Wisconsin State agencies must prepare environmental evaluations of their plans, but in practice only the DOT does so. The DOT prepares a System Environmental Evaluation (SEE) to identify the cumulative environmental effects of the plan alternatives and proposals. Of course, The Wisconsin Department of Transportation (WisDOT) also prepares the traditional environmental impact statements for all projects in accordance with NEPA. The purpose of the SEE is to identify the cumulative effects of system plans that individual project EISs do not portray.

WisDOT has been mandated by a consent decree to complete its State intermodal planning on an accelerated basis. The planning process was required by July of 1994, six months earlier than the Federal deadlines. This, of course, has forced a compressed time to meet all ISTEA planning requirements in the accelerated schedule. Finally, Wisconsin supports an ombudsman in the Wisconsin Department of Justice, whose responsibility is to review certain activities of State agencies and intervene as appropriate. The Wisconsin Intervenor has taken an active interest in the WisDOT statewide planning process.

In addition to these legal responsibilities, there are other conditions that set the basis for statewide planning. These include the growth and development patterns similar in other States. This growth is largely focused in the urban areas. Within the urban areas, there is a pattern of lowering density in urban cores, coupled with low density in suburban and exurban fringe areas. These trends have increased the difficulty of serving the growing urban population with transit or high occupancy vehicles. This trend is likely to continue.

Approach
Wisconsin began its statewide planning process (Translinks 21) with the development of an organized approach to the entire planning effort. The plan is designed to have seven principal elements:

- A policy focus to evaluate key strategic issues; including land use, transit

strategies, environmental concerns, urban highways, induced travel, pricing impacts, demand management, and rural/specialized transportation;

- An MPO/DOT partnership for metropolitan planning, where the DOT provides financial, technical, and policy assistance to the MPOs. Guidance papers have been prepared for bicycle planning, pedestrian planning, public participation, access management, environmental evaluation, needs assessment, plan updates, and multimodal prioritization;
- An intercity multimodal passenger element beginning with statewide multimodal forecasts, determining modal shares based on alternate scenarios, and including consideration for rail passenger, intercity bus, air, high speed rail, and private vehicle personal travel;
- An intercity freight transportation element; beginning with statewide multimodal commodity flow forecasts, analysis of diversion potential by commodity, review by expert panels, and including consideration for freight rail, truck, waterborne, air, and intermodal freight transport;
- A financial element to structure plan financing implementation over 25 years, an evaluation of alternate funding sources, and the preparation of related financial information;
- A very extensive public information program with three primary stages:
- "Outreach" at the beginning of the planning process to inform the public of key issues and to identify their needs and priorities. In addition to numerous newsletters and discrete planning papers, nine major regional forums were conducted. Statewide forums on transit planning, freight, urban strategies, economic development, tourism, environmental concerns, and rural/specialized transportation were conducted;
- "Plan Alternatives" stage, organized to elicit public consideration of four major plan alternatives. Eighteen focus groups, ten regional open houses, and meetings with 35 different organizations were held. A video, newsletter, and plan alternative document were the primary means to provide the public with information on the four plan choices; and
- "Plan Selection" stage for final public review and comment on the draft statewide intermodal plan. Seventeen town meetings, two public hearings, and numerous meetings with public officials, business groups, and interested transportation associations were conducted. Again, a video, newsletter, and draft plan document were the key vehicles for public information. In addition to surveys of all meeting participants, a statewide, statistically valid telephone survey was conducted.
- Unique in the nation, WisDOT also prepares a SEE to identify the cumulative environmental effects of the proposed plan. This is in addition to the standard environmental impact statements for individual projects prepared in conjunction with project development.

Planning Features

One of the first steps was to collect information and public input. The public input

process had three distinct phases that related to major planning milestones. Techniques included regional and topical forums, newsletters, and public meetings. Regional forums addressed issues of greatest concern to each area of Wisconsin. The topical forums focused on issues such as "Transportation and the Environment," "Transit," "Transportation and Tourism," "Economic Development," and "Urban Transportation." The results of each forum topic were published in separate reports. An overall summary combining the critical findings of the forums also was prepared. Following the completion of the forums, expert panel group meetings, newsletters, and follow-up public meetings were used to provide further public input into the process.

The products of the forums, along with the issues analysis, led to a comprehensive understanding of the transportation issues that confront the State. The forums provided a focus for data collection and for the compilation of issue papers and instructions for planning at the metropolitan level. Some of the features associated with the "Comprehensive Transportation Planning" included the following:

Modal Coverage

- Developed a statewide model of freight movements to complement the person travel models. The freight movement model was based upon freight origin and destination surveys for which data were collected at the county level. The survey was reinforced with Reebie data. A consultant was retained to develop the model and to forecast future freight origin and destination travel.
- Other State models were enhanced through the comprehensive multi-modal preference survey which examined the preferences of travel mode for selected trip types. The preference surveys were administered to persons while on a trip so that preference issues would be fresh in their minds. 120 zones were used within the State, combined with zones external to the State to account for travel originating in or destined for areas outside of the State. The statewide model was built on a Transplan platform.
- Nine separate modes of travel are included in the analysis models including auto, air, rail, ferries, intercity bus, water, highway, air cargo, and rail. Planning for freight movements includes highways/trucking, water, air/cargo, and rail.
- The statewide model has the capability of supporting intermodal analysis for passenger versus auto and truck versus rail. The passenger model is intermodal and is capable of evaluating changes in travel behavior and mode, given different travel conditions. The mode is sensitive to factors such as change in cost, level of service, and travel time. For example, the model forecasted over 5,000,000 annual trips in the year 2020 if a high speed rail corridor were constructed between Chicago, Milwaukee, and the Twin Cities. On the other hand, the model did reinforce that the automobile is the backbone of the transportation system regardless of how much other modes are augmented.
- Expert panels comprised of key shippers are being used to gain information and data with respect to freight movements and the needs of the goods movement industry. The expert panel played a key role in refining intermodal forecasts

between rail and highway travel. The origin-destination database was expanded for growth through the year 2020. Then, based on panel input, criteria were established for baseline conditions required for train/truck intermodal operations. Enough intermodal freight to generate four 50 car trains per day of a minimum 500 miles was the baseline criterion. These criteria then were used to screen locations where intermodal patterns could occur. The plan uses this model to locate general areas where truck/rail intermodal facilities should be located. The WisDOT plan provides for loans to the private sector to establish these facilities.

Land Use Issues

WisDOT initiated the discussion of the relationship of land use and transportation through the publication of a policy paper titled "Transportation and Land Use." The paper addressed the interaction between transportation planning and land use planning and also explored the actual interaction between land use and transportation as policy alternatives.

The paper explored the following questions:

- What approach should WisDOT take to improve the coordination between State and regional transportation planning and local land use planning?
- What role should WisDOT play in facilitating local land use plan implementation?
- What should WisDOT's role be in achieving urban forms that support all modes of transportation?
- What sort of neighbor should WisDOT be and what sort of neighbor should WisDOT expect adjacent land uses to be?

The paper presents a range of policy alternatives, and packages the policies into groups. To help policy makers evaluate the appropriate course for the State, an evaluation of each of the strategies was presented. The draft long-range plan calls for an improved coordination between local planning and the State, the encouragement of local land use and transportation linked planning activities to be undertaken, the development of education materials to broaden the understanding of land-use and transportation issues, and the fostering of the concepts of good neighbors between land use and transportation facilities.

WisDOT has begun funding land use planning activities in special situations in two areas where the planning infrastructure is not up to the challenge of pending growth.

Protection of Transportation Investment

A statewide planning relationship between WisDOT and Metropolitan Planning Organizations (MPOs) was established. A number of guideline documents addressing issues were prepared so that each MPO would be able to address plan elements from a uniform basis. For example, the guideline titled "Corridor Preservation and Access Management Guidance" outlines available strategies, powers of implementation, problems in application, and the role of the MPO in assisting and advocating strategies

for access control and preservation. Other guidelines provide similar scales of suggested MPO practice.

ISTEA Requirements
ISTEA requires that the planning process address such elements as land use, protection of investment, and that it be intermodal. The WisDOT effort addresses each of these elements and has prepared or is in the process of preparing a set of planning and policy documents that comprehensively address a multitude of planning issues. In this area, Wisconsin's effort is comprehensive.

Value
The Wisconsin approach is comprehensive and is valuable. Among the most interesting areas is the method of addressing goods movements. This consists of expansion of the sources of information for origins and destination of goods movements followed by the development of database models for preparing forecasts. As this process and model structure becomes refined, its application could be of great value. Additionally, the policy papers and guidelines to MPO planning provide a valuable approach to dealing with difficult subjects. The policy papers outline alternatives and examine possible outcomes, thus allowing decision-makers to readily deal with policy implications.

Administrative Implications
WisDOT has made a significant commitment of planning staff to the statewide planning effort at the intercity level. Between 35 and 40 persons devoted a significant portion of their time to the statewide plan. Additionally, other senior WisDOT staff supports the planning effort from a management position. More staff are addressing planning issues at the MPO level. Wisconsin DOT has retained consultants to assist in the development of its plans. To support the general statewide effort, a consultant has been retained to develop models and software, another consultant contract provides general support for the planning process, and a third consultant is assisting in the development of an air systems plan. Total cost of consultant services is approximately $750,000.

ISTEA has created whole new planning responsibilities, terminology and administrative organizations. WisDOT planning staff has found that its responsibilities not only include actual planning but also education within and outside of the department. The time commitments required by meetings while also keeping the planning process going is difficult for the staff to maintain.

Adaptability
The WisDOT process can be adapted to other States as a technique. Particularly helpful may be products that can be borrowed from goods movement models to apply to other States.

Cautions
Experience generated from this process could be transferred to other locales; however,

procedures used in model development for goods movements may not be applicable to other States because of local conditions. Nevertheless, the ideas developed should generate new ideas in goods movement modeling.

Further Information

Mr. Roger Schrantz
Administrator, Division of Planning and Budget
Department of Transportation
4802 Sheboygan Avenue
Madison, Wisconsin 53707
Telephone: (608) 266-6479

IV. Management Systems

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) and subsequent rulemakings mandate the development of six State management systems and the Traffic Monitoring System for Highways (TMS/H). The six management systems include:

- Pavement (PMS)
- Bridge (BMS)
- Highway Safety (SMS)
- Traffic Congestion (CMS)
- Public Trans. Facilities & Equipment (PTMS)
- Intermodal Trans. Facilities & Systems (IMS)

States are responsible for developing and integrating these systems in coordination with MPOs, and, in the case of the PTMS system, in association with agencies receiving funds under the Federal Transit Act. The management and monitoring systems are intended to function as a group of integrated database and intelligence systems to improve the quality of information provided to decision-makers at the State and local levels and, therefore, to assist decision-makers in their efforts to improve the efficiency and safety of the transportation system. The following case studies demonstrate how States are integrating these systems into the statewide transportation planning process.

Management Systems
California Statewide Transportation Planning Process

State Setting

California has passed a variety of State legislation that affects transportation planning. Some of this legislation preceded ISTEA. Other components of the State's transportation regulatory framework follows Federal legislation and provides guidance on how to implement ISTEA's directives.

In 1972, California enacted legislation requiring establishment of comprehensive multi-modal transportation planning involving all levels of government and the private sector. Caltrans was established as a multi-modal State transportation agency. The State's Highway Commission, Toll Bridge Authority, and Aeronautics Board were consolidated into the California Transportation Commission (CTC). The legislature also created Regional Transportation Planning Agencies (RTPAs) for each of the State's 43 planning areas.

In 1989, the California legislature adopted the Transportation Blueprint for the 21st Century. The Blueprint lays out a process to carry existing legislative intent into the next century. The Blueprint provides policy direction, a financial plan and a planning process focused on congestion relief and interregional mobility. Voters ratified a related funding measure in 1990, providing $18.5 billion in additional revenues to implement a multi-modal transportation program over ten years. The Blueprint required urban

counties to develop congestion management programs (CMPs) as part of their regional transportation plans. The CMPs will provide a basis for the Federally required congestion management system.

California's Senate Bill (SB) 1435 was passed in 1992 in response to ISTEA. SB 1435 requires preparation of a long-range statewide transportation plan to define the State's transportation policies and system performance objectives.

A number of challenges face California as it contemplates its transportation system needs during the next twenty years. The State anticipates its population base will increase by 14 million people. Its employment base is expected to increase by one third. Almost two-thirds of the projected growth is anticipated to occur in the Los Angeles Basin and the San Francisco Bay Area, areas already beset by traffic congestion and air quality problems. Population and employment levels also are expected to increase in the mid section of the State, displacing agricultural activities.

Recent growth has significantly affected the State's transportation system and its ability to deliver transportation services. State environmental legislation as well as the provisions of ISTEA and the Clean Air Act Amendments of 1990 (CAAA) limit highway construction. Growth, coupled with high housing costs which push residential development further from traditional job centers, has significantly altered traffic patterns, decreasing the efficiency of existing highway corridors. Due to revenue limitations and the continued dispersion of population and employment centers, transit agencies have been hard pressed to develop effective alternatives to automobile travel. Interregional transportation alternatives are required to address reductions in intercity bus service.

Environmental concerns, growth pressures, and physical, regulatory, and financial limitations to expansion of the existing transportation system have given rise to increased interest in rail, urban mass transit, and other means of non-single occupant vehicle (SOV) travel. Increased use of these modes, on the one hand, begins to address some of the transportation problems faced by the State. At the same time, increased use of alternative modes and decreased SOV use makes traditional transportation funding sources - gasoline tax - less certain and less predictable. To address future funding needs, the Transportation Blueprint increased tax revenues and facilitated flexible transportation funding. Local agencies also have enacted transportation funding enhancements.

California includes 15 MPOs and 32 urbanized counties. Remaining counties are classified as rural. The State's transportation plan and management systems seek to balance the transportation needs of rural and urban areas. Rural Californians are concerned with agricultural and natural resource goods movement and tourist access and their effect on economic development. They are also concerned about access to transit and other needed services. Urban areas are concerned with congestion, and resulting effects on air quality, quality of life, and economic development.

Approach

California's statewide plan is a policy plan. SB 1435, the California law passed in 1992 that defined California's response to the planning requirements of ISTEA, stipulated that the plan should not be project specific. The California plan outlines a series of policies, strategies, actions, and recommendations for major initiatives to assist the State in meeting the challenges of the future.

Regional transportation planning agencies (RTPAs) are responsible for preparing regional transportation plans and programs. These regional plans integrate transportation plans of cities, counties, districts, private organizations, and State and Federal agencies. By law, the State's plan must incorporate the broad system concepts and strategies synthesized from the adopted regional transportation plans.

Development of the statewide plan was a bottom up process. The RTPAs were categorized into eight areas of the State. Each area was profiled and common issues were brought forth. Each RTPA was asked to identify the five most significant issues within their region. More than 50 public workshops were held and the draft plan was widely circulated for review and comment. Several advisory committees provided assistance in plan development as did the CTC and various State agencies. The plan includes a review of the State's transportation system and the major policies and objectives for the future system. Strategic actions are identified to address objectives.

Three major policy initiatives are included in the plan:

1. Promote the State's economic vitality by providing for flexibility in choice and mobility of people, goods, services and information.
2. Provide a safe, convenient, reliable transportation system.
3. Protect the environment and promote energy efficiency while improving mobility.

Three new initiatives are included in the plan. These include:

1. Convene a commission on California's transportation future to provide a clear sense of the administrative, legislative, and business policies required to implement the strategies delineated in the plan.
2. Develop a goods movement strategy for the State. Statutory and policy constraints presently limit the extent to which projects designed to improve goods movement efficiency can compete with passenger transportation projects. This recommendation seeks to establish strategies, authority, and flexible funding to integrate planning and improvements for goods movement needs in all transportation planning and programming functions.
3. Define and authorize the State's role beyond highways by identifying clear roles for all levels of government and service providers in non-highway modes and identify the institutional and funding structure required to implement these roles.

Systems Integration

Development of the Intermodal Transportation Management System (ITMS) and the statewide plan are being conducted through the Caltrans Division of Planning. There has been much interaction between staff responsible for developing the ITMS and those preparing the statewide plan to: 1) identify performance measures reflective of the plan's policies and objectives; and 2) to ensure that the data required to measure performance and develop performance standards are included in the management systems.

