

fect our success, including procedural, stylistic, and communications issues.

To accomplish this, transportation planners need to explore more powerful ways to understand and describe the effects--the successes and failures--of urban transportation planning. Case studies alone are useful but insufficient: too often those cases that are published are only the successes, and then an incomplete picture is often presented. We need more self-scrutiny and an improved conceptual framework for assessing what we are doing.

The profession needs, and is likely to get, greater flexibility in the choice of problems, solutions, tools, and methods. In a sense, it would be desirable to return individual and agency innovation to the level of the early 1960s, when a wide variety of new ideas was generated. It is not that those ideas were so valuable, though many were, but that we need to have and to use more individual freedom and creativity in the conduct of urban transportation planning.

The emerging attributes of the planning marketplace--more atomistic, less regulated, more budget-constrained, less neatly objective--are telling us to think more about what we do as transportation planners as well as how we do it. We can ignore these attributes or we can try to understand and respond to them. The immediate challenge is to clarify that understanding and develop the dimensions of sensible responses. We do not wish to "throw out the baby with the bath"; we have traditions and tools that provide a basis for a new beginning. To suggest how to make that new beginning for the 1980s, we need to think about where we have been and where we are going. There is no single right answer. The days of lockstep, methodologically invariant planning are probably numbered. We must now begin to spell out sets of promising options that respond to the changing environment while clarifying a reasonable role for ourselves.

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Statewide Transportation Planning in Minnesota

PETER A. FAUSCH AND PERRY C. PLANK

Since its formation in 1976 as a multimodal agency, the Minnesota Department of Transportation (DOT) has modified its approach to statewide transportation planning in response to changes in society and transportation. The Minnesota DOT statewide transportation planning program, including the development of Minnesota's first state transportation plan in 1978, is described and evaluated. The description and evaluation are based on eight key elements: (a) being responsive to the public and the political process; (b) using mechanisms to structure and coordinate diverse planning activities; (c) conducting regular surveillance and evaluation of performance and impacts of existing (and past) transportation facilities and services; (d) providing timely response to information needs of top decision makers as they respond to changes and crises; (e) developing regularly updated long-range background forecasts; (f) providing an early warning system; (g) conducting sound, in-depth policy and planning analysis; and (h) providing means to implement the approved recommendations of longer-range, broad planning activities.

The Minnesota Department of Transportation (DOT), like other transportation agencies throughout the nation, has been buffeted by change. In responding to that change, the state has made modifications in how it approaches statewide transportation planning. The most fundamental change was the creation of the Minnesota DOT in 1976. The legislative charge to the Minnesota DOT to be a multimodal transportation agency required that it broaden its horizons from that of its predecessor modal agencies, examine all modes of transportation, and seek and encourage intermodal coordination in its statewide planning efforts. The purpose of this paper is to describe and evaluate the current statewide transportation planning efforts of the Minnesota DOT

and to explain the recent historical development of these efforts.

MINNESOTA STATEWIDE TRANSPORTATION PLANNING PROGRAM

The Minnesota DOT statewide transportation planning program is a continuous, coordinated, and interactive process of identifying, analyzing, and recommending solutions to broad transportation problems facing the state. This process involves a wide variety of interested people and groups, including the Governor, the legislature, Minnesota DOT decision makers, a wide variety of interest groups, the 13 regional development commissions of the state, the cities and counties, and the public.

A diversity of approaches to planning have been proposed and used in the United States. Table 1 [adapted from Gilbert and Specht (1)] gives the spectrum of planning approaches available. They range from an analytic, system approach (sometimes called the comprehensive-rationalistic approach in the technical literature) at one end of the spectrum to an interactional, issue-by-issue approach (sometimes called the disjointed incrementalism or muddling-through approach) at the other end.

The Minnesota DOT approach is about midway on the spectrum--the approach labeled responsive-strategic (sometimes called mixed scanning). This approach combines or borrows some of the features of the models at either end of the spectrum. On one hand, it seeks to be responsive to the concerns of individual groups and interests, communicate with them, and address their individual issues, as the issue-by-issue model does. On the other hand, it seeks to take a broad, strategic, analytic approach.

The second Conference on Statewide Transportation Planning and Programming, conducted by TRB in 1979, identified five key elements of statewide transportation planning (2). These five key elements and three additional elements have been adopted for purposes of describing and evaluating the Minnesota DOT statewide transportation planning program. The eight elements adopted for evaluation are as follows:

1. Responsiveness to the public and the political process;
2. Mechanisms to structure and coordinate diverse planning activities;
3. Regular surveillance and evaluation of performance and impacts of existing (and past) transportation facilities and services;
4. Timely response to information needs of top decision makers as they respond to changes and crises;
5. Regularly updated long-range background estimates or forecasts;
6. An early warning system;
7. Sound, in-depth policy and planning analysis; and
8. Means to implement the approved recommendations of longer-range, broader planning activities.

Elements 1, 2, 3, and 5 provide a foundation or framework for statewide transportation planning, as shown in Figure 1. The other four elements (4, 6, 7, and 8) operate within that framework or foundation.

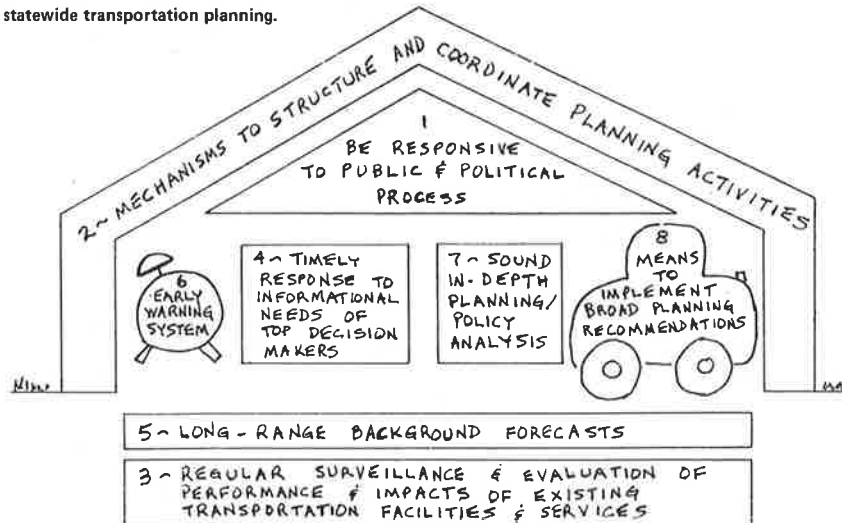
MINNESOTA DOT PLAN

The first, most important application of the emerg-

Table 1. Planning approaches.

Approach	Emphasis	Description	Assumptions
System	Analytic tasks, including quantification of problems, specification of objectives, etc.	Planning conceived as orderly, logical progression from diagnosis to action based on analysis of relevant facts	General societal consensus on means and ends; designation of best plan primarily a technical problem
Responsive-strategic		Combines two levels of activity: (a) broad-angle scanning to give general direction and (b) narrow-scope scanning within (1)	General policy directions can be decided centrally, which leaves latitude for decentralized planning on specifics
Issue-by-issue	Interactional tasks, including facilitating communications and bargaining	Choosing among limited range of alternatives that differ in small degrees from existing policies	Consensus difficult to achieve and most likely to occur in proposals for incremental changes; consensus constructed issue by issue

Figure 1. Relationship among key elements of statewide transportation planning.



ing statewide transportation planning program was the development of Minnesota's first state transportation plan, the Minnesota DOT Plan. The legislative act creating the Minnesota DOT called for the preparation of a state transportation plan and mandated certain steps in the preparation of the plan, including the holding of public hearings to receive suggestions for future transportation alternatives and priorities for the state.

The plan was developed in three phases. In phase 1 the issues, problems, and concerns the plan should address were identified and the public was made aware of the plan and of the enlarged role of the Minnesota DOT. In phase 2 the list of issues identified during phase 1 was expanded and alternative ways to address them were discussed and evaluated. In phase 3 the plan was formalized and a draft plan was published on July 1, 1978.

Taking its lead from the state legislature, the Minnesota DOT sought to maximize public involvement in the development of the plan. It extended public involvement beyond the required statewide public meetings to additional public involvement activities. About 600 meetings were held during the period of plan development. These activities, which played a prominent role in the development of the plan, were an application of key element 1--the need for the statewide transportation planning program to be responsive to the public and the political process.