By State law, California's transportation plan must include transportation system performance objectives. A mechanism is required for tracking progress in achieving desired mobility, economic vitality, and environmental policies and objectives. Management systems are identified in California's plan as the vehicle through which performance measures should be developed and tracked. Management systems will provide a tool for structuring the plan's future system and performance objectives, for monitoring progress toward their achievement and, through monitoring, will indicate those transportation investments that lead to better systems performance. This information will be used to evaluate policy directives and to prioritize and select projects.

The ITMS management system will include two databases - a Geographic Information System (GIS) and a tabular database. The ITMS analytical methodology will use data from both systems in evaluating conditions and testing alternative solutions. These databases and accompanying analytics will be made available to regional, local, and private entities via Internet. Users outside of Caltrans will not have the option of changing data, but they can download the systems and perform their own queries. Spatial data will be available on CD Rom.

Regional planning agencies will be required to make use of management systems in preparing their plans and transportation improvement programs. Private users will have the option of utilizing the systems and will have direct access to the ITMS via Internet. Regional and private users are expected to add valuable insight to serve their unique requirements. This insight will be used in making future enhancements to the ITMS. Caltrans believes that by providing regional and private access to the ITMS, a forum will be established for making beneficial enhancements to the system and will encourage closer partnership planning.

Needs Assessment

A major purpose of the management systems is to provide a basis from which to monitor conditions and identify needs for improvement to the transportation system. Each of California's management systems is designed to accomplish this conditions assessment/needs identification requirement.

The needs assessment function will provide information back to the statewide planning

process regarding the types of improvements required to improve the efficiency of the transportation system as described above.

ISTEA Requirements

The ISTEA legislation requires that management systems be integrated into the planning process. Management systems are intended to provide a basis for transportation systems conditions analysis, needs assessment, and analytical tools for testing the efficacy of alternative means of addressing these needs. The overall intent of the management systems is to assist decision makers in their efforts to improve the efficiency and safety of, and protect the investment in, the nation's transportation infrastructure.

As part of its 1989 Transportation Blueprint, California established a requirement to develop congestion management programs (CMPs) at the regional level within all urban counties. The regional plan must include an adopted CMP. California has petitioned to have its CMP process certified as the State's CMS system, with congestion management planning addressed in non-urban counties through the statewide planning process. No final decision has been reached, but initial indications are that a number of modifications would be required to the CMP system before it could be certified by the FHWA.

At present, the CMP process considers level of service as the sole performance measure but, fails to adequately address mobility and only includes State highways and selected arterials identified by regional planning agencies. Thus, not all congested roadways are necessarily included in the process. Each of the 32 counties has developed a slightly different approach to congestion management. Each uses different standards and different methodologies.

Caltrans and its regional agencies are working together to ensure that the full intent of the CMS requirements are met through the planning process and the use and modification of the CMPs.

Value

Management systems will affect decisions made in the planning process by bringing additional information and new analytical tools to the decision-making process. Management systems will not alter the responsibility for identifying preferred policies or selecting projects. The availability and use of management systems will, however, influence policy development and the project priority and selection processes at both the State and regional level.

By making the systems available to the private sector, it is also hoped that management systems will affect private sector transportation decisions, resulting in better integration

of all transportation decisions and, ultimately, a more efficient transportation system. Making management systems available to the private sector may have other benefits including:

- Providing better insight into how the private sector makes decisions and what the State can provide to improve the efficiency of goods and people movements serviced by the private sector.
- Innovations and enhancements to the management systems that, if adopted by the State, could improve the functionality of the systems for all users.

Administrative Implications

California is using information already collected by the State and existing analytical systems to satisfy the Federal requirements. The State's existing PMS system will be enhanced at a cost of approximately $700,000 to meet Federal requirements. Approximately one third of California localities must still develop a PMS system, at an estimated total cost of $6 million.

California has applied to FHWA to certify the State's existing congestion management programs (CMPs) as satisfactory in meeting the minimum Federal CMS requirements. CMS requirements in rural areas will be addressed through the State planning process. No significant organizational changes are proposed if the CMP process is certified by the FHWA. Resource needs will be minimized by using the existing CMP and other elements of the planning and programming process.

The Pontis system is being used for the BMS, minimizing resources devoted to establishment and implementation of this system. The collection of additional data required by Pontis increased initial system inspection costs by 15 percent. Subsequent inspections for system maintenance are expected to require a marginal level of effort less than 15 percent.

The cost of the PTMS system is being minimized through use of secondary data that will be imported into an Oracle database. The State Controller's Office already collects data on revenues, expenditures, and non-financial operating data annually. To meet the Federal requirements, the data collection form used by the Controllers Office will be expanded to include information on revenue vehicles and transit facilities. The Controller's Office will record data in an ASCII format for export to Caltrans. Section 15 data also will provide information to the PTMS system. Excluding computer and network costs, approximately $1.9 million in consultant fees and $450,000 in staff time over a three-year period is being devoted to development of the ITMS.

A management systems coordinating advisory committee was established in 1992 and management systems coordinators have been designated for each district to encourage State and regional agencies to discuss common issues and concerns. A coordination

committee has been formed to eliminate overlap among the ITMS, PTMS, and CMS systems. Advisory committees were formed for each system to discuss system needs, user concerns, data availability, and other issues.

Adaptability

Many of the components of California's management system development effort are applicable to other States - the use of existing processes and coordination mechanisms to the extent that such processes are available, for example, or the use of secondary data already collected by Caltrans as the main source of information for the process. The approach to integration of management systems into the planning process - enhancing the information base from which decisions are made, rather than changing the responsibility for decision-making is highly transferrable. Management systems will be made available to the regions, local governments, and private entities. These other agencies are encouraged to modify the systems to address unique regional/local needs. This process of flexible enhancement by trial and error at the local level may appeal to many States - allowing testing of improvements to the system, while minimizing pilot program costs.

Cautions

Many States may not have the extensive data collection requirements already in place that California has. The capabilities of a system relying so heavily on existing data might thus not be as great as is possible in California. There are a number of considerations that must be taken into account in making the management systems available to users outside of a State. These include:

- Data security - not just within management systems, but also of other databases housed on the same hardware system. California's databases will be accessed via two data servers - one for in-house Caltrans users, and a second for external users. The external server will not have access to any other Caltrans databases.
- System response time - if many users are logged onto the same database, the system can become bogged down. Caltrans management systems databases will reside at an off-site data center, with a third party providing the Internet service.
- Training and customer service must be provided for regional, local, and private users.

For further information:

Ed Boyle, ITMS Project Manager
Office of Advanced System Planning
California Department of Transportation
Transportation Planning Program
1130 K Street / 4th Floor
Sacramento, CA 95814
Telephone: (916) 324-7563 / Facsimile: (916) 324-7427
Internet: eboyle@trmx3.dot.ca.gov

Management Systems
Colorado Statewide Transportation Planning Process

State Setting

In 1991, the Colorado State Legislature passed House Bill (HB) 91-1198, the legislation creating the Colorado Department of Transportation (CDOT) from what had formerly been the Department of Highways. Included within this legislation was a mandate to prepare a statewide transportation plan addressing all modes of transportation. The bill required establishment of Transportation Planning Regions to do transportation planning. A requirement to prepare mode-specific plans also was included in the legislation. Prior to the passage of HB 91-1198, Colorado had no statewide transportation planning requirement, no specific planning requirements for non-highway modes and no long-range planning requirements beyond the STIP time frame (five to six years).

The requirements of HB 91-1198 and ISTEA thus represent a departure from the status quo in Colorado, where transportation planning had previously focused on highway modes, with some effort to integrate rail needs in the overall planning process.

CDOT brought together stakeholders from around the State to define 15 Transportation Planning Regions and establish a process to respond to the requirements for developing a long-range, multi-modal transportation plan. Regional Planning Commissions were formed. Each Commission includes MPO representatives (in MPO regions) and local and county officials (in non-MPO regions). A State Transportation Advisory Committee (STAC) with one representative from each of the 15 planning regions and representatives from each of the State's two Indian Nations was formed to provide input to the statewide plan.

The planning process incorporates two primary components: planning and programming. Each component includes both bottom up and top down elements. Policy planning is conducted at the State level, with project planning conducted at the local and regional levels. Ultimately, project plans will be screened for conformity with statewide policies to develop a fiscally constrained program (not required by ISTEA) of projects for each region. The statewide planning process will address all modes of transport. Individual modal plans also will be prepared for non-highway modes. Findings and recommendations of the modal plans will be integrated into the final statewide plan. A major focus of Colorado's transport strategy is maintenance and enhancement of the existing system.

Colorado views the management systems as a tool for improving the quality of decisions at all levels of the planning process by providing an enhanced basis for:

- Development of investment, modal, maintenance and other policy decisions;

- Performance standard development;
- System / facility performance tracking;
- Project identification - sketch planning at the local and regional levels, including identifying relative effectiveness of various courses of action and specific projects;
- Project selection and prioritization;
- Performance monitoring - to evaluate the effect of policies, actions, and programs after implementation; and
- Refinement of policies and programs to better address needs.

The statewide planning function is housed within the Transportation Development Division of CDOT. The management systems group, with responsibility for development and implementation of the six plus one management systems, also is housed within the Transportation Development Division.

Approach

Colorado's statewide transport planning process incorporates several elements as illustrated in the following exhibit. The elements included in the plan are described below. The potential role of management systems in future updates to each of these elements is described.

Regional plans - Regional plans were developed by regional planning commissions working with local agencies, elected officials, citizens, local CDOT staff, and industry. The regional plans outline regional goals and objectives, mobility needs, and a twenty-year program of projects to address these needs. Each region then developed a fiscally constrained plan that prioritized projects by need, construction time frame, and anticipated available revenues. In developing a program of projects, the plans considered:

- Regional goals and objectives, developed through comprehensive regional public involvement programs;
- Existing and projected population and employment levels;
- Existing and anticipated travel demand;
- Environmental constraints and opportunities;
- The extent and condition of existing facilities; and
- In the constrained plan, anticipated revenue levels (local, State and Federal).

The plans serve as input to the statewide planning process, with the preferred plans incorporated into the statewide preferred plan and the constrained plans providing the starting point for the State's constrained plan.

CDOT plans to make management systems available to the regions and local entities to assist in the regional planning process by:

- Providing a sketch planning tool to test the effect of various programs and projects;

- Costing out or investigating the feasibility of various modal investment alternatives;
- Monitoring facilities condition and maintenance/improvement needs;
- Analyzing/justifying projects on a more level playing field, with each region having access to the same set of information and tools; and
- Taking advantage of performance standards and threshold levels (that could be developed with the aid of management systems as part of the statewide planning process) to identify cost effective improvement alternatives.

Modal plans - The State is preparing separate modal plans for air (passenger and freight movements); truck and rail; rideshare, transit and other non-SOV means of vehicular travel; and bicycle/pedestrian travel. The modal plans will include a series of policy and action initiatives to address needs within each mode and to facilitate coordination among modes to increase the people and goods carrying efficiency of the State's transportation system. The modal plans will serve as advocacy documents for each mode and will be prepared with input from operators, users, and regulators of each mode. The modal plans will provide input to the statewide plan.
The management systems will not be operable in time to provide input to the initial modal plans. However, as updates to the modal plans are prepared in future years it is anticipated that management systems will interface with the modal plans as outlined below:

- Providing a sketch planning tool for evaluating financial, economic, and operating effects of various policy initiatives and action plans.
- Providing information on existing conditions and changes in conditions over time (for modal plan updates).
- Allowing review and analysis of interactions and interrelationships among modes.

Statewide Plan - CDOT's statewide plan is being prepared in two phases. The first phase will result in a preferred plan outlining policies of statewide concern and issues of statewide significance. The plan will identify mobility corridors and incorporate the regional plans prepared by the 15 Regional Transportation Planning Commissions. In the second phase, a fiscally constrained plan will be prepared and a program of projects within expected available funding limits will be defined.

The management systems will feed into future updates of the plan. Colorado is taking a modular approach to development of its IMS and PTMS systems. These systems are being developed using a proof of concept approach. The proof of concept approach entails developing and testing key elements of the system prior to full implementation.

Highlights of the approach include:

- Development of goals and objectives for the system;
- Developing conditions ratings and performance measures;
- Collecting a representative subset of data elements to ensure usefulness, completeness, and availability; and
- Developing algorithms to test system reporting and analytical capabilities.

Through the proof of concept approach, Colorado can test the efficacy of all components of the system prior to full system implementation. This allows the State to change the system as it learns from this pilot program, before significant resources have been committed to a particular approach.

Needs Assessment

Management systems will play a role in future updates of the statewide plan in several areas, including:

- Provision of a basis from which to establish performance standards and threshold levels, thus providing guidance for future updates of the regional and statewide plans;
- Identification of deficiencies or components of the transport system with lower than desired performance levels;
- A sketch planning tool to evaluate the financial, economic and operational implications of various policy initiatives;
- Analysis of trade-offs between and among investment types; and
- Condition monitoring, providing a feedback loop from which to evaluate transport system needs as well as the effects of past planning.

Systems Integration

The exact means of integrating management systems with the planning function is under investigation in Colorado. It is not envisioned that management systems will make decisions, but that the conditions assessment and analytical capabilities of the systems will provide input to the decision-making process. For example, performance measures will be provided by the management systems, but performance standards will be developed in the planning process. In other words, the decision-making process and decision makers will not change, but the quality of information upon which those decisions are based will be improved. Colorado is seeking ways to make the management systems available for use by regional, local, and transit agency planners, to ensure that the systems improve the quality of decisions at all levels of the planning process.

ISTEA Requirements

The ISTEA legislation requires that management systems be integrated into the planning process. Management systems are intended to provide a basis for transportation systems conditions analysis, needs assessment, and analytical tools for testing the efficacy of alternative means of addressing these needs. The overall intent of the management systems is to assist decision makers in their efforts to improve the efficiency and safety of, and protect the investment in, the nation's transportation infrastructure. Colorado's systems will meet these requirements.

Value

The availability of management systems will affect decisions made in the

planning process in that they will bring additional information and new analytical tools to the process. Management systems will not change the decision-making structure within the planning process. Rather, management systems are expected to improve the quality of decisions made through the existing structure, by improving the quality of the information providing the basis for decisions.

Colorado's modular, proof of concept approach to systems development appears to offer a high value for a limited up-front investment. Before proceeding to full-scale implementation, Colorado is testing each element of its proposed systems. This deliberate approach allows systems development to benefit from system integration efforts currently underway at CDOT, facilitates system refinement prior to full data collection or analytical development, and takes advantage of the knowledge base developing around the country. The approach is designed to provide check points throughout the system development process to allow for constructive changes prior to full-scale implementation.

Administrative Implications

Colorado's DOT includes a management systems group with five full-time employees dedicated to system development, implementation, and integration. Of the States identified, CDOT appears to be the only DOT with personnel devoted full-time to systems integration. Consultant contracts for approximately $500,000 have been issued to take IMS, PTMS and CMS through the proof of concept stage. Additional contracts will be issued to take the systems through final design and testing.

In identifying system functionality and associated data requirements, CDOT is attempting to identify data elements that are readily available through secondary data sources, thus trying to minimize data acquisition and maintenance costs. Some data elements may be common to more than one system. CDOT is identifying these elements, their source, and the required format for the data, to ensure that all system needs can be accommodated with one request for data. Additionally, CDOT is attempting to identify data acquisition requirements versus value added by that data along a continuum, to minimize data acquisition costs while maximizing.

Adaptability

Colorado's approach seems highly adaptable to other States. By dedicating personnel to integration issues, CDOT has set the stage for data sharing, shared functionality, and transfer of information/analysis among systems to be accomplished seamlessly. The proof of concept approach is appealing in that it minimizes investment until concepts have been tested. Integration of management systems into the planning process does not propose to change the established planning decision-making process. Rather, it is the intent of management systems to improve the quality of decisions made at the local,

regional, and State levels by improving the information and analytical base underlying decisions.

Cautions

No significant drawbacks have been identified in Colorado's approach to development of the management systems.

Further Information

Brian Pinkerton
Colorado Department of Transportation
Management Systems Group
4201 E. Arkansas Avenue
Denver, CO 80222
Telephone: (303) 757-9281 / Facsimile: (303) 757-9727

Management Systems
Missouri Statewide Transportation Planning Process

State Setting

Previous long range planning efforts in Missouri concentrated on highway improvement programs. In 1991, a 15-year transportation program was developed and adopted as part of a gasoline tax increase initiative. Although the program included various other modes, the primary focus was funding of highway projects.