Phase 1 started when the Commissioner of Transportation sent almost 3,000 letters to public officials, civic and interest groups, businesses, and citizens, seeking their input. Thousands of brochures were distributed in which the planning process was explained and suggestions were solicited. Public meetings were held in each of the state's 13 regions. Newsletters were used to keep everyone informed. At the conclusion of phase 1, the Minnesota DOT published a report (3) that focused on the public input received during the first phase of the development of the plan. Phase 1 was completed on July 1, 1977, about seven months after the new Department started operations, and identified issues, problems, and concerns the plan should address.

In phase 2 issue teams from the Minnesota DOT, including interested and knowledgeable people from outside the Department, developed background information on selected issues along with policy alternatives. In addition, a task force was established by each of the 13 regional development commissions to discuss the issues and propose policy alternatives as they related to that region and to the state as a whole. These task forces held a series of public meetings to obtain comments. At the completion of phase 2 the Department published a report (4), and phase 2 was completed on January 1, 1978.

Phase 3 resulted in a draft plan. During this phase, each regional task force reviewed and established weights for the criteria used for selecting transportation improvement projects. Task forces also reviewed the proposed policies of the Department, and the specific proposed transportation improvement projects developed from the previously-agreed-to criteria. During May and June of 1978, meetings on the draft plan were scheduled throughout the state. These meetings provided the regional task forces, interested organizations, and interested citizens with an opportunity to review and comment on the plan. The draft plan was published on July 1, 1978.

DESCRIPTION AND EVALUATION OF STATEWIDE PROGRAM

The eight evaluation elements presented earlier are goals toward which the Minnesota DOT strives in

order to make its statewide transportation planning program work. In some cases these goals have not been fully reached. In the following sections, each element is described in more detail and is then used as a yardstick to evaluate how the Minnesota DOT is doing in fulfilling its concept of statewide transportation planning.

Responsiveness to the Public and the Political Process

Description

The Minnesota DOT concept of statewide transportation planning was earlier described as "interactive" and "involving a wide variety of interested people and groups." As suggested in Table 1, the Minnesota DOT views the transportation planning process as political-technical and not solely technical. The process is political in the sense that it recognizes the different values and views held by different persons and groups in a pluralistic society and the necessity of balancing these views and seeking compromise. This approach means that the Minnesota DOT emphasizes an ongoing planning process, including substantial public involvement, rather than the development of fixed, end-state master plans.

The planning process is viewed as continuous and ongoing. Data and analyses are continuously updated in response to the constant change in the setting within which statewide transportation planning takes place. Department positions and policies are reviewed periodically and modified as needed.

This approach means that the Minnesota DOT planning program emphasizes flexible, adaptable, policy-oriented planning documents rather than detailed, hard-to-change master plans or after-the-fact plans. This approach also means that the Minnesota DOT interacts with elected and appointed public officials at various levels--e.g., the Governor and the legislature, regional development commissions, counties, and cities.

Evaluation

Minnesota DOT efforts effectively meet the goal of being responsive to the public and the political process. Its commitment to public involvement, which was a central theme of the state plan development, has been maintained by continued contact with the regions and other groups throughout the state. The district offices and the regional transportation planning coordinators have provided a good link to the regions and cities. The coordinators, stationed in Minnesota DOT districts, typically cover several development regions. They assist the regions in developing regional transportation plans. Although these plans have some common elements, they tend to focus on issues that are important to their regions. The plans have been effective in regions where they have been completed, especially in tailoring planning efforts to special regional concerns such as rehabilitation of rail branch lines, impacts of grain movements, and transit and paratransit needs.

But regional plans have not yet been coordinated with statewide plans as well as they might be. Such coordination should be emphasized in the future. In addition, the effectiveness of regional development commissions is somewhat in doubt. Three of the 13 commissions have been disbanded or suspended. Nevertheless, the Minnesota DOT believes that the regional commissions have proved to be an effective forum for the Department in addressing statewide transportation issues. They have developed approaches to transportation problems in their regions

that have served as prototype studies that can be applied to other regions of the state.

The district offices and the regional coordinators have provided good linkage with and understanding of regional and local attitudes, values, and development throughout the state and have helped the Minnesota DOT to be responsive to the public. Because these local concerns are frequently of interest to legislators and other public officials, this has helped the Department to keep in step with the political process. Minnesota DOT reports to the legislature on topics of special, current interest such as transportation system management (TSM), transit assistance, paratransit, and the status of the state rail system have helped the Department to keep its planning efforts attuned to the political process.

Mechanisms to Structure and Coordinate Diverse Planning Activities

Description

One important characteristic of statewide transportation planning is its comprehensiveness and scope. To help structure and coordinate diverse individual planning activities, the Minnesota DOT believes that various mechanisms or frameworks are needed to bring order out of the many topics of interest in statewide transportation planning. An example of such a framework is the Minnesota DOT Plan. The plan is supported by statewide modal plans in the principal modal areas. Additional support is provided by the regional transportation plans prepared by the regional development commissions and the transportation plans of the larger urban areas [i.e., metropolitan planning organizations (MPOs)], all done in cooperation with the Minnesota DOT.

Evaluation

Although the Minnesota DOT has recognized in concept the need for general, broad mechanisms to coordinate diverse planning activities and has done some development work, it has been slow to implement them. For example, the specific role of the state transportation plan, including its relationship to state modal plans, is not completely clear. However, the state airport and rail plans have been effectively updated despite this handicap.

One of the prime reasons for the formation of the Minnesota DOT was to foster multimodal planning and the coordination of the different modes of transportation. Intermodal coordination has generally been limited by institutional constraints such as single-mode funding, which reflects the view of various modal interests. Intermodal coordination is also affected by competition in the marketplace. In this environment, the role of the Minnesota DOT in intermodal coordination has been to address it generally on a case-by-case basis. However, in 1981 the Minnesota DOT and the North Dakota Highway Department conducted a study to identify measures to, among other objectives, minimize conflicts between unit coal trains and highway traffic.

Within its organization, the Minnesota DOT has sought to encourage internal communications so as to be aware of situations in which coordination is possible. Recently, an Intermodal Coordination Section has been formed that, among other duties, will seek to encourage more coordination among the modes. An additional improvement being considered is the use of performance measures and impact measures that are expressed in the same terms so that cross-modal comparisons and multimodal aggregation of modal data can be done.

Regular Surveillance and Evaluation of Existing Transportation Facilities and Services

Description

To make informed decisions in the present that will have impacts in the future, it is important to know how the transportation system is performing now and how it has performed in the past. This provides a baseline for evaluating the systems over time and for planning the systems. Such information should be readily available so that a timely response can be given to decision makers, both within and outside the Department.

Evaluation

The Minnesota DOT has continued many of the traditional surveillance activities (e.g., highway sufficiency ratings and condition ratings) of its predecessor agencies--the Aeronautics Department, the Highway Department, the State Planning Agency (transit and rail), and the Public Service Commission (regulation). In the face of declining revenues, it has sought to conduct these activities more effectively.

One useful tool that has helped the Department to provide surveillance and evaluation data in an effective and timely manner is the Transportation Information System (TIS), a computerized system of data files and programs for the analysis of transportation data. The TIS has five subsystems:

1. The roadway subsystem contains data such as roadway width, surface type, and functional class, keyed to the nearest mile post.
2. The accident subsystem contains accident data and traffic signal and other intersection data.
3. The traffic subsystem contains estimated average annual traffic volumes, calculated from traffic counts made throughout the state.
4. The bridge subsystem contains physical information on every bridge in Minnesota on both highway and rail systems.
5. The railroad subsystem contains data on railroad lines, stations, and grade crossings.

The TIS is located in the central office in St. Paul and can be accessed by remote computer terminals, which allows off-site access from locations such as the nine Minnesota DOT districts. It is accessed through a user-oriented language, which enables regular staff to use it. The urban areas of Duluth and St. Cloud will soon be interconnected to TIS and be able to use it on their microcomputers.

Other new activities in the surveillance area include statewide automobile occupancy studies and reports. A permanent site for weighing vehicles in motion has been operating for 1 year and has provided a wealth of information on truck weights.

Timely Response to Information Needs of Top Decision Makers as They Respond to Changes and Crises

Description

For planning to be relevant, planning data and analyses must be available when needed by top decision makers. For example, quick responses are sometimes needed to state legislative or federal congressional proposals, or state and local officials may want to know quickly the impact of a large development such as a shopping center. To respond to these requests, the Program Management Division of the Minnesota DOT, which is chiefly responsible for

statewide transportation planning, seeks to provide quick turnaround, on the order of a few hours or a few days when needed, on requests for information.