Many of the projects, goals, and objectives identified in the 1991 plan are now outside the spirit of ISTEA. However, because the program was presented as a funding package associated with a fuel tax referendum, which passed, the State finds it is still obligated to operate under the program. This presents problems for the Missouri Highway and Transportation Department (MHTD) in reforming the transportation planning and project programming process. Despite these difficulties, an extensive effort has been made to move away from traditional planning practices in Missouri and develop a user defined transportation system within the State.

The process established to develop the State's management systems is an excellent example of developing a user defined system. The guiding principles for the management system development process are:

- Use existing resources - management systems are viewed as evolutionary. Because of this view, Missouri is concentrating on developing the systems within the realm of existing data sources, with modifications as necessary;
- Keep it simple - Missouri's goal is to develop and implement simple, focused systems that function within the designed parameters and then concentrate on expanding, modifying, and improving the systems over time;
- Quality - utilize total quality management philosophy and principles in development of the management systems;
- Teamwork - involve as many users and experts in the development of the systems as possible and organize under a team concept; and
- Make the systems work for Missouri - MHTD is focused on developing systems that will supply the information the State needs to make good transportation decisions for the citizens of the State.

Approach

MHTD has taken a structured, systematic approach to developing and integrating the various management systems. The foundation of the State's approach is the organization of the various management system development teams, the success in enlisting "business users" in development of the systems, and the utilization of information

engineering as a tool to integrate the systems at the earliest point in development.

Organization

To oversee the development of the management systems, a new Management System Coordinator position was created in the Planning Division. In addition to being responsible for oversight and coordination of the management systems, the coordinator is responsible for training and information sharing. MHTD sponsored three National Highway Institute (NHI) courses on management systems and developed the Mid-America Long-Range Transportation Workshop attended by representatives from nine neighboring States.

To assist the management system coordinator, a coordination team was developed. The management systems coordination team is made of representatives from areas directly involved in the development of the management systems to include members of the development teams, other MHTD staff, MPOs, and FHWA. The coordination team was formed to facilitate coordination and communication between the systems development teams.

A development team was assembled for each of the management systems. A development team consists of a team leader and several business experts and users from within MHTD and other public and private representatives from across the State. The development teams play a significant role in the information engineering process discussed in the next section.

Information Engineering (IE)

As explained in Missouri's management systems work plan, "information engineering is a rigorous methodology that uses a tool known as Computer Aided Software Engineering (CASE), that will be used to help model the function, processes, and data requirements of the management systems. The tool selected for use by MHTD is the Information Engineering Facility (IEF) from Texas Instruments. The modeling process is done using a small core group of information system experts and a cross section of MHTD business experts working nearly full time on the modeling phase for a period of months. Once the models are complete and verified, the CASE tool then can be used to help develop software and computer systems as appropriate to implement the management systems."

As illustrated in the exhibit on the opposite page, for purposes of facilitating the information engineering process and ensuring adequate integration of like management systems, the various management system development teams were grouped under three IE projects. These three projects were initially identified in MHTDs Information Strategy Plan (ISP) along with several others functions in various other departments within MHTD, prior to ISTEA, and were subsequently modified to meet the needs of the ISTEA management systems. A fourth IE project for the State's maintenance management

system is being considered, but a decision has not yet been made as to when the project will be implemented. The three IE projects scheduled for implementation are:

- Roadway Inspection - combining the pavement, bridge, and safety management systems;
- Traffic Operations - combining the congestion and traffic monitoring management systems; and
- Transportation Inspection - combining the intermodal and public transportation management systems.

The final objective of these IE projects is to develop a relational database designed by system users and "business experts" that meets the needs of everyone involved. Each development team systematically defines procedures and information within its respective area, and develops a model for the information relating to its management system within the relational database. On an as-needed basis, the development teams within each IE project meet to work out solutions to common issues. Upon completion of phase I of the IE projects, this model will be used for design and construction of the management systems. A representative example of the model is illustrated in the exhibit on the next page. This example presents accident data. Accident data within the model is stored in one section, but will be accessed by the safety, pavement, and congestion management systems. This is one example of how IE promotes integration of the various management systems. The final exhibit illustrates the role of the transportation database in the overall transportation planning process. This database will provide the management systems the capability of providing accurate and timely information for transportation decision makers.

Each IE project has been divided into two phases. Phase I identifies and gathers information required for each management system. At the end of phase I, a buy or build decision will be made. The decision whether to buy or build determines if MHTD will make use of products currently on the market, or develop its own products to meet the needs of the management systems.

Phase II is the development and implementation phase. If completion of phase I results in a decision to buy, then phase II will implement the selected software product. If the result of phase I is a decision to build, then phase II will consist of design, construction, and implementation of the software.

ISTEA Requirements

MHTD's management system development methodology is designed to both meet the requirements of ISTEA and those of the State. The approach is to first develop systems that meet the basic needs and intent of ISTEA, utilizing
existing processes, and gradually allow the systems to evolve as future needs are identified.

Integration into Planning Process

MHTD views the management systems as decision support tools that provide valuable input to the planning process. The management systems will provide information and the status of key elements of the transportation system. When combined with other factors considered in transportation decision making, the management systems will contribute to an increased efficiency in the allocation of transportation resources.

Missouri is aggressively pursuing the possibility of combining the management systems with other transportation decision support tools under a GIS format. MHTD is participating in the national GIS - Transportation ISTEA Management Systems Server-Net Prototype Pooled Fund Study sponsored by FHWA, FTA, and the Sandia National Laboratories. This study is developing a comprehensive GIS framework consisting of information models for use in multi-modal and multi-jurisdictional transportation planning.

Missouri's Planning and Programming Engineer was involved in the team that identified the data and activities necessary for development of the multi-jurisdictional and multi-modal planning tools. The IE methodology previously described. In anticipation of utilizing the products of this pooled fund study, MHTD is developing their management systems for future GIS compatibility.

Another potential tie between the management systems and the planning process is a Dynamic Query System (DQS) developed by MHTD's Planning and Information Systems division. The DQS allows for graphical interpretation of accident, pavement, bridges, and other selected data for user defined segments of the State highway system. An expansion of this system can utilize management systems data and allow that information to be represented graphically and used in the planning process.

A further step in integrating the management systems into the planning process is development of a common location reference system. MHTD has a log mile reference system in place for the State highway system and is working to tie this system to local roads and other transport modes. A common reference system facilitates data segmentation across each management system.

Needs Assessment

The overall mission of MHTD's management system development philosophy is to develop systems that "enable a more efficient allocation of resources through the use of integrated data collection and analysis procedures which monitors the performance of the transportation system and provides timely information to transportation decision

makers." The management systems, by way of the relational database and structured development process, will provide an accurate and timely picture of transportation system needs across all modes and jurisdictions in the State. The information gained from the systems will allow decision makers to objectively assess the State's needs and efficiently allocate limited transportation funds across all transport modes.

Value

The value of Missouri's approach lies in the use of information engineering and the State's efforts to integrate the management systems in the development process. The information engineering methodology should produce valuable decision support tools for future transportation planning and programming efforts.

Administrative Implications

As described in the Approach section above, MHTD has developed a management system development structure, led by the management systems coordinator and the management systems coordination team, that draws upon expertise from all divisions of the department. Staff participating in the various development teams and IE projects requires dedication of a considerable amount of time to these teams. The IE project teams dedicate one-half of their time for three to four months during phase I of the projects. A time commitment has not been estimated for phase II. This amounts to 24+ employees from the various divisions dedicating 300-400 hours each to phase I of the projects. This is in addition to the management systems coordinator, IE project manager, and management system development team leaders commitment of almost 100% of their time to management systems development (approximately 9 full-time equivalents).

Adaptability

The IE methodology and organizational structure can be adapted by other States. Some States may find it difficult to match the staff time requirements of Missouri's approach, but the results should outweigh costs.

Cautions

No significant drawbacks have been identified in Missouri's approach to development of the management systems.

Further information

Kevin Keith
Assistant Division Engineer, Planning, Information

Missouri Highway and Transportation Department, Planning Division
P.O. Box 270
Jefferson City, Missouri 65102
Telephone: (314) 526-2820 / Facsimile: (314) 526-2819

Management Systems
New Jersey Statewide Transportation Planning Process

State Setting

New Jersey is at the crossroads of American commerce. A large amount of the international trade for the United States passes through New Jersey. Growth in New Jersey and neighboring Philadelphia and New York has caused the transportation system to become congested and unpredictable. The New Jersey environment is threatened by development-created problems that cause some to question the benefit of such development. At the same time, growing portions of New Jersey's population lack access to jobs since the underemployed live in central cities and the new jobs tend to be created in the suburbs. These occurrences contribute to the definition of the quality of life in New Jersey, a definition that New Jersey hopes to improve in the future.

In the future, New Jersey anticipates a transportation system that helps the State overcome its difficulties and provides the platform from which the private and public sectors can enhance the quality of life. The New Jersey draft transportation system vision anticipates a State that is a leader in forging successful community and economic development patterns. The State transportation system will be seamless and will offer mode choice and greater access than ever before. Transportation decisions and investments will be aided by improved information systems that help the State achieve a balance between maintenance, replacement, expansion, or improved transportation service management. Thus, New Jersey sees an important role for management systems in its long range planning.

New Jersey has new requirements for a broadly based State level comprehensive planning process in which transportation planning is fully integrated. The DOT is also conducting interviews and focus group sessions to help define the future system and to define choices between economics, transportation investment, and community values. The New Jersey Department of Transportation (NJDOT) views the ISTEA legislation as an opportunity to take a significant step forward in planning, since in the past, the DOT plans have largely been technically driven.

Approach

The State views the entire planning process as a decision support system and the management systems are intended to be an input into the planning and budgeting process. The following exhibit illustrates the relation of the management systems to the planning process. Management systems will help frame planning and policy questions with improved data.

Establishing management systems for IMS, CMS, and PTMS and integration of these

systems with pavement, bridge, and safety management systems has proven to be a subject of great organizational discussion. Because of the important role of freight and the importance of freight movement planning, New Jersey has taken the course of dividing the IMS planning into two (passenger and freight) separate efforts. The passenger IMS is to be closely intertwined with the CMS and PTMS, and the freight IMS will be tied to the State's strategic freight movement planning effort with a tie to the CMS for trucks on highways. Thus, the IMS development effort and implementation efforts are to be focused around the specifics of each system. New Jersey has come to this approach, based upon the observation that there is a nearly complete separation of the freight and passenger modes within the State.

System Purpose

The management system goals are to analyze, monitor, and evaluate the efficiency of the transportation facilities and to develop plans for deficient facilities. Principally, the management systems will feed into the planning process and the management systems will prepare a report card on system performance which will provide information to policy-makers on program and project effectiveness.

Integration

New Jersey recognized early in the development of their management systems that there could be significant advantages to integrating the systems at various stages. To address the integration issues, New Jersey established a management system integration working group (MSIWG). The group meets to discuss and assure integration and coordination between systems. System managers, interested persons, and representatives from associated agencies and MPOs are members.

The MSIWG is very concerned about duplication of efforts. Data managers meet to discuss the data needs of the systems so that these data are collected efficiently. The efforts of this group resulted in a coordinated data collection effort as described in the Traffic Monitoring System for Highways. Another group meets to discuss and determine hardware and software needs and equipment. This group is charged with the responsibility of making each management system usable for every other management system, other New Jersey agencies, and MPOs.

Decision Support

The State staff recognizes that the information supplied through the management systems will provide input into the State decision-making processes. The information will be supplied in an integrated and comprehensive format to the State and MPO decision-making processes. The exact methods of achieving this are not defined at this time; however, it appears that a system will be used to organize information and integrate the various levels of information needed by decision makers. This will allow

decision makers to measure if the results of the NJDOT programs are meeting the State goals and objectives.

New Jersey is undertaking the process of developing its IMS for freight movements in an integrated fashion with its strategic planning effort for freight movements. In designing the IMS for freight, the staff came to understand the nature of the questions that the IMS and the planning efforts need to confront. Prior planning efforts for freight centered on planning for rail and were largely reactive to existing problems instead of looking strategically into the future. These prior planning efforts were more programming in nature than strategic planning. With ISTEA and the need for management systems, NJDOT determined a need for a strategic statewide goods movement plan. This effort is simultaneously underway with the development of the IMS.

New Jersey has recognized that goods movements in the State is part of an international economy. NJDOT believes that a goods movement forecast needs to be based on an international framework. The State used the DRI McGraw Hill International trade model as a basis, then forecasted short range and long range goods movements at an international level. These forecasted data are then assigned to mode and distributed to port of entry and origin or destination in the United States. Thus, a forecast that begins with an international trade model results in assigned goods movement traffic on highways and railroads in the State. This component of the strategic plan is to be coupled with a policy strategic element that forecasts likely policy changes. As an example, such policy strategies could include changes in travel regulations for trucks or changes in size and weight of trucks. Such policy changes will result in the need to provide new data to other management systems to fully understand the implications of policy shifts.

With this ambitious program, it is expected that the current work plans reflect the first of many iterations for each of the management systems and planning effort. Each system will be regularly updated to better meet the needs of the State's decision makers. Integration for decision making purposes has been designated as a priority.

New Jersey expects that as the initial six systems become developed, additional management systems will be developed. At this time New Jersey has identified the need for a maintenance management system.

Coordination

In New Jersey, each MPO participates with the MSIWG. In addition, the NJDOT's local planning office and the three MPOs coordinate the management system work efforts in each MPO. Each MPO provides a level of comment and direction consistent with its needs. Input from the public and other authorities is coordinated through the MPOs. The system will be made available to State agencies and MPOs.

Needs Assessment

A significant purpose of the management systems is to provide a basis from which to monitor conditions and identify needs for improvements to the transportation system. The New Jersey systems each recognize this need and are being set up to accomplish this aim. The needs assessment will provide valuable information to decision makers to assess how the system is performing and if goals and objectives, as represented through performance measures, are being addressed.

ISTEA Requirements

The ISTEA legislation requires that management systems be integrated into the planning process. Management systems are intended to provide a basis for transport systems condition analysis, needs assessment, and analytic tools for testing the efficacy of alternative means of addressing these needs. The overall intent of the management system is to assist decision makers in their efforts to improve the efficiency and safety of, and protect the investment in, the nation's infrastructure. The New Jersey approach appears to meet the intent of the Federal legislation.

Value

The New Jersey example has three elements of particular interest and value. The first is to divide the IMS into two branches, i.e. person and goods transport. Through this process, New Jersey feels that it can be more responsive to the particular needs of both areas. The second element is the intended development of a system that will provide a means of comparing results of the different management systems. The third element of value is the use of an international trade model to assist in the depiction of future travel demand. Considering the role of international trade in United States commerce and the desire to be competitive, this approach can have value to other States.

Administrative Implications

New Jersey is expending a considerable effort in the development of their management systems and the State transportation plan. This effort is being expended both by the NJDOT staff and through the employ of consultants. Consultants have been retained to develop elements of the management systems and to assist in statewide planning.

Adaptability

Each of the techniques being developed by New Jersey is usable in other locales and States. The use of a process to tie the management systems together, and use of international goods movement models are tools and procedures having adaptability to other States.

Cautions

New Jersey has a high population density, a high density of travel demand, and an international trade focus. Other States may not have an urgent need to develop an understanding of international trade in order to reasonably forecast goods movements. Other more simple techniques could be adequate and significantly less costly.

Further Information

Mr. William S. Beetle
Director
Division of Transportation Systems Planning
State of New Jersey
Department of Transportation
Trenton, New Jersey 08625-0609
Telephone: (609) 530-2866

V. Public Involvement

ISTEA requires that statewide planning be done with the input of the public. The spirit of the ISTEA legislation is to involve the public during the transportation system planning process and to provide a means for citizens to have their views known in a constructive fashion. The following case studies demonstrate examples of public involvement in the statewide planning process.

Public Involvement
Idaho Statewide Transportation Planning Process

State Setting

Idaho had statewide transportation plan components prior to ISTEA. The components included a pavement management system, safety management plan, and traffic monitoring guide. The complete plan lacked intermodal considerations, congestion management plans, and reference to the public transportation systems in the State.

Public involvement in Idaho was limited prior to ISTEA . Each district engineer held annual meetings in their respective regions to discuss transportation issues with the general public. In addition, board members made themselves available on an appointment basis for one-on-one discussions.

The State is divided into six transportation districts with a district engineer for each district. The governor appoints three board members to six year terms. In turn, the transportation board appoints six regional public transportation advisory committees to advise the board members on matters of planning, resource identification, coordination, and evaluation of regional and local transportation services.