Evaluation

Minnesota DOT responses to federal and state legislative proposals have generally been of acceptable quality and on time. Information for the state legislature is usually routed through the Department's legislative liaison office.

The use of quick-response travel estimation techniques (5) has allowed the Minnesota DOT and the MPOs to provide information on the impacts of alternative actions in urban areas in a short time. For example, the impacts of various alternatives to improve the level of service on US-63 through Rochester, Minnesota, home of the Mayo Clinic, were comprehensively analyzed in about a month, including public meetings, after the local decision makers asked the staff to investigate them. The three alternatives included two combinations of one-way streets and upgrading an existing highway to an at-grade expressway. Besides estimating traffic volumes, the analysis examined the impacts caused by traffic diversions on transit, air quality, and the socioeconomic environment. Joint FHWA-Minnesota DOT training sessions have made quick travel estimation techniques widely available to urban areas throughout the state.

Regularly Updated Long-Range Background Forecasts

Description

At the Minnesota DOT, strategic planning has been defined as future-oriented, concerned with the broad, overall direction of the Department, and focused on the future effects of present decisions rather than future decisions. This focus on the future effects of present decisions by strategic planning requires that long-range background estimates or forecasts be obtained or developed for such things as population, the economy, energy demand and supply, fiscal resources, and travel demand. These forecasts are used to support the early warning system and to provide benchmarks for interpreting and evaluating diverse, individual planning studies. They are used to provide perspective for quick-turnaround studies and policy analysis.

The role of long-range forecasts is a subtle one. It is difficult to address basic, strategic problems of transportation and their frequently long-range impacts for at least two reasons:

1. State transportation officials and elected officials frequently have to focus their attention on the immediate problems of their constituents rather than on long-range, strategic issues.
2. There is inherent uncertainty in the planning setting with regard to the future and external influences. This uncertainty has been heightened by the basic changes currently taking place in the federal-state relationship, not to mention the continuing uncertainties of energy supply, demand, and prices.

On one hand, the uncertainties make it somewhat speculative to develop long-range plans. Yet to ignore the future is risky, too; it is a decision by default not to consider future impacts; a compromise is needed.

Such a compromise is generally suggested by the responsive-strategic approach given in Table 1, in which broad-angle scanning is used to examine the broad picture and give general direction, including

for the longer term, while more detailed, narrow-scope scanning is done within the broad-angle scanning in order to agree on more specific incremental choices. What is needed in the planning process is flexibility and adaptability in dealing with the future to accommodate its uncertainties.

Figure 2 (6) shows this concept of the role of long-range forecasting and planning toward which the Minnesota DOT is striving. It shows the possible futures scanned, alternative actions considered, and the alternative selected. Note that changes in the specific course of the chosen path are made periodically based on new information and changes in conditions. Note also that the path chosen is a band rather than a narrow line, which denotes that flexibility is provided within the chosen path.

Policies are used to generally direct Minnesota DOT actions. The policies delimit the band in Figure 2 and provide latitude for decisions under different conditions and thus the necessary flexibility. The policies and the chosen path reflect the most probable eventuality of external factors such as the economy, population structure, and revenues. For example, the Minnesota DOT Plan included policies that described Minnesota DOT development priorities for the different modes based on the best forecasts of the funding that would be available.

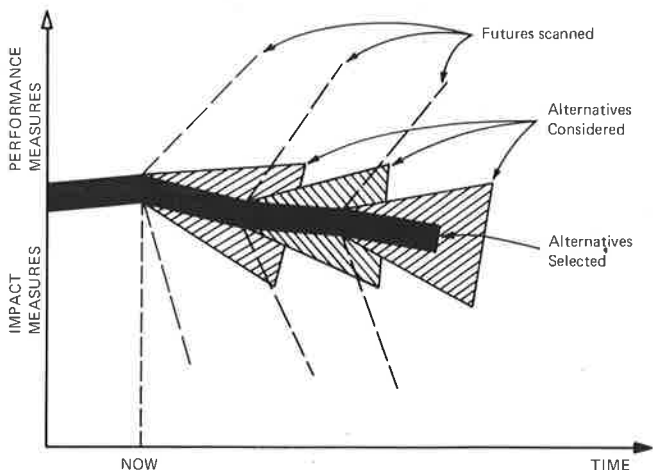
However, contingency plans should also be developed for conditions and events with relatively low probability but high impact that fall outside the chosen path. For example, a Middle East war that cuts off the flow of oil from that area is such an event and should be planned for on a contingency basis. Another example might be the financial collapse of a major transportation company that serves major cities and areas in the state.

Evaluation

The Minnesota DOT has found that the desired flexibility can be provided and accommodated in a variety of ways, including the following:

1. Flexibility can be provided by making it easier for changes to be made in plans and policies by means such as a policy plan, rather than a detailed end-state plan for the physical facilities, and using a loose-leaf notebook for the plan rather than a bound, hard-to-change, detailed master plan.
2. Flexibility can also be provided by having the planning process plugged into ongoing public involvement programs and the political process

Figure 2. Role of long-range forecasts and plans over time.



throughout the state, as described earlier, so that top management and staff can be aware of what is happening throughout the state, what the concerns are, and so on. This will prevent major surprises so that changes can be made incrementally and not under crisis conditions. The links to local communities and regions provided by the district offices and the regional transportation planning coordinators are an important means of finding out what is happening throughout the state.

The changing scene in transportation--with, for example, more emphasis on highway system preservation than new construction and increased interest in goods movement--has found the Minnesota DOT somewhat lacking in its capability for making long-range background forecasts. In recognition of this, the Department has recently made some improvements, including a model for forecasting statewide vehicle-miles driven as a function of the economy, consumer demand for transportation, transportation costs, and fuel availability. A model is also being developed for estimating and ultimately forecasting cash grain movement on Minnesota's state trunk highway system and ultimately on its rail and water systems.

Early Warning System

Description

To assist in its strategic planning, the Minnesota DOT believes that an early warning system is needed to identify problems before they occur and to alert decision makers in advance of the problems. One purpose of the early warning system is to investigate basic societal trends in the economy, population, and technology and to seek to determine the implications of these trends for transportation in Minnesota. For example, what implications will the growing numbers of senior citizens and their health care needs have for transportation?

Another related aim of the early warning system is to investigate long-term and basic trends in transportation itself, such as primary people and goods movement flow patterns and basic costs, and to anticipate their effect on transportation in Minnesota. For example, what are the implications of more unit trains and subterminals for grain movement and of far fewer branch lines?

Evaluation

The Minnesota DOT does not currently have a comprehensive early warning system, although it does provide an early warning function in certain areas. That is, it does not have a systematic process for providing early warning on a comprehensive, across-the-board basis.

The Minnesota DOT believes that there is a need for a comprehensive early warning system and that one way its efforts might be made more effective would be by piggybacking onto studies done by others. For example, information from national and regional studies can be critically reviewed and expanded and their implications for Minnesota determined.

Sound, In-Depth Policy and Planning Analysis

Description

Sound, in-depth policy and planning analysis is needed to estimate and analyze the impacts of alternative policies and plans, especially in the area of statewide planning. The Minnesota DOT believes that these analyses should be based on accurate informa-

tion on the current state of the system (element 3, regular surveillance) and on reliable long-range background forecasts (element 5) that provide benchmarks and perspective for evaluating individual policy analysis. Where appropriate, these analyses should estimate the significant impacts (i.e., social, economic, environmental, financial, and technical) of alternative policies. In addition, these analyses should include the impacts on various segments of the population (e.g., the elderly, the handicapped, and the economically disadvantaged) and different sectors of the economy where appropriate.

Evaluation

A significant amount of sound, in-depth policy and planning analysis was done as part of the development of the Minnesota DOT Plan described earlier. After the identification of issues and as the result of the extensive public and agency involvement in phase 1, issue teams were formed to analyze key issues in a wide variety of topic areas. The topic areas investigated included aeronautics, bikeways, cost-sharing, energy, environment, highways, inter-city passenger transportation (airlines, Amtrak, and buses), land use and development, pipelines, inter-agency and public involvement, railroads, transit, trucks, regulations, and waterways. The issue teams, which consisted of outside experts and representatives from different interest groups as well as Minnesota DOT staff, prepared issue papers on the key issues. The papers included descriptions of policy alternatives, including their impacts, as well as background information on each key issue. Task forces formed in each of the 13 regions of the state also proposed policy alternatives and later evaluated and recommended specific policies for adoption by the Department. The result was the inclusion of many of the recommended policies (called objective statements) in the plan.