State legislation requires each city and county to develop and maintain comprehensive plans. In addition, the State legislature requires “strategic management” for budgeting purposes. The State recently reorganized for the express purpose of responding to the requirements of ISTEA and the development and implementation of planning for multi-modal transportation activities.

Approach

The Idaho public involvement program has been a model for several neighboring States in establishing their programs. Idaho has successfully redirected its public involvement program from one based on formal public hearings to one of open communication and opportunities for discussion between transportation professionals and the general public. The overall statewide transportation plan development approach is illustrated in the exhibit on the following page.

The State public involvement process is aimed at generating participation and input on transportation issues from a wide variety of public agencies, stakeholders, and the general citizenry. Special emphasis has been placed on gathering, responding to and incorporating comments from these groups when appropriate.

The process began in July 1993, with 12 initial "open forum" meetings held across the State. At these meetings, participants were invited to visit individual booths exhibiting various aspects of the plan. Prior to entering the exhibit area, each participant viewed a five-minute statewide transportation planning orientation video explaining the ISTEA requirements and the statewide planning process as it relates to Idaho. Representatives of the various modes and issues to be addressed in the plan were available for open discussion and actively solicited comments. As comments were made, they were written down for public viewing in an effort to stimulate further suggestions. In addition to the statewide planning exhibits, local jurisdictions and MPOs were invited to participate with displays relevant to local transportation planning issues. This maximized the benefit of the effort and assisted in relieving any alienation participants might have felt addressing issues of statewide concern.

All comments received at these meetings were forwarded to the appropriate contact person for review and response. Comments and responses then were published in a document made available to the Idaho Transportation Board and by request to the public. The comments assisted in development of the draft statewide transportation plan.

In March 1994, the process began again with seven regional meetings using the same format. It was found that participants at this second set of meetings were well informed on transportation planning issues and provided valuable comments. The comments ranged from those directed at long range planning to the transportation improvement programs and project specific issues.

Following the spring meetings, all comments and responses were documented in the report: Summary of Public Comments and Response from the Idaho Transportation Department. This document sorts the comments by district and topic for ease of reference and is made available to the public upon request.

Future efforts will expand on this process. Plans include visiting malls, fairs, and other public gatherings in hopes of involving people who normally would not attend a public meeting. These efforts should validate the statewide issues identified through the public involvement process.

Feedback from stakeholders, public officials, and interest groups is provided through the Transportation Advisory Group made up of city, county, State and Federal agencies, regional councils and commissions, industry associations, and existing advisory committees. This team of advisory agencies works directly with the Idaho Transportation Department (ITD) ISTEA planning coordinator responsible for overall development of the statewide transportation plan. The advisory group provides a forum

for identifying issues to be addressed by the planning process. Other groups involved in guiding development of the statewide transportation plan include:

- The ITD Transportation System Improvement Team - made up of high level ITD managers and is responsible for providing direction and oversight for developing recommended long-range goals and actions for development of the State's transportation system; and,
- ITD ISTEA Planning Coordinator - responsible for managing the logistical requirements associated with convening the System Improvement Team and the Advisory Group as well as acting as the primary focal point for information about the statewide planning process.

The next exhibit illustrates the role of the advisory group and systems improvement team in the statewide planning process.

ISTEA Requirements

The public involvement rules of ISTEA (23 CFR Part 450.212) require States to provide for the continued involvement of the public and interested parties in the planning process. The Idaho public involvement process is designed to achieve this objective. Special emphasis in the State's approach is directed at stimulating comment from the public and providing specific responses to each
comment.

Value

The most valuable aspect of Idaho's approach is the open forum modal exhibit format. This approach removes conflicts between modes and ideas, allows for more constructive comments, and provides participants with a starting point from which to develop a vision for the State's future transportation network.

Administrative Implications

The Idaho Transportation Department is organized into six transportation districts. The governor appoints a representative to serve on the Idaho transportation board. In addition to defining the transportation districts, the Idaho code establishes a structure of advisory committees:

- Public Transportation Advisory Council - this council is comprised of six members (one from each district) appointed by the transportation board and is charged with advising the transportation department;
- Interagency Working Group - comprised of staff representing several State agencies, departments, and councils, this group is responsible for advising and assisting in the analysis of public transportation needs, identifying areas for coordination, and developing strategies for eliminating procedural and regulatory barriers to

coordination at the State level;

- Regional Advisory Committees - the board appoints six regional public transportation advisory committees, identified above, responsible for advising and assisting the council members in planning, resource identification, coordination, and evaluation of regional and local transportation services.

This structure helps to provide continued opportunity for public involvement either at the various meetings or through members of the various groups.

Total costs in support of the public involvement effort for Idaho fiscal year 1993 were approximately $29,000. An additional $3,000 was expended on consultant services to train ITD staff participating in the public meeting process.

Adaptability

This effort can easily be adapted to other States. The process is currently being used by at least two neighboring States that share similar transportation issues and geographical and political makeup. The process is flexible enough to be adapted to different applications within the same State and other States.

Cautions

Although some difficulty was experienced, Idaho was able to coordinate fairly well with tribal governments and Bureau of Indian Affairs (BIA) plans. Efforts have been made to involve the various Native American tribes of the State by making presentations at tribal council meetings, but the efforts have resulted with little input to the process. The open forum meeting approach provides a good opportunity for public comment as long as the public is willing to go to the meetings. This is the one drawback identified in the initial public involvement approach and is the reason why future efforts will go to the public and include displays at public gatherings.

Further information

Julie Stutts
Idaho Transportation Department
ITD ISTEA Planning Coordinator
P.O. Box 7129
Boise, Idaho 83707-1129
Telephone: (208) 334-8204 / Facsimile: (208) 334-4432

Public Involvement
Iowa Statewide Transportation Planning Process

State Setting

Iowa has over 112,000 miles of road and over 25,000 bridges in its highway and road system. Traffic on this system ranges from less than 50 vehicles per day to over 90,000. About one-third of the road system is paved. In addition to the regular system designations of National Highway System (NHS) and Surface Transportation Program (STP), Iowa has also designated a Commercial and Industrial Network (CIN) which is comprised of 2,330 miles of primary highways that connect the State's regional growth areas and carry a significant amount of the State's commercial traffic. The CIN does not include the interstate system.

All indices of highway travel continue to increase in Iowa. Vehicle miles traveled (VMT), truck tonnage, and average daily traffic continue to grow throughout the State. While the total number of miles of railway has stabilized in recent years, the tonnage of freight continues to grow. In contrast, Amtrak rail ridership has gradually decreased since 1985. Iowa shares important waterway freight transportation systems on the Mississippi and Missouri Rivers. Freight tonnage on the system fluctuates substantially from year to year. The Iowa transportation system also includes airports and pipelines, which fulfill a critical niche.

Iowa DOT has previously prepared statewide multi-modal transportation plans. The plans provided policy direction rather than recommendations for specific improvements. Based on this multi-modal policy framework, Iowa DOT historically has evaluated needs and improvements on a modal basis. Iowa has continued to update these modal plans periodically. While these plans primarily focused on each mode, they did begin with a common set of goals, data, and economic analysis. The aim of the new planning process under ISTEA is to bring these plans into an intermodal linked framework so that the entire system will be energy efficient, environmentally responsible, and financially feasible.

Approach

Iowa's Department of Transportation Commission and staff developed a planning process to be followed in addressing the statewide plan. While the State already had regional planning groups and MPOs, the Commission allowed counties to form new regional planning affiliations (RPAs) for the purpose of developing regional plans and programs and input into the State plan. This gave counties an ability to address State planning issues from a more regional perspective than just as a single county or community. RPAs were given great latitude in developing their own goals, policies, and priorities. The process the Iowa DOT has undertaken consists of the following steps:

- As an introduction of the statewide transportation planning process to the MPO and RPAs, Iowa conducted a series of informational/educational workshops for MPO/RPA staff. Workshops were then conducted in each of the 18 RPAs across the State and held with their policy and technical committees. The important aims of these meetings were to discuss the role of the regions in the planning process and to begin a partnership in the development of the statewide plan;
- Establish a committee to advise the State on long-range planning issues. The committee included providers, users, public officials, and others affected by the transportation system. The committee focused on identifying priority issues to be addressed in developing the long-range planning committee meetings, which provided a forum for interchange of ideas and required that Iowa DOT staff brief the participants of Federal procedures in funding and planning;
- Work with the State plan advisory committee to identify issues and finalize the statewide plan outline;
- Conduct a series of initial public listening meetings throughout the State to hear the concerns of the public and interest groups. Informational open houses were held prior to the meetings. Iowa DOT facilitators, DOT staff, and RPA/MPO staff hosted the meetings;
- Prepare a multi-modal fact book reporting on statistics for all modes of Iowa transportation. The fact book has been used as a resource for the State plan advisory committee, the regions, and the public;
- Conduct modal plan reviews and updates;
- Conduct second and third rounds of public meetings to inform and discuss the results and directions of the continuous planning process; and
- Prepare the draft plan for commission review and finalize plan based upon commission and public input.

Public Involvement - Iowa has implemented a ten step public participation process that involves the MPOs, the RPA, and the State. The steps are listed below.

- Develop comprehensive mailing lists and method of notifying the public. The mailing list includes all levels of Iowa government, and government associations, universities, business organizations, user groups, non-government organizations, Native American Tribal representatives, airports, railroads, transportation associations, individuals and other groups, etc. Emphasis in this effort is to develop a process that seeks out those who have not participated in the past to gain a broader spectrum of input.
- Implement a Public Information Campaign. The campaign uses techniques such as newspaper articles, TV/radio interviews, presentations to groups, information booths at public gatherings, and general information brochures. All materials advise how any concerned citizen can get further information and become involved.
- Use Advisory Committees. Iowa DOT established a State plan advisory committee to represent a broad range of the State's residents and interests. Information generated from modal plan advisory groups will be shared with this advisory group so as to help foster a continuum of concern. The advisory committee is meeting

throughout the development of the plan.

- Hold Public Listening Meetings. Iowa DOT used the Iowa Communications Network (ICN) to hold public listening meetings in August 1994. The network is a fiber optic communications system to each of Iowa's 99 counties along with studios at key additional points such as universities and the State capitol. The communication network allows for two-way audio and video connections. This technology was used to link public listening meetings held simultaneously in 19 different locations. These locations are shown in the following map exhibit. Facilitators were present at each site to foster communications. After an Iowa DOT staff presentation from Ames, Iowa, facilitated discussions were held at each site. Then each site, in turn, described the local concerns and perspectives on the State of transportation in Iowa and the plan for the future. When each locale presented its views, the audio and visual was presented to every other location. The reporting was coordinated by a facilitator in Ames who asked questions to clarify the regional issues. The network and the system allowed for one meeting to be held in 19 different locations at once. This allowed participants to hear the priority issues identified throughout the State, including both common and geographically unique concerns.
- Use Iowa Transportation Commission Meetings. Over the course of the year the Iowa Transportation Commission scheduled four regional meetings. Public testimony was scheduled for these meetings so that concerns can be directly presented to the Commission.
- Encourage Letters and Written Comments. All correspondence regarding statewide planning issues is forwarded to the Office of Advance Planning to add to the input process. Publication materials provide instructions for providing written correspondence.
- Summarize Public Comments. A summary is continually prepared. It is regularly distributed to advisory committees, staff and citizens requesting a record.
- Distribute the Draft Plan for Review and Notify the Public. The plan, Iowa in Motion, is being developed in three parts. Each part will be widely distributed for public review and comment. The public will be notified of the availability of draft documents for review and comment.
- Hold Regional Public Review Meetings; Revise the plan for Submittal to US DOT. A series of public meetings will be held to gain further comment on the draft documents. The technical advisory committee and staff will review the comments. Changes will be made by staff to reflect the comments as appropriate.
- Review State Public Participation Process, Invite Public Comment, and Revise For Future Use. Iowa DOT will solicit public comment about the public involvement process. Through this process, it is expected that an improved process can be offered in the future.

ISTEA Requirements

ISTEA requires that the public be deeply involved in plan development process. Iowa has developed a process that combines traditional procedures with innovative new

technological procedures to enhance communication. These may be viewed as novel; however, the response and assessment of effectiveness has been very positive at the State level. Additionally, the Iowa effort is a continuing process, which will try new methods in communication while offering the opportunity for outsiders to comment on the process and give unbiased views of its effectiveness.

Value

The approach is valuable. Using the State's fiber optic two way communication system to conduct meetings and hear concerns and issues allows the entire State to communicate unfettered with interpretation and relay by others. A unison of voice is possible and the public reacts positively to the ability to share concerns with citizens from throughout the State. As these systems become more widespread, the economics could become quite positive. Travel time is minimized for both staff and the public.

Administrative Implications

The overall planning effort required a significant commitment of State resources. The effort involved DOT planning staff, district office staff, local and regional planning staff, and consultants. Planning staff was dedicated to public involvement to coordinate and follow through. Even though the meeting required thorough planning, one of the least costly elements was the intercommunication network TV. This is made so as a result of State ownership and pricing at about $5.00 per hour for each remote site.

Adaptability

Iowa's overall process is adaptable to other States. However, fiber-optic system communication networks and television studio meeting rooms are not presently available in most States on such a comprehensive basis. Since fiber-optic television systems, interactive satellite TV, and visual telephone are expected to become more widely available, this is likely to be a forerunner of public involvement techniques of the future as private sector costs and system flexibility problems are overcome.

Cautions

Most of Iowa's program is straightforward and affordable. However, except in Iowa, the present cost of video conferencing can be very expensive. Even though the technique may be cost-beneficial considering the full labor and costs of coordinated meetings throughout a typical State, the out-of-pocket cost of video conferencing will appear as a substantial impediment. Since Iowa has purchased and installed this system through special legislation, the cost to the Iowa DOT is very low.

Further Information

Mr. Stan Peterson
Office of Advance Planning
Programming and Planning Division
Iowa Department of Transportation
800 Lincoln Way
Ames, IA 50010
Telephone: (515) 239-1386

Public Involvement
Wisconsin Statewide Transportation Planning Process

State Setting

Statewide transportation planning has been practiced for some time in Wisconsin. Planning in the past has been largely dominated by policy plans, State highway system plans, airport system plans, and rail policy plans. However, the plans were single mode in character, and coordination between modes in these planning efforts was minimal. ISTEA issued a call for a more intermodal and comprehensive approach to State transportation planning, to which Wisconsin has responded.

Wisconsin State policies and requirements reinforce the comprehensive nature of the Wisconsin transportation planning process. Wisconsin has its own environmental protection act (WEPA), modeled after the national act. In theory, all Wisconsin State agencies must prepare environmental evaluations of their plans, but in practice only the DOT does so. The DOT prepares a System Environmental Evaluation (SEE) to identify the cumulative environmental effects of the plan alternatives and proposals. Of course, The Wisconsin Department of Transportation (WisDOT) also prepares the traditional environmental impact statements for all projects in accordance with NEPA. The purpose of the SEE is to identify the cumulative effects of system plans that individual project EISs do not portray.

WisDOT has been mandated by a consent decree to complete its State intermodal planning on an accelerated basis. The planning process was required by July of 1994, six months earlier than the Federal deadlines. This, of course, has forced a compressed time to meet all ISTEA planning requirements in the accelerated schedule. Finally, Wisconsin supports an ombudsman in the Wisconsin Department of Justice, whose responsibility is to review certain activities of State agencies and intervene as appropriate. The Wisconsin Intervenor has taken an active interest in the WisDOT statewide planning process.

In addition to these legal responsibilities, there are other conditions that set the basis for statewide planning. These include the growth and development patterns similar in other States. This growth is largely focused in the urban areas. Within the urban areas, there is a pattern of lowering density in urban cores, coupled with low density in suburban and exurban fringe areas. These trends have increased the difficulty of serving the growing urban population with transit or high occupancy vehicles. This trend is likely to continue.

Approach

Wisconsin began its statewide planning process (Translinks 21) with the development of an organized approach to the entire planning effort. One of the first efforts was to recognize the importance and continue the State's strong tradition of public involvement in

the planning process. Given the many concerns of the State officials and of the public, WisDOT determined that a very comprehensive public involvement program would be required. The public involvement program consisted of the following:

- First, WisDOT conducted a series of "listening sessions" around the State. At this point, WisDOT had "nothing on the table," so the sessions were really aimed at identifying underlying transportation concerns and how transportation relates to other aspects of the State such as the environment and the economy;
- Two different "public" groups were recognized. The first group is the general public of citizenry who are users of the transportation system but nevertheless have no organized special interest. Input from these citizens is vital since they provide general assessments of values as well as specific concerns related to day-to-day problems. The second group included individuals and groups directly influencing the decision process. This group included legislators and their assistants, lobbyists, and special interest groups. Effective techniques for communication with both these groups were designed to fit the group;
- WisDOT used a three stage process to implement its public involvement program. The first stage was public outreach, to hear transportation priorities just as the planning began. The second stage was to gain reaction to plan alternatives. The third stage was to test and solidify public acceptance of a draft plan;
- The public outreach stage was conducted between October 1993 and February 1994. Regional information meetings were held in nine communities; seven peer review forums brought experts together to discuss specific transportation issues; a meeting was held involving 40 key statewide organizations; and expert panels discussed freight movement issues. Coupled with the public outreach program were efforts to keep the State legislature and congressional delegation informed about the process and progress. Informal gatherings were held with State legislative staff and lobbyists as well as special interest groups to achieve this information sharing;
- Special outreach efforts were undertaken to reach minorities, elderly, disabled, and low income groups. Three focus group meetings were held and targeted African Americans, Native Americans, and Hispanic communities. One-on-one meetings were held by the secretary with organizations representing the disabled and elderly;
- With the public input in hand, WisDOT developed four detailed plan alternatives and between June 1994 and September 1994, WisDOT conducted a second series of public involvement opportunities. The program was active and intense. Ten regional meetings were held as open houses and focus group meetings were held at sixteen locations to obtain specific reactions to plan aspects. In addition, 35 one-on-one meetings were held with organizations such as chambers of commerce, local government organizations, transit managers, and construction contractors. Paid newspaper and TV advertisements were used extensively to inform people of their opportunity to participate. Communication continued with congressional delegations and the State legislature. Materials and displays were used extensively. For the various forums and meetings, trucks were needed to transport over 100 displays and information booths;
- WisDOT received nearly 6,000 written comments and surveys. An overwhelming

number of people commented in writing and in the many different meetings and forums asserted the importance of highways and the need to invest in them. They concurred that highways must remain WisDOT's top priority. The public input favored a program that completed a program of major highway projects, reconstructed Milwaukee's freeway system, rehabilitated the road system, and expanded service in other areas;

- With a recommended draft plan prepared, WisDOT has conducted a final round of public involvement. TV and newspaper advertisements were used to inform the public of the programs. This included a series of town meetings, formal public hearings, and a survey program; and
- Under contract with WisDOT, the University of Wisconsin-Parkside randomly selected a total of 503 Wisconsin citizens to participate in a survey. Each respondent was asked to carefully review a brief information packet outlining 14 major components of the Translinks draft plan, and then to rate each on a scale from 1 (strongly favor) to 9 (strongly oppose). The results: More than two-thirds (66.8%) of the respondents voiced strong overall support for the plan, while only one in six (17.3%) expressed disapproval. Specific support was highest for highway-oriented components of the draft plan, including State highway rehabilitation (83.8%), corridors 2020 (80.4%), local roads (77.7%) and Milwaukee freeway reconstruction and redesign (64.7%). Other plan proposals receiving strong support included intermodal freight (68.2%) and elderly and disabled transportation services (66.8%). The draft plan's strategies for land use and the environment also received high marks (72.4% and 82.8%, respectively). Less support was expressed for alternative modes, while significant percentages of respondents specifically opposed these proposals. Support was lowest for passenger rail (47.3% support, 28.5% opposition) and urban transit (43.8% support, 32.6% opposition). While slight majorities supported bike/pedestrian and intercity bus investments (54.9% and 53.4%, respectively), each was opposed by 26% of respondents. The survey had a 95% confidence level and a 4.4% margin of error.

ISTEA Requirements

ISTEA requires that the public involvement process be engaged early, be continuous, be cooperative, and be ongoing. The process needs to reach out to customers and give them an influential voice in the planning process while the plan is in the process of development. The WisDOT effort addresses each of these elements and has prepared a draft plan which is representative of the public's input. In this area, Wisconsin's effort is comprehensive.

Value

The Wisconsin approach is comprehensive and valuable. Important features of the program are evident and can be addressed in other programs. These include:

- Listening sessions to gain undirected input;

- The identification of audiences and different means of gaining contact and maintaining contact;
- The provision of forums and expert groups to harness input and gain insights and information; and
- The use of the media, as an advertiser to reach out to the public.

Because the State process is mandated by a consent decree, a very intense program was undertaken that was very demanding and could be viewed as more extensive than required in other States. However, the structure of the WisDOT process is an example that can be employed in other States while the level of intensity can be sized to fit the State requirements.

Administrative Implications

WisDOT has made a significant commitment of planning staff to the statewide planning effort at the intercity level. Between 35 and 40 persons devoted a significant portion of their time to the statewide plan. Additionally, three persons from the WisDOT public affairs office were devoted full time to the process and additional staff were required when WisDOT prepared its own TV spots and commercials. Other senior WisDOT staff supported the planning effort from a management position. More staff are addressing planning issues at the MPO level. WisDOT has retained consultants to assist in the development of its plans. To support the general statewide effort, a consultant has been retained to develop models and software, another consultant contract provides general support for the planning process, and a third consultant is assisting in the development of an air systems plan. Total cost of consultant services is approximately $750,000.

ISTEA has created whole new planning responsibilities, terminology, and administrative organizations. WisDOT planning staff has found that its responsibilities not only include actual planning but also education within and outside of the department. The time commitment required by meetings while also keeping the planning process going is difficult for the staff to maintain.

Adaptability

The WisDOT process can be adapted to other States as a technique. The public involvement process can be adapted in its entirety to other locations.

Cautions

Experience generated from this process could be transferred to other locales; however, the size and intensity of the program might not be affordable in other States. The important points derived from the program include the identification of audiences, the identification of means of engaging involvement, and the use of several different techniques to gain input.

Further Information

Ms. Linda Thelke
Director, Office of Public Affairs
Department of Transportation
4802 Sheboygan Avenue
Madison, Wisconsin 53707
Telephone: (608) 266-7744

VI. Social, Economic, and Environmental

Transportation, like all human activities, affects the environment. The quality of the human environment is a principal concern for State departments of transportation (DOTs). Traditionally, States have addressed environmental issues at the project level, under the assumption that quality of life issues and the effect of the transportation system on the natural environment is localized. Many DOTs continue to address major environmental issues at the project level. ISTEA, however, requires that the statewide planning process consider certain aspects of the effect of transportation on the environment including energy use and water quality. The following case studies illustrate the range of state responses.

Social, Economic, and Environmental Issues
Oregon Statewide Transportation Planning Process

State Setting

Oregon has enjoyed a long history of statewide planning. In 1973, the State legislature established the Land Conservation and Development Commission (LCDC) and charged that commission with, among other responsibilities, establishing a set of goals to guide land use, resource management, economic development, and citizen involvement practices across the State. In all, 19 goals were established. These goals were adopted in 1975 and carry the weight of State law.

The LCDC planning goals are implemented through a series of administrative rules formulated for each goal. All cities and counties in the State must maintain comprehensive plans that meet criteria established in the LCDC goals and administrative rules. To ensure that the comprehensive plans meet the criteria, they must be approved by the LCDC. Once the local comprehensive plans are approved, all subsequent local, regional, and State programs must be coordinated with the plan.

In April of 1991, the LCDC adopted the Transportation Planning Rule (TPR). The TPR establishes the statewide strategy for transportation planning. The TPR outlines several measures to reduce reliance on the automobile. Some of these measures are:

- Per capita VMT reductions in MPO areas based on the following schedule:
  - No increase within 10 years of the plan
  - 10% reduction within 20 years of the plan
  - 20% reduction within 30 years of the plan;
- Various other requirements in MPO areas include:
  - Provisions for “transit oriented developments” along transit routes
  - Development of Transportation Demand Management (TDM) programs
  - Parking plans that show a 10% per capita capacity reduction;
- Enhancement of bicycle and pedestrian travel in all areas; and,

- Enhancement of transit travel in areas with populations greater than 25,000.

In addition to the LCDC goals, the Oregon Progress Board, created by the legislature in 1989 to track the State's progress in meeting the strategies of the statewide strategic plan, developed the Oregon Benchmarks. These benchmarks are a set of performance measures that track progress of State programs and investments toward statewide goals related to people, quality of life, and the economy.

The Oregon Department of Transportation (ODOT) considered the Oregon Energy Plan when developing the Oregon Transportation Plan (OTP). The energy plan recommends several strategies for reduced reliance on petroleum. These strategies include increased fuel taxes, expanded alternative fuel use, improvements in the gas efficiency of cars, and consideration of environmental and energy costs in evaluating alternative transportation projects. The energy plan has no legal compliance authority.

Approach

The Oregon Department of Transportation considered each of the energy plan recommended strategies in development of the OTP. The Oregon Transportation Commission (OTC) adopted the OTP in September, 1992. The OTP consists of two elements: (1) a Policy Element addressing goals, policies and actions over a 40 year planning horizon; and (2) a System Element addressing facilities for air, rail, highways, public transit, pipelines, waterways, marine transportation, bikeways, and other modes for the next 20 years.

The policy element of the OTP establishes four goals:

- Enhance Oregon's comparative economic advantage and quality of life by the provision of a transportation system that provides balance, efficiency, accessibility, environmental responsibility, connectivity among places, connectivity among modes and carriers, safety, and financial stability;
- Develop a multimodal transportation system that provides access to the entire State, supports acknowledged comprehensive land use plans, is sensitive to regional differences, and supports livability in urban and rural areas;
- Promote the expansion and diversity of Oregon's economy through the efficient and effective movement of goods, services, and passengers in a safe, energy efficient, and environmentally sound manner; and
- Implement the Transportation Plan by creating a stable but flexible financing system, by using good management practices, supporting transportation research and technology, and working cooperatively with Federal, regional, local, and Indian tribal governments, the private sector, and citizens.

In support of the first goal, the OTP Policy Element addresses issues of environmental responsibility with the following action items:

- Minimize transportation-related energy consumption through improved vehicle efficiencies, use of clean burning motor fuels, and increased use of fuel efficient modes which may include railroads, transit, carpools, vanpools, bicycles, and walking;
- Cooperate with the Oregon Department of Energy to carry out transportation-related provisions of the State Energy Plan;
- Positively affect both the natural and built environments in design, construction, and operation of the transportation system, and minimize or mitigate impacts where they cannot be avoided;
- Cooperate with the Oregon Department of Environmental Quality in carrying out the transportation-related requirements of the Federal and State clean air standards consistent with the long-term air quality goals of the Oregon Benchmarks;
- Cooperate with the Oregon Department of Environmental Quality, the Oregon Water Resources Department, and local government authorities in carrying out Federal and State surface and ground water protection programs;
- Assure the safe, efficient transport of hazardous materials within Oregon; and
- Minimize transportation-related noise impacts through improved enforcement of noise regulations, facility design, and compatible land use.

The 20 year system element of the OTP supports the goals, directives, and strategies of the TPR, Oregon Benchmarks, State Energy Plan, and the Policy Element of the OTP.

ISTEA Requirements

The Oregon statewide transportation planning process appears to fulfill the ISTEA requirements through its coordination with various statewide policies and plans. Each of the statewide planning factors that relate to the socioeconomic and environmental category are addressed within the OTP.

Value

The interagency coordination that took place in development of the OTP, the energy plan, the TPR, and the Oregon Benchmarks is of most use concerning Oregon's efforts in addressing socioeconomic and environmental issues. Each of the agencies responsible for the various statewide plans was involved in the development of the OTP, and ODOT was involved in the development of each of the other plans.

Administrative Implications

Through the goals of the LCDC, the State is organized to address issues of statewide concern. LCDC requires coordination between affected jurisdictions on preparation and implementation of all plans. Unlike other States that have not historically coordinated various statewide plans, ODOT and other State and local agencies have experience in cooperatively developing plans and involving various interests in the plan development.

ODOT estimates development of the OTP to cost approximately $521,000. This estimate includes services and travel for two full time staff, two manager level positions working on the plan half time, clerical help, a $250,000 consultant budget, and $35,000 for publications and visuals.

There do not seem to be competing programs in Oregon. The State is institutionally structured to foster coordination among departments. Significant statewide programs are supportive of other major efforts across the State.

Adaptability

This effort works in Oregon, because it is institutionally and legislatively supported. Other States may find the process difficult to duplicate effectively. The central theme to Oregon's approach to addressing socioeconomic and environmental issues within the OTP is ODOT's conscious effort to involve all affected agencies in the process.

Cautions

There do not appear to be drawbacks to Oregon's approach to addressing socioeconomic and environmental concerns. ODOT has referenced applicable statewide plans and regulations that effect the statewide transportation plan and has made provisions to assure that the OTP does not conflict with other statewide goals.

Further information

Carolyn Gassaway
Oregon Department of Transportation
Policy Section
405 Transportation Building
Salem, Oregon 97310-1354
Telephone: (503) 986-3464 / Facsimile: (503) 986-3469

Social, Economic, and Environmental
Wisconsin Statewide Transportation Planning Process

State Setting

Statewide transportation planning has been practiced for some time in Wisconsin. Planning in the past has been largely dominated by policy plans, State highway system plans, airport system plans, and rail policy plans. However, the plans were single mode in character, and coordination between modes in these planning efforts was minimal. ISTEA issued a call for a more intermodal and comprehensive approach to State transportation planning, to which Wisconsin has responded.

Wisconsin State policies and requirements reinforce the comprehensive nature of the Wisconsin transportation planning process. Wisconsin has its own environmental protection act (WEPA), modeled after the national act. In theory, all Wisconsin State agencies must prepare environmental evaluations of their plans, but in practice only the DOT does so. The DOT prepares a System Environmental Evaluation (SEE) to identify the cumulative environmental effects of the plan alternatives and proposals. Of course, The Wisconsin Department of Transportation (WisDOT) also prepares the traditional environmental impact statements for all projects in accordance with NEPA. The purpose of the SEE is to identify the cumulative effects of system plans that individual project EISs do not portray.

WisDOT has been mandated by a consent decree to complete its State intermodal planning on an accelerated basis. The planning process was required by July of 1994, six months earlier than the Federal deadlines. This, of course, has forced a compressed time to meet all ISTEA planning requirements in the accelerated schedule. Finally, Wisconsin supports an ombudsman in the Wisconsin Department of Justice, whose responsibility is to review certain activities of State agencies and intervene as appropriate. The Wisconsin Intervenor has taken an active interest in the WisDOT statewide planning process.

In addition to these legal responsibilities, there are other conditions that set the basis for statewide planning. These include the growth and development patterns similar in other States. This growth is largely focused in the urban areas. Within the urban areas, there is a pattern of lowering density in urban cores, coupled with low density in suburban and exurban fringe areas. These trends have increased the difficulty of serving the growing urban population with transit or High Occupancy Vehicles. This trend is likely to continue.

Approach

Wisconsin began its statewide planning process (Translinks 21) with the development of an organized approach to the entire planning effort. One of the first steps in the process was to conduct a series of public meetings throughout the State. In addition, a series of

special topic “forums” were undertaken to focus on specific topics. At each forum, 20 to 30 leaders in the subject area were brought together with WisDOT staff to discuss the setting and long range goals and objectives of the planning process with a special emphasis on the forum subject area. Following the forum, questions and comments with forum responses, if appropriate, were taken from public attendees.

The Environment and Transportation Forum resulted in a list of 21 action items for consideration in the development of the statewide plan. These items ranged from a call to consider the cumulative impacts of plans to the need to educate political decision-makers about the relationship of land use to transportation coupled with the long term consequences of the short range decisions. WisDOT was asked to take the lead in shaping public/legislative understanding and attitudes. Other products of the forum reinforced hopes for a better human and natural environment. These included a desire for mobility for all citizens of the State, effective means of dealing with air quality, wetlands, historic features, highway beautification, and removal of unsightly billboards.

Energy, Water Pollution and Other Environmental Factors

Using the output from public meetings and the environment and transportation forum, WisDOT prepared a description of broad alternative environmental policies. WisDOT, in preparing this document for policy consideration, considered four key environmental issues: air quality; the natural environment; energy; and global climate change. Four alternative broad-based department policies were developed. “Alternative 1: Compliance with Environmental Regulations” can be characterized as a continuation of the already extensive WisDOT environmental role. “Alternative 2: Active Role - Reactive to Specific Environmental Issues” is an increasing role over the existing WisDOT policy. Under this policy, WisDOT participates in the environmental debate but does not lead the concern for awareness. With “Alternative 3: Aggressive Role” WisDOT would become a leader in advocating awareness, communication and debate on environmental issues, and environmental goals would be prominent in planning and policy development. “Alternative 4: Dominant Role - Regulatory Approach” would require that environmental factors be the primary issue in determining investment decisions. This would constitute a major shift in WisDOT policy.