In individual modal areas, some effective policy and planning analyses have been done. For example, in the rail area, an effective study was done, with the help of a consultant and local groups, of the concept of a grain funnel from the Twin Cities south to Mason City, Iowa, and then on to Kansas City and the Gulf Coast. The study investigated various alternatives in southern Minnesota for concentrating rail movements onto a single main line to facilitate grain movement to Mason City.

Sound, in-depth planning analysis has also been conducted as part of the development of regional transportation plans. These plans have been developed by the regions with the financial and technical assistance of the Minnesota DOT.

For example, region 1, a big wheat-growing area in the northwestern corner of the state, was concerned about the heavy truck traffic on county and township roads due to shifting grain movement patterns. Region 2 in the northern part of the state has studied the coordination of transit and paratransit projects. The impact of the rehabilitation of a rail branch line in region 9 in the southern part of the state was an important issue. The thrust of this approach has been to make policy analysis responsive to different needs throughout the state.

Means to Implement Approved Recommendations of Longer-Range, Broader Planning Activities

Description

To be effective, statewide planning has to be relevant to current issues and concerns. The tendency in planning has been otherwise. To make planning

relevant, a link has to be made between longer-range, broader planning activities, such as statewide modal plans, and specific, real-world, implementable projects.

Evaluation

As an agency involved in the whole gamut of highway planning, design, construction, and operational activities, the Minnesota DOT is in a better position to implement the recommendations of its planning activities in the highway mode. The primary link between planning and implementing activities is provided by the programming process. As part of the development of the Minnesota DOT Plan, the regional task forces played a prominent role in, first, developing criteria for project prioritization and, second, helping to apply the criteria by identifying their project preferences based on the criteria.

In modes where it exercises less leverage, the Department has had some successes. A study aimed at developing ways to minimize the community impact of unit coal trains moving from North Dakota through Minnesota to the Twin Cities recommended a variety of different, relatively low-cost demonstration projects, such as intersection improvements, grade-crossing predictors, and communication systems for emergency services. Implementation was achieved through funding obtained largely through the efforts of the study's Management Board and the Rail Traffic Task Force. The Task Force, made up mostly of the local communities affected, worked closely with the Management Board on the study from the beginning. This kind of broad representation encouraged a broad participation in sharing costs and implementing the project.

CONCLUSIONS

In this paper, an attempt has been made to describe and evaluate the Minnesota DOT statewide transportation planning program, a product of major changes in the transportation planning setting over the past 15

years or so, and to explain its recent historical development, especially the development of Minnesota's first state transportation plan, the Minnesota DOT Plan. The eight key elements of the plan, which grew out of those identified at a 1979 TRB national conference, were used as the basis for describing and evaluating the planning efforts of the Minnesota DOT. As noted at several points in this paper, the Department's statewide planning efforts have not fully met its goals as outlined in the key elements, but significant progress has been made. The key elements provide an effective framework for the future development, improvement, and evaluation of the Minnesota DOT statewide planning program. It is anticipated that the statewide transportation planning program will continue to evolve in response to changes in the setting within which planning operates.

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Statewide Transportation Planning in Uncertain Times

ROBERT S. NIELSEN

An analysis of the way in which transportation planning should be carried out at the state level in conditions of uncertainty is presented. The overriding issue in most states at the moment is that expected highway revenues will not meet expected highway needs. The approaches being taken are management's response to a need for state governments to more effectively deal with available resources. The courses of action available to the states include preservation of the existing transportation system, emphasis on possible rather than desirable improvements, a focus on specific corridors for modal trade-off, more extensive education in energy conservation, land use control to protect highway utility, early and continued public involvement, and management accountability for implementation of state transportation improvement programs.

The purpose of this paper is to analyze the way in which transportation planning should be carried out at the state level in conditions of uncertainty. The overriding issue in most states at the moment is

that expected highway revenues will not meet expected highway needs. The approaches being taken are management's response to a need for state governments to more effectively deal with available resources. The courses of action available to the states include preservation of the existing transportation system, emphasis on possible rather than desirable improvements, a focus on specific corridors for modal trade-off, more extensive education in energy conservation, land use control to protect highway utility, early and continued public involvement, and management accountability for implementation of state transportation improvement programs.

Whitlock (1) has stated the following:

The principal issue of the 1980's will be a solution as to how the mobility of all segments of