WisDOT has the responsibility to prepare an environmental evaluation for the entire statewide transportation plan, and has offered guidance for MPO plan environmental evaluation as well. WisDOT has prepared an Assistance Guide for each MPO to use in addressing environmental evaluation, titled “Environmental Evaluation Guidance - Guidelines for Metropolitan Planning Organizations in Evaluating the Environmental Impacts of Metropolitan Transportation Systems Plans,” WisDOT, March 28, 1994. The guide’s purpose is to establish a framework from which MPOs can consider environmental impacts as required under ISTEA.

The guidelines address the appropriate level of detail for analysis at the systems

planning level, the difference between qualitative and quantitative information and comparisons, and the need to assess adverse but also beneficial impacts. Additionally, the guidelines address the procedure for completing a SEE. The process includes scoping, in which the broad range of alternatives and issues are discussed along with goals and objectives. The second step in the process is the purpose and need analysis to identify the magnitude of future problems and required performance. Alternatives are then developed. The final step in the process is to evaluate each alternative's impact on environmental, social, and economic sectors.

An overall assessment of the environmental effect was conducted for each of the four transportation plan alternatives. This provided input into the selection of the draft plan since it reported few differences between the alternatives. A SEE has been completed for the statewide draft plan. It incorporates analysis of a range of impacts as a result of plan implementation. Issues such as wetlands, relocations, air quality, energy consumption, and social and economic impacts are addressed in the report. The exhibit on the following page illustrates the summary information contained in the draft plan.

ISTEA Requirements

ISTEA requires the consideration of certain environmental factors at the planning stage. It does not require the completion of an environmental impact statement as part of the planning process. Hence the process underway in Wisconsin is large in its scope and breadth.

Value

The Wisconsin approach is very valuable. While the Wisconsin approach is not required by NEPA or FHWA, as States and cities become more concerned and aware of environmental issues, there may be a greater interest in tackling environmental issues early in the planning phases. The WisDOT effort is attempting to address the systems level issues at a stage prior to segmentation. Necessarily, the approach is "broad brushed" and conceptual. It remains to be seen if this comprehensive environmental process creates value for public consideration of plan alternatives.

Administrative Implications

WisDOT has made a significant commitment of its planning staff to the statewide planning effort at the intercity level. Between 35 and 40 persons devoted a significant portion of their time to the statewide plan. Additionally, other senior staff support the planning effort from management positions. More staff are addressing planning issues at the MPO level. The DOT has retained consultants to assist in plan development, and to develop models and software. Total cost of consultant services is approximately $750,000.

Adaptability

All or portions of the Wisconsin approach are adaptable to other settings.

Cautions

The principal caution involved is the potential sheer magnitude of the endeavor should there be an inclination to get to project level detail. Since most State staff experience is at the project level, there was a tendency to want to develop project level detail. States or MPOs considering a statewide or regional environmental effort should develop "doable" procedures, measures of effectiveness, and performance indices reflective of the broad issues and what is typical scarcity of reliable statewide level data on such an expansive scale. Additionally, should States embark on a data collection effort to overcome this lack of data, cost of collection and data management requirements become an area of concern.

Further Information

Roger Schrantz
Administrator, Division of Planning and Budget
Department of Transportation
4802 Sheboygan Avenue
Madison, Wisconsin 53707
Telephone: (608) 266-6479

VII. Transportation Systems Management (TSM) and Operations

Transportation system assessments typically find that the transportation system, while appearing to be saturated, is operating at less than peak efficiency. Minor investments can either preserve the system for future needs or enhance the operation to a more optimal level. This is desirable since these actions can assist day to day travel and forestall the time when major investments are more urgently required. Additionally, other strategic investments for specific new facilities or programs can be made that relieve existing problems. These types of actions can include provisions for such things as bike facilities or actions to reduce travel through incentives for transit and carpooling.

Departments of transportation continue to stress the importance of transportation system management (TSM) as a sensible process and in accordance with requirements originating in the 1970s. ISTEA requires that TSM be a part of the statewide planning process. The following case studies are examples of how TSM measures are incorporated in the planning process.

TSM and Operations
Arkansas Statewide Transportation Planning Process

State Setting

The State of Arkansas developed a statewide plan in 1990. The plan was oriented toward Arkansas' needs at the time, with emphasis on improvements to support economic development objectives. However, the plan's primary focus was new highway and arterial construction to address capacity needs. There was little investigation of multimodal or intermodal requirements and only limited consideration of existing facilities.

The statewide plan currently under development explores intermodal issues to a much larger extent, with a particular emphasis on the potential for increased efficiencies of goods movement through intermodal transport opportunities. The current planning effort also focuses on public transport needs, particularly among the transit dependent.

Approach

Arkansas is preparing a process plan rather than a project-based program. The plan will delineate the policies and a process that will drive project-based planning. MPO plans will be incorporated into the statewide plan. A pedestrian and bike plan, intermodal development plan, and six management systems and the traffic monitoring system for highways are an integral part of their overall statewide planning process. Future project programs will be required to follow the planning process currently being developed and to reflect the policies contained in the pedestrian and bike plan and the intermodal

development plan. The conditions data and strategies developed through the use of management systems also will provide a basis for decisions made in future project programs.

Congestion Management

Arkansas is considering TSM alternatives, incident management techniques, and demand management measures to address congestion problems, particularly during peak periods. Overall VMT reductions and reductions in single occupant vehicle (SOV) use are not a significant part of their approach at present, in large part due to the rural nature of the State and the characteristics of their congestion problems. There are no non-attainment areas in Arkansas.

Segments of Arkansas' interstate system routinely carry truck traffic loads of 25 to 50 percent of total average daily traffic (ADT). Truck traffic thus contributes significantly to the State's interstate congestion problems. Much of Arkansas' congestion management strategy thus focus around commercial vehicle movements. Two primary initiatives are under consideration for decreasing congestion related to commercial vehicle movements:

- Increasing the efficiency of truck traffic through use of weigh in motion and electronic pre-clearance techniques; and
- Increasing opportunities for intermodal goods movement, thus reducing truck traffic volumes.

These strategies are described in more detail under the Commercial Vehicles heading.

Transit Service

A series of community meetings held in 1992 identified transportation as a key social problem in Arkansas. Access to medical facilities, lack of transportation to work, difficulty in traveling for food shopping, and the inability to travel from rural areas to major cities were reported at these meetings as significant problems for those without access to fixed route public transit service.

A study of transit service needs estimated unmet needs totalling 50 percent of current transit trips statewide, implying a needed 50 percent increase in transit services. Serving these unmet needs requires both expanding and enhancing existing public transit service as well as developing and funding new transportation programs.

In 1994, Arkansas passed Act 353, the Arkansas Public Transportation Coordination Act, in response to the findings of the 1992 study. Act 353 created the Arkansas Public Transportation Coordinating Council to coordinate public transportation services, particularly among the transportation-disadvantaged. The Council's objectives, as established by the Act, are to:

- Provide a public transportation services information clearinghouse;
- Establish statewide objectives for the provision of public transportation service;
- Develop policies to coordinate funding for public transportation;
- Identify and propose means to eliminate barriers to coordination/accessibility of public transportation;
- Assist communities in developing public transportation systems;
- Ensure that other State policies and programs are supportive of public transportation; and
- Develop performance standards related to public transportation service and accessibility.

Commercial Vehicles

Arkansas recognizes the inherent advantages of intermodal freight services, for both commercial interests and the State. Intermodal goods transport can lower the cost of freight movements to both the public and private sectors. This is done through reducing road and bridge maintenance costs, minimizing new construction to accommodate truck traffic, reducing attendant roadway congestion, and lowering overall private sector costs through lower cost rail or waterway goods movement, and increasing the reliability of delivery time for long-haul shipments.

Central Arkansas lacks an adequate regional multimodal freight transfer center. Its interstate highways average more than 25 percent truck traffic. In some locations between Little Rock and Memphis, truck traffic makes up more than 50 percent of ADT. The North American Free Trade Agreement (NAFTA) is expected to significantly increase truck traffic in Arkansas as a result of freight movements between Mexico and US northeastern/midwest manufacturing centers and markets. The State thus views investigation of means to reduce truck volumes on interstate highways as critical, through the use of modal transfer facilities, particularly in the Central Arkansas area.

Several avenues for truck traffic reduction are being pursued. An intermodal freight movement study is pending. This study will focus on the origin and final destination of intermodal traffic, the percent of intermodal truck trips as a part of total truck trips, types of intermodal equipment being used and the types of commodities being hauled. Results of the study will be used in identifying the need for intermodal freight transfer centers within the State and identifying/ evaluating potential locations.

A study of intermodal services that would be beneficial at rural river ports and the potential effect of such facilities on economic development is underway. This is a joint study with Mississippi, funded by FHWA.

Several IVHS applications are under investigation in Arkansas to increase the efficiency of goods movement. These include a weigh in motion study and a pilot program to test expert systems applications for electronic pre-clearance for the commercial trucking

industry. Arkansas is participating with the States of New Mexico and Colorado in the development of a proof of concept Electronic One-Stop Shopping System for commercial vehicle operators (CVOs). The One-Stop Shopping pilot study will identify whether it is feasible to meet permit requirements through remote application (both CVO home office and in-State roadside locations such as ports of entry or weigh stations) and will identify and test a pilot concept for doing so.

ISTEA Requirements

Arkansas' planning efforts address the key requirements of ISTEA as related to TSM and Operations. Because Arkansas is a rural State with relatively smaller population centers, urban congestion and air quality problems are not an overriding concern. Means to reduce VMT or SOV travel are less important in overall congestion management planning than are measures to move truck traffic more efficiently and to reduce truck traffic. Arkansas is investigating opportunities to facilitate intermodal goods movement as its primary means of reducing truck traffic and protecting its investment in the existing transportation system. By reducing truck traffic, the State believes it can reduce new congestion management capacity requirements and can lower overall pavement, resurfacing and bridge maintenance costs. To improve the efficiency of truck travel, the State is investigating weigh-in-motion and electronic pre-clearance of vehicles.

Value

Arkansas is taking an active role in transit and intermodal planning in a rural environment. Its approach to problem identification and investigation and strategies for problem resolution may offer models for other rural States facing similar problems.

Administrative Implications

The planning and problem investigation work conducted to date in Arkansas have been accomplished primarily in-house by existing staff. Consultant assistance to date has not exceeded $300,000.

Adaptability

The models provided by Arkansas were developed using in-house staff and minimal consultant assistance. The level of resources required to develop similar data for other States should not present an insurmountable problem for smaller or more rural States. The weigh in motion and electronic pre-clearance strategies under investigation in Arkansas are also being tested in several other States to ensure compatibility with a variety of regulatory and institutional structures and physical operating environments.

Further Information

Bryan Davis
Arkansas Highway and Transportation Department
P.O. Box 2261
Little Rock, Arkansas 72203
Telephone: (501) 569-2214 / Facsimile: (501) 569-2428

TSM and Operations
Washington Statewide Transportation Planning Process

State Setting

Over the past several years, Washington has seen unprecedented growth, especially in the Puget Sound area. Accompanying the positive aspects of this growth has been a noticeable increase in traffic congestion. The State of Washington has been pursuing mitigation techniques to include an aggressive IVHS program, access control measures, mass transit improvements, transportation system management techniques, and transportation facility preservation efforts.

In response to growth and increased congestion pressures, the State has developed a comprehensive approach for addressing statewide transportation issues and completely restructured the transportation planning and programming process. In 1990, the State legislature passed a growth management act that included extensive language on the transportation planning process and the link between transportation and land use. The act established an interdependent hierarchy of the transportation and land use planning decision process. Conformance between local and statewide transportation planning goals is a main objective of the process.

The origin of transportation planning in Washington is at the local level. Local jurisdictions are required to develop an extensive transportation element to their comprehensive plans. The next layer of plan development is at the regional level. Regional Transportation Planning Organizations (RTPOs) are voluntary planning organizations that serve the same purpose for non-urban areas as metropolitan planning organizations (MPOs) serve for urban areas. The RTPOs and MPOs must prepare regional transportation plans that are consistent with both the local comprehensive plans and any statewide transportation plans and policies. Guidance for the regional plans is provided by WSDOT. In turn, all statewide transportation plans must be consistent with the local and regional plans. Through this process, the regional plan is the mediation tool used to identify and address common State and local issues. STIP preparation is based on input from each of the plans as illustrated in the exhibit on the following page.

Approach

Many of the ISTEA statewide transportation planning factors affecting TSM and operations of the transportation system were first addressed by WSDOT several years ago. Through such projects as the IVHS strategic plan, the statewide transportation policy plan, the statewide multimodal transportation plan, the individual statewide modal plans, and the multiple pieces of legislation relating to transportation planning and project programming, WSDOT's commitment to each of the ISTEA planning factors is reaffirmed.

Bicycle and Pedestrian

The State interest component of the statewide multimodal transportation plan will include a bicycle transportation and pedestrian walkways modal plan. This plan will propose a statewide strategy for addressing bicycle and pedestrian transportation, including the integration of bicycle and pedestrian pathways with other transportation modes, development of a framework for coordination between local, regional and State agencies in the provision of bicycle and pedestrian facilities, the role these facilities will play in reducing traffic congestion, and an assessment of statewide bicycle and pedestrian transportation needs.

Recreational Trails and Tourism

A specific approach has yet to be defined for addressing these areas. The State-owned facilities component of the statewide multimodal transportation plan will contain a scenic and recreational highways element and a paths and trails element. The scenic and recreational highways element will identify and recommend designation of scenic and recreational highways, provide for enhanced access to scenic, recreational, and cultural resources associated with designated routes, and recommend a variety of management strategies to protect, preserve, and enhance these resources. The paths and trails element will identify the needs of nonmotorized transportation modes on the State transportation systems and provide the basis for the investment of State transportation funds in paths and trails.

TSM Protection of Prior Investments

A major element of the State-owned facilities component of the statewide multimodal transportation plan is the system preservation element. This element will establish structural preservation objectives for the State highway system, including bridges. Current and future structural deficiencies will be identified and recommended funding levels will be proposed along with specific actions needed to preserve the structural integrity of the State highway system. This element will drive the preservation component of the STIP and biennial WSDOT budget request to the State legislature.

Additionally, the first goal in the transportation policy plan is to “preserve and maintain transportation systems needed today and in the future.” Preservation of existing transportation facilities is the number one priority for future funding programs. Preservation extends to rail rights-of-way and freight rail service throughout the State. Programming for preservation projects must consider as a minimum extending the service life of the existing highway system, ensuring the structural ability to carry loads imposed upon highways and bridges, and minimizing life cycle costs.

Service objectives outlined in the interim State-owned component of the statewide multimodal transportation plan call for TSM applications to increase the efficiency of

system operations. The objectives include the employment of technological advances and partnerships with public and private interests, and ensuring safe operation of traffic control devices and safe travel through work zones.

Congestion Management

Commute trip reduction goals have been established by the State legislature as a means to reduce congestion and improve air quality in metropolitan areas, and help reduce energy consumption and dependence on imported petroleum. The goals affect employers with at least one hundred employees at a single work site and work sites with at least one hundred workers, regardless of the number of employers, that work during normal morning work hours. It also requires cities, counties, and State agencies located in areas experiencing air pollution and traffic congestion problems to adopt ordinances and initiate plans to reduce automobile commute trips. The minimum commute VMT reduction goals required by law are 15% by 1995, 25% by 1997, and 35% by 1999 over 1990 commute VMT levels.

To aid in congestion management, WSDOT has developed an IVHS strategic plan. The plan outlines four types of service provisions or improvements: traffic management, freight mobility, public transportation, and traveler information. The plan further divides the State into five service regions for analysis and development of IVHS applications that respond to particular regional needs. The above exhibit outlines the highest ranking applications for each service region. Recommended early IVHS actions include:

- Implement IVHS operational tests, including the North Seattle Advanced Traffic Management System, Travelaid, Bellevue Smart Traveler, and transit signal priority projects;
- Expand coverage of freeway surveillance in the Seattle/Tacoma region;
- Develop a Traveler Information System, including interim databases and interagency communications network for Central Puget Sound;
- Encourage completion of the transit systems integration projects including automatic vehicle location at Seattle Metro and Spokane transit and creation of systems to provide real-time transit arrival information at transit centers and kiosks;
- Expand fleets of high occupancy vehicle (HOV) “probe” vehicles in the Seattle/Tacoma region; and
- Implement advance commercial vehicle operations along interstate routes and borders in coordination with other States.

Findings and recommendations of the IVHS strategic plan will be incorporated into the statewide multimodal transportation plan and the STIP as appropriate.

Transit Service

The State interest component of the statewide multimodal transportation plan will include a State public transportation plan that:

- Articulates the State interest in public transportation and provides quantifiable objectives, including benefits indicators;
- Identifies the goals for public transit and the roles of Federal, State, regional, and local entities in achieving those goals;
- Recommends mechanisms for coordinating State, regional, and local planning for public transportation;
- Recommends mechanisms for coordinating public transportation with other transportation services and modes; and
- Recommends a statewide public transportation facilities and equipment management systems as required by ISTEA.

Commercial Vehicles

The State Transportation Policy Plan identifies freight mobility as a major concern for the State and outlines an in-depth policy statement for consideration of freight mobility needs. The four action strategies for addressing freight mobility listed below are accompanied with recommended action strategies for each:

- **Planning coordination for freight transportation**
  - All elements of the statewide multimodal transportation plan should address freight mobility and freight intermodal connections.
  - WSDOT should take an advocacy role for freight transportation, to include communicating the structure of the freight industry in the State, identifying industry trends, emphasizing the role of the freight industry in the State's economy, and advocating freight transportation interests in policy development, public planning processes, and project development.
  - All elements of State, regional, and local transportation plans should address freight mobility and intermodal connection needs and identify proposed solutions at activity centers such as: waterborne commerce ports, barge facilities, and airports; industrial, warehousing, and other intermodal transfer areas; agricultural and natural resource areas; and urban centers.
  - Regional and local transportation plans should address freight movements within and through their areas, reflect the impact of land use recommendations on freight movement, and consider freight mobility as a factor in local concurrency management systems developed under the Growth Management Act.
  - Include freight interests in regional transportation planning organizations technical and advisory committees and/or through regular liaisons with freight interests or firms in both transportation planning and project selection processes.
  - Freight transportation interests should actively involve themselves in public sector transportation planning and should assess the implications of their operational practices on the transportation system.
  - Private sector investments in modern logistic equipment and management systems, including intermodal facilities and advanced technologies that support just-in-time deliveries, should be supported by and coordinated with local,

regional, and State transportation investments.

- **Freight transportation information needs**
  - WSDOT should have responsibility for developing and maintaining an information system to assist statewide freight planning.
  - Regional and local jurisdictions should have responsibility for gathering and maintaining freight information within their regions.
  - Freight transportation information systems developed by the State and regional transportation planning organizations should be developed in coordination with the ISTEA intermodal management system.

- **Improving access for freight**
  - Develop and periodically update a State Marine Ports and Navigation Plan component of the statewide multimodal transportation plan to include needed alignments of streets and roads that serve ports and other major water commerce facilities, and should identify other landside transportation access needs.
  - Identify and incorporate landside access needs to industrial ports and other intermodal freight facilities in the statewide multimodal transportation plan.
  - Improve a core system of all-weather roadways to move commodities.
  - Identify and implement options to mitigate or alleviate impacts of traffic congestion on freight movement.
  - Coordinate with other States to develop and recommend uniform regulations on commercial vehicle weight, size, and configuration.
  - Continue development of the Aviation Plan component of the statewide multimodal transportation plan.
  - Continue development of the Freight Rail Plan component of the statewide multimodal transportation plan.
  - Consider the impact of intercity and regional rail passenger proposals on freight mobility and access.
  - Fund branch line rail service preservation projects where there is sufficient public benefit.
  - Seek funds for additional Federal freight rail preservation and safety program funding.
  - Evaluate the needs, opportunities, and advisability of providing State assistance to operate some freight railroad lines.

- **Moving freight in containers**
  - Support the development of a uniform Federal policy regarding overweight containers.
  - Pursue a multistate approach to the implementation of the Safe Container Transportation Act of 1992.
  - Develop an investment strategy to improve roadway segments used exclusively for drayage of containers and other heavy freight in port areas.

Each of these action strategies will be incorporated into the Freight Rail Plan, Aviation Plan, and Marine Ports and Navigation Plan components of the State interest element of the statewide multimodal transportation plan as appropriate.

ISTEA Requirements

As outlined above, Washington's approach to the statewide transportation planning factors affecting TSM and traffic operations is responsive to ISTEA requirements in each area. The integration of the State Transportation Policy Plan, RTPO Transportation Plans, and local Comprehensive Plans with the Statewide Multimodal Transportation Plan is noteworthy.

Value

There are many valuable aspects of Washington's approach to statewide transportation planning. With respect to TSM and traffic operations, a valuable point expressed by the statewide multimodal transportation plan and the State transportation policy plan is identifying preservation of existing facilities as the number one project funding priority. In addition, the State has illustrated an extensive understanding of freight mobility needs and their effect on the State economy. The IVHS strategic plan is expected to provide large returns in increased traffic operation efficiency and will benefit private sector, as well as public sector transportation interests. Other valuable portions of the Washington statewide multimodal transportation plan are the incorporation of management system needs into the statewide plan, and identification of the impacts land use decisions have on multiple modes.

Administrative Implications

The Washington State Transportation Commission is a seven member commission appointed by the governor. This commission is responsible for recommending statewide transportation policy to the legislature, adopting the statewide transportation plan, and guiding the State's transportation program. The statewide transportation plan itself is developed by the Planning and Programming Service Center (PPSC) of the State Department of Transportation. The PPSC division prepares the plan in cooperation with representatives from modal specific divisions of the department and input from district offices. Total budget in FY 1994-1995 (July 1, 1993 - June 30, 1995) for development of the statewide multimodal transportation plan is $5,776,000.

Adaptability

The approach and structure of the statewide multimodal transportation plan can be adapted to other States. The linkages between the various local, regional and State plans may be difficult for some States to duplicate without similar legislative support enjoyed by WSDOT. The approach is flexible to the extent local comprehensive plans

allow and is most effective in addressing statewide issues and providing policy level direction for transportation investments.

Cautions

The success of the Washington approach to statewide transportation planning is largely due to the Growth Management Act and the concurrence requirements between land use and transportation plans. A caution associated with this approach is the amount of influence local comprehensive plans can have on statewide transportation planning. The statewide transportation plan must conform to the transportation element of the local comprehensive plans. This bottom-up approach can potentially weaken the effectiveness of the statewide plan. The check in this system is the requirement that the local comprehensive plans must be coordinated with regional transportation plans, which are prepared under guidance provided by the State.

Further information

Charles Howard
Washington State Department of Transportation
Transportation Planning Office
Transportation Building
P.O. Box 47300
Olympia, Washington 98504-7300
Telephone: (360) 705-7958 / Facsimile: (360) 705-6813

TSM and Operations
Wisconsin Statewide Transportation Planning Process

State Setting

Statewide transportation planning has been practiced for some time in Wisconsin. Planning in the past has been largely dominated by policy plans, State highway system plans, airport system plans, and rail policy plans. However, the plans were single mode in character, and coordination between modes in these planning efforts was minimal. ISTEA issued a call for a more intermodal and comprehensive approach to State transportation planning, to which Wisconsin has responded.

Wisconsin State policies and requirements reinforce the comprehensive nature of the Wisconsin transportation planning process. Wisconsin has its own environmental protection act (WEPA), modeled after the national act. In theory, all Wisconsin State agencies must prepare environmental evaluations of their plans, but in practice only the DOT does so. The DOT prepares a System Environmental Evaluation (SEE) to identify the cumulative environmental effects of the plan alternatives and proposals. Of course, The Wisconsin Department of Transportation (WisDOT) also prepares the traditional environmental impact statements for all projects in accordance with NEPA. The purpose of the SEE is to identify the cumulative effects of system plans that individual project EISs do not portray.

WisDOT has been mandated by a consent decree to complete its State intermodal planning on an accelerated basis. The planning process was required by July of 1994, six months earlier than the Federal deadlines. This, of course, has forced a compressed time to meet all ISTEA planning requirements in the accelerated schedule. Finally, Wisconsin supports an ombudsman in the Wisconsin Department of Justice, whose responsibility is to review certain activities of State agencies and intervene as appropriate. The Wisconsin Intervenor has taken an active interest in the WisDOT statewide planning process.

In addition to these legal responsibilities, there are other conditions that set the basis for statewide planning. These include the growth and development patterns similar in other States. This growth is largely focused in the urban areas. Within the urban areas, there is a pattern of lowering density in urban cores, coupled with low density in suburban and exurban fringe areas. These trends have increased the difficulty of serving the growing urban population with transit or high occupancy vehicles. This trend is likely to continue.

Approach

Wisconsin began its statewide planning process (Translinks 21) with the development of an organized approach to the entire planning effort. The plan is designed to have seven principal elements:

- A policy focus to evaluate key strategic issues; including land use, transit strategies, environmental concerns, urban highways, induced travel, pricing impacts, demand management, and rural/specialized transportation;
- An MPO/DOT partnership for metropolitan planning, where the DOT provides financial, technical, and policy assistance to the MPOs. Guidance papers have been prepared for bicycle planning, pedestrian planning, public participation, access management, environmental evaluation, needs assessment, plan updates, and multimodal prioritization;
- An intercity multimodal passenger element; beginning with statewide multimodal forecasts, determining modal shares based on alternate scenarios, and including consideration for rail passenger, intercity bus, air, high speed rail, and private vehicle personal travel;
- An intercity freight transportation element; beginning with statewide multimodal commodity flow forecasts, analysis of diversion potential by commodity, review by expert panels, and including consideration for freight rail, truck, waterborne, air, and intermodal freight transport;
- A financial element to structure plan financing implementation over 25 years, an evaluation of alternate funding sources, and the preparation of related financial information;

- A very extensive public information program with three primary stages:
  - "Outreach" at the beginning of the planning process to inform the public of key issues and to identify their needs and priorities. In addition to numerous newsletters and discrete planning papers, nine major regional forums were conducted. Statewide forums on transit planning, freight, urban strategies, economic development, tourism, environmental concerns, and rural/specialized transportation were conducted;
  - "Plan Alternatives" stage, organized to elicit public consideration of four major plan alternatives. Eighteen focus groups, ten regional open houses, and meetings with 35 different organizations were held. A video, newsletter, and plan alternative document were the primary means to provide the public with information on the four plan choices; and
  - "Plan Selection" stage for final public review and comment on the draft statewide intermodal plan. Seventeen town meetings, two public hearings, and numerous meetings with public officials, business groups, and interested transportation associations were conducted. Again, a video, newsletter, and draft plan document were the key vehicles for public information. In addition to surveys of all meeting participants, a statewide, statistically valid telephone survey was conducted.

- Unique in the nation, WisDOT also prepares a System Environmental Evaluation to identify the cumulative environmental effects of the proposed plan. This is in addition to the standard environmental impact statements for individual projects prepared in conjunction with project development.

It is expected that most of the planning for TSM and operations will continue at the MPO

level with the assistance of the DOT, since the MPOs have the highest concentration of trips and congestion. To assist the MPOs, the DOT developed a series of policy papers related to the TSM and operations issues. These include:

TSM Protection of Prior Investments

Corridor Preservation and Access Management Guidelines - Guidelines to assist MPOs in addressing corridor preservation and access management concerns in their communities. The policy paper addresses the problems in implementing corridor preservation, describes methods for preservation, the role of MPOs as advocates of preservation, and lays out strategies for preservation. Access control is recognized as an effective method of contributing to the management of a corridor. The policy paper describes the need for access management, the status of access management in Wisconsin, and the role of the MPO in addressing access management.

Bicycle and Pedestrian

Wisconsin Bicycle Planning Guidance - Guidelines for MPOs and communities in planning and developing bicycle facilities. Wisconsin law requires the DOT to assist local and regional organizations in planning, promoting, and developing bikeways. The focus of the Wisconsin legislation and on the guidance document is on the utilitarian aspects of bicycling. The guidelines address the bicycle planning process, implementation, land use and site planning, criteria for bicycle planning, facilities, and safety.
Wisconsin Pedestrian Guidance - Guidelines for MPOs and communities in planning and developing pedestrian facilities. The guidelines set forth recommendations for a proposed pedestrian planning process. Goal setting, conditions inventory, facility planning, implementation, and citizen participation are described in the guideline.

Transit Service

Transit in Wisconsin - Five alternatives for the future. This report describes the existing conditions for transit in Wisconsin, problems involved with providing transit service, goals for transit, and evaluation criteria for measuring transit productivity and effectiveness. The report presents a review of transit policy alternatives. The alternatives range from meeting the needs of the transit dependent to making transit a competitive and attractive alternative to the SOV.

Congestion Management

Transportation Demand Management - Description and review of alternative policies for the WisDOT. The purpose of this report is to identify, explore, and evaluate alternative policies the State could adopt regarding transportation demand management (TDM). The report describes the background for TDM, including State regulations, goals, and policy alternatives. Additionally, the DOT is actively supporting MPOs in their congestion

management system and plan development.

Through these guidelines, and through communication with MPOs, a planning relationship has been established to address the TSM and operations requirements. The guidelines were prepared so that each MPO would be able to address plan elements from a uniform basis. Timelines have been set for completion; however, since many MPOs have recently completed planning updates, WisDOT also provided that the MPOs could address the planning needs through interim planning procedures. Overall, the process is working well as MPOs update their plans. Generally, the guidance documents are well received. The specific facility requirements or program requirements will be part of each MPO plan.

ISTEA Requirements

ISTEA requires that the planning process address such elements as bicycles, pedestrians, corridor preservation, congestion management, and transit. Working with the MPOs, Wisconsin is addressing the vital elements of TSM and operations planning issues.

Value

The Wisconsin approach is comprehensive and is valuable. Setting a relational framework between the State and regional or local agencies recognizes local knowledge and basic local jurisdiction for most TSM and operations planning. Hence, authority and responsibility is appropriately vested. Additionally, the guideline documents set direction for each MPO without mandating policy.

Administrative Implications

WisDOT has made a significant commitment of planning staff to the statewide planning effort at the intercity level. Between 35 and 40 persons devoted a significant portion of their time to the statewide plan. More staff are addressing planning issues at the MPO level, strategic issue, and environmental evaluation levels. Additionally, other senior WisDOT staff support the planning effort from a management position. WisDOT has retained consultants to assist in the development of its plans. To support the general statewide effort, a consultant has been retained to develop models and software, another consultant contract supports the general planning effort, and a third consultant is assisting in the development of an air systems plan. Total cost of consultant services is approximately $750,000.

ISTEA has created whole new planning responsibilities, terminology, and administrative organizations. WisDOT planning staff has found that their responsibilities not only include actual planning but also education within and outside of the department. The time commitments of required meetings while keeping the planning process going is

difficult for the staff to maintain.

Adaptability

The WisDOT process can be adapted to other States as a technique. Since MPOs already maintain TSM plans and since most TSM issues are in urban areas, Wisconsin's approach comprehensively addresses the needs and redirects the TSM planning process to be in keeping with ISTEA regulation.

Cautions

Experience generated from this process could be transferred to other locales; however, authority to conduct some activities in the fashion of Wisconsin may not be present in other States.

Further Information

Roger Schrantz
Administrator, Division of Planning and Budget
Department of Transportation
4802 Sheboygan Avenue
Madison, Wisconsin 53707
Telephone: (608) 266-6479

VIII. Investment and Finance

The ISTEA regulations require that the statewide planning process considers financing strategies, life cycle analysis, and investment strategies. DOTs are addressing these issues in a variety of ways. As a result of requirements to constrain MPO regional plans, the shortfall in funding typical at a metropolitan level creates an interest in financing strategies. At the State level, the shortfall is typical and creates an interest in means of finance. Two case studies are described below.

Investment and Finance
Colorado Statewide Transportation Planning Process

State Setting

In 1991, the Colorado State Legislature passed House Bill (HB) 91-1198, the legislation creating the Colorado Department of Transportation (CDOT) from what had formerly been the Department of Highways. Included within this legislation was a mandate to prepare a statewide transportation plan addressing all modes of transportation. The bill required establishment of Transportation Planning Regions to do transportation planning. A requirement to prepare mode-specific plans also was included in the legislation. Prior to the passage of HB 91-1198, Colorado had no statewide transportation planning requirement, no specific planning requirements for non-highway modes and no long-range planning requirements beyond the STIP time frame (five to six years).

The requirements of HB 91-1198 and ISTEA thus represent a departure from the status quo in Colorado, where transportation planning had previously focused on highway modes, with some effort to integrate rail needs in the overall planning process.

CDOT brought together stakeholders from around the State to define 15 Transportation Planning Regions and establish a process to respond to the requirements for developing a long-range, multi-modal transportation plan. Regional Planning Commissions were formed. Each Commission includes MPO representatives (in MPO regions) and local and county officials (in non-MPO regions). A State Transportation Advisory Committee (STAC) with one representative from each of the 15 planning regions was formed to provide input to the statewide plan.

The planning process incorporates two primary components: planning and programming. Each component includes both bottom up and top down elements. Policy planning is conducted at the State level, with project planning conducted at the local and regional levels. Ultimately, project plans will be screened for conformity with statewide policies to develop a fiscally constrained program (not required by ISTEA) of projects for each region. The statewide planning process will address all modes of transportation. Individual modal plans also will be prepared. Findings and recommendations of the

modal plans will be integrated into the final statewide plan.

Colorado is preparing both a preferred statewide plan, addressing anticipated mobility needs through the year 2015 without regard to revenue limitations, and a constrained plan, that limits transport investments to funding levels anticipated to be available during the twenty-year period.

Approach

The overall objective of Colorado's statewide transportation planning process is to increase the efficiency of the transportation system by maximizing efficient use of the existing system and integrating all modes to address mobility needs throughout the State. The planning process incorporates several elements as illustrated in the following exhibit. The elements include:

Regional Plans

Regional plans were developed by regional planning commissions working with local agencies, elected officials, citizens, local CDOT staff, and industry. The regional plans outline regional goals and objectives, mobility needs, and a twenty-year program of projects to address these needs. Each region then developed a fiscally constrained plan, that prioritized projects by need, construction time frame, and anticipated available revenues. In developing a program of projects, the plans considered:

- Regional goals and objectives, developed through comprehensive regional public involvement programs;
- Existing and projected population and employment levels;
- Existing and anticipated travel demand;
- Environmental constraints and opportunities;
- The extent and condition of existing facilities; and
- In the constrained plan, anticipated revenue levels (local, State and Federal).

The plans serve as input to the statewide planning process, with the preferred plans incorporated into the statewide preferred plan and the constrained plans providing the starting point for the State's constrained plan.

Modal Plans

The State is preparing separate modal plans for air (passenger and freight movements); truck and rail; rideshare, surface passenger travel, including SOV, transit and other vehicular travel; and bicycle/pedestrian travel. The modal plans will include a series of policy and action initiatives to address needs within each mode and to facilitate coordination among modes to increase the people and goods carrying efficiency of the State's transportation system. The modal plans will serve as advocacy documents for each mode and will be prepared with input from operators, users, and regulators of each

mode. The modal plans will provide input to the statewide plan.

Management Systems

Management systems are being developed to provide an enhanced basis for:

- Development of investment, modal, maintenance, and other policy decisions;
- Analysis of life cycle costs;
- Performance standard development;
- System/facility performance tracking;
- Project identification - sketch planning at the local and regional levels, including identifying relative effectiveness of various courses of action and specific projects;
- Project selection and prioritization;
- Performance monitoring - to evaluate the effect of policies, actions, programs after implementation; and
- Refinement of policies and programs to better address needs.

The management systems will provide input to updates of the statewide plan. The systems will not be operable in time to provide input to the statewide planning efforts presently underway.

Statewide Plan

CDOT's statewide plan is being prepared in two phases. The first phase will result in a preferred plan outlining policies of statewide concern and issues of statewide significance. The plan will identify mobility corridors and incorporate the regional plans prepared by the 15 Regional Transportation Planning Commissions. In the second phase, a fiscally constrained plan will be prepared and a program of projects within expected available funding limits will be defined.

Investment Strategies

Mobility corridors play an important role in the statewide planning process. Mobility corridors are defined as corridors or facilities satisfying demand for movement between two points. The physical form the corridor takes may be a road, rail line, intercity bus route, commercial air route, or some combination of such facilities. Existing economic, demographic, and travel pattern data were used to identify corridors and categorize mobility corridors by predominant use or demand type. The categorization scheme as preliminarily developed by Colorado is illustrated in the following exhibit. The corridor categories identified include:

- Basic mobility corridors (generally lower volume corridors serving a variety of functions);
- Tourism;
- Agricultural goods;
- General goods;

- Inter-State (serving through movements from Kansas to Utah, for example, not necessarily interstate highways);
- Inter-Urban (such as the North Front Range corridor, serving movements among Front Range communities); and
- Urban character (such as corridors connecting Front Range urban areas and Western Slope ski communities, where urban type congestion is experienced in relatively rural areas).

Types of problems occurring in various types of corridors will be identified. For example, in goods movement corridors, heavy truck traffic may impede the flow of other vehicular traffic. In inter-urban or urban character corridors, the demand for travel among corridor destinations may exceed the capacity of the facilities serving those destinations.

The process identifies the first step in problem resolution as a sketch plan analysis to determine whether a multi-modal solution might be feasible. The sketch plan analysis may show that a corridor study is warranted, or that a relatively simple solution may suffice.

A menu of responses will be developed for addressing problems, ranging from responses requiring only limited capital investment, to capital intensive solutions. Performance standards will be developed utilizing information provided by management systems to assist in identifying: 1) the threshold level at which improvements may be required; and 2) the threshold level at which the optimal or feasible solution transitions from one capital range to another.

The second phase of statewide plan development is development of a constrained plan. The constrained plan will limit programmed transportation investment to the revenue level anticipated during the twenty-year planning period. Forecasts of future revenue levels will be prepared, most likely based on three alternative future scenarios - an extension of current trends, a limited budget scenario and an enhanced budget scenario assuming availability of alternative revenue sources.

Colorado's primary source of State funding for transportation improvements is via the State's Highway User's Tax Fund (HUTF). The HUTF includes several revenue sources, the largest source being the State's motor fuel tax. Motor vehicle registrations and other fees provide the remainder of current State funding (25 percent of the total). While VMT continues to increase, the fuel efficiency of vehicles also has increased, to the point where CDOT's revenues from the HUTF are declining in both actual and real dollars. Alternative revenue sources, adjustments to the HUTF, efficient utilization of local funds and more efficient use of existing transportation facilities are thus important considerations in CDOT's investment strategy.

Colorado's present investment strategy calls for management systems to provide information to assist in defining off-the-top allocations for bridge, maintenance, and surface treatment. Management systems also will assist in the evaluation of investment

strategies and life cycle costs for other types of facilities and modes.

The mobility corridor concept also may play an important role in the State's investment strategy. Colorado is considering authorization of a set percentage or dollar amount, off the top of total anticipated revenues, to address mobility needs within the designated mobility corridors. This off-the-top authorization also may be stratified by corridor type, in general relation to the importance of the corridor's function (goods movement versus through movements, for example) to the State's economy. The State is still evaluating the potential value of a strategy of focused investment, and has not yet decided on the merits of the approach.

ISTEA Requirements

ISTEA requires that the statewide planning process address innovative financing, life cycle cost analysis, and investment strategies. In the development of its constrained statewide plan, Colorado will address each of these elements. Innovative financing techniques are under consideration. Life cycle cost analysis will be incorporated into the management systems. Colorado is putting considerable emphasis on development of investment strategies through the development of a fiscally constrained plan, although a fiscally constrained statewide plan is not required by ISTEA.

Value

Colorado's statewide plan is being developed in such a way as to encourage consideration of lower cost alternatives to maximize the efficiency of the existing transportation system. The investment strategy being developed will provide a basis for constrained plan development. The investment strategy will likely include three general scenarios, providing flexibility and allowing the State to modify its capital investment plans over time in response to changing revenue levels.

The analytical tools provided by management systems, policy guidance contained in the plan, and mobility corridor concept provide mechanisms through which to focus investment in response to need and utility.

Administrative Implications

Colorado's DOT includes a statewide section with six employees, four of whom are dedicated full time to the development of the statewide plan. In addition, personnel from a number of other departments within the DOT have dedicated personnel on a part-time basis to assist in plan development. Fifteen Regional Planning Commissions were established to prepare regional plans. A 17 member Statewide Transportation Advisory Committee (including one representative from each transportation planning region and representatives from each of the Indian Nations within the State) was formed to meet bi-monthly to ensure continued regional representation throughout plan development.

The approach was thus resource intensive in terms of staff time and budget commitment at the front end. It is anticipated that future updates of the plan will require a considerably lower commitment of resources.

Adaptability

An interesting aspect of Colorado's approach, and one that is yet to be fully resolved, is the synthesis of regional plans, statewide objectives and policies, and available revenues into a seamless statewide plan that is fiscally constrained. Colorado is in the process of developing the approach to integration of these elements. The State's planning process should be revisited in the future to document the process used to achieve this integration. Many States contacted for this effort have expressed frustration at the State level and among MPOs in integrating MPO objectives and needs into the statewide planning process. The model under development by Colorado may provide insight into successful methods for integration, from both a State and MPO perspective.

Cautions

Colorado recognizes that changes in available funding levels can significantly impact transport investment recommendations. If funding is available to construct only a part of a major initiative, that initiative may be scrapped, and an entirely different strategy for meeting mobility needs may be warranted. In developing alternative revenue projections, it is important to develop alternative investment strategies as well, rather than pushing projects or initiatives farther into the future. This requires coordination with the MPOs and other planning regions throughout the process.

Further Information

Bill Stringfellow
Colorado Department of Transportation
Transportation Planning Branch
4201 E. Arkansas Avenue
Denver, CO 80222
Telephone: (303) 757-9266 / Facsimile: (303) 757-9149

Investment and Finance
Wisconsin Statewide Transportation Planning Process

State Setting

Statewide transportation planning has been practiced for some time in Wisconsin. Planning in the past has been largely dominated by policy plans, State highway system plans, airport system plans, and rail policy plans. However, the plans were single mode in character, and coordination between modes in these planning efforts was minimal. ISTEA issued a call for a more intermodal and comprehensive approach to State transportation planning, to which Wisconsin has responded.

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In addition to these legal responsibilities, there are other conditions that set the basis for statewide planning. These include the growth and development patterns similar in other States. This growth is largely focused in the urban areas. Within the urban areas, there is a pattern of lowering density in urban cores, coupled with low density in suburban and exurban fringe areas. These trends have increased the difficulty of serving the growing urban population with transit or high occupancy vehicles. This trend is likely to continue.

Approach

Wisconsin began its statewide planning process (Translinks 21) with the development of an organized approach to the entire planning effort. The plan is designed to have seven principal elements:

- A policy focus to evaluate key strategic issues; including land use, transit strategies, environmental concerns, urban highways, induced travel, pricing impacts, demand management, and rural/specialized transportation;
- An MPO/DOT partnership for metropolitan planning, where the DOT provides financial, technical, and policy assistance to the MPOs. Guidance papers have been prepared for bicycle planning, pedestrian planning, public participation, access management, environmental evaluation, needs assessment, plan updates, and multimodal prioritization;
- An intercity multimodal passenger element; beginning with statewide multimodal forecasts, determining modal shares based on alternate scenarios, and including consideration for rail passenger, intercity bus, air, high speed rail, and private vehicle personal travel;
- An intercity freight transportation element; beginning with statewide multimodal commodity flow forecasts, analysis of diversion potential by commodity, review by expert panels, and including consideration for freight rail, truck, waterborne, air, and intermodal freight transport;
- A financial element to structure plan financing implementation over 25 years, an evaluation of alternate funding sources, and the preparation of related financial information;
- A very extensive public information program with three primary stages:
  - "Outreach" at the beginning of the planning process to inform the public of key issues and to identify their needs and priorities. In addition to numerous newsletters and discrete planning papers, nine major regional forums were conducted. Statewide forums on transit planning, freight, urban strategies, economic development, tourism, environmental concerns, and rural/specialized transportation were conducted;
  - "Plan Alternatives" stage, organized to elicit public consideration of four major plan alternatives. Eighteen focus groups, ten regional open houses, and meetings with 35 different organizations were held. A video, newsletter, and plan alternative document were the primary means to provide the public with information on the four plan choices; and
  - "Plan Selection" stage for final public review and comment on the draft statewide intermodal plan. Seventeen town meetings, two public hearings, and numerous meetings with public officials, business groups, and interested transportation associations were conducted. Again, a video, newsletter, and draft plan document were the key vehicles for public information. In addition to surveys of all meeting participants, a statewide, statistically valid telephone survey was conducted.
- Unique in the nation, WisDOT also prepares a SEE to identify the cumulative environmental effects of the proposed plan. This is in addition to the standard environmental impact statements for individual projects prepared in conjunction with project development.

Financial Planning

The goal of the financial element is to link the planning process with the budgeting process. While the adopted plan will be financially constrained (not an ISTEA requirement), additional funding will be required to address full implementation within the planning horizon. Because new sources of funding will be required for implementation of the plan, the State legislature will be involved in the development of funding mechanisms. Alternative funding sources under consideration include adjustments to the fuel tax, modifications to the diesel fuel differential tax, changes in registration fees, environmentally based fees that are inversely related to emission rates so that more polluting vehicles would be required to pay a higher tax rate, and fuel franchise fees for oil companies. The financial portion of the plan proposes that increases in funding would occur about every five years through the plan life.

The draft plan does explore transportation planning options. It reports on the full transportation plan cost, illustrates the step-wise increases in funding, and illustrates the cost to auto owners to fund the proposed increase in funding. The illustrations are done in such a fashion that decision-makers see the relationship of increased taxes to total cost of automobile operation per automobile. The following illustrations show the Wisconsin data presentation.

Life-Cycle Analysis

The management systems under development in the State are developing modules for life-cycle costs analysis for pavement, bridges, and transit.

Investment Strategies

Through the planning process, the WisDOT has prepared four plan alternatives. The plans range from a continuation of existing funding patterns through an increase in funding of about 34 percent, at which level such projects as high-speed rail between Chicago and Milwaukee and light rail transit in major cities could be funded. The draft plans examine a combination of alternatives and will incorporate substantial increases in funding, although not to the 34 percent level. Affordability was an important input to the definition of a preferred funding and plan scenario. As a result of the studies, WisDOT's strategy is to rely upon the automobile as the backbone of the transportation system. At the same time, WisDOT will increase funding to other programs so as to offer choice to its citizens.

ISTEA Requirements

ISTEA requires that the planning process address such finance and investment elements as innovative financing, life-cycle cost analysis, and investment strategies. The WisDOT effort addresses each of these elements and has prepared a finance plan and addressed the funding implications of the plan.

Value

The Wisconsin approach has value. From the investment and finance standpoint, the planning effort addresses the financial implications of the plan. The costs of the plan were a constraint and through consideration of alternative funding programs, a moderate increase in funding is proposed. Valuable graphical techniques were used to illustrate the cost of the system in the context of total transportation cost.

Administrative Implications

WisDOT has made a significant commitment of planning staff to the statewide planning effort at the intercity level. Between 35 and 40 persons devoted a significant portion of their time to the statewide plan. More staff are addressing planning issues at the MPO level, strategic issues, and environmental evaluation levels. Additionally, other senior WisDOT staff supports the planning effort from a management position. WisDOT has retained consultants to assist in the development of its plans. To support the general statewide effort, a consultant has been retained to develop models and software, another consultant contract supports the general planning effort, and a third consultant is assisting in the development of an air systems plan. Total cost of consultant services is approximately $750,000.

ISTEA has created whole new planning responsibilities, terminology, and administrative organizations. WisDOT planning staff has found that their responsibilities not only include actual planning but also education within and outside of the department. The time commitments of required meetings while keeping the planning process going is difficult for the staff to maintain.

Adaptability

The WisDOT process can be adapted to other States as a technique. The combination of alternative plans that have different funding levels, combined with a funding program and alternative means of generating revenue, is a technique transferable to other States.

Cautions

Experience generated from this process could be transferred to other locales; however, strategies such as the transferability of DOT funds for all transportation purposes may not be applicable to other States.

Further Information

Roger Schrantz
Administrator, Division of Planning and Budget
Department of Transportation
4802 Sheboygan Avenue
Madison, Wisconsin 53707
Telephone: (608) 266-6479