

Critical Issues in Statewide Transportation Planning

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This paper highlights state-of-the-art ideas and procedures that are pertinent to current problems in the statewide transportation planning process. It draws on the critical issues that emerged during the preparation for and participation in a national series of seminars on statewide highway planning. The seminars were sponsored jointly by the states and the Federal Highway Administration. Issues include fiscal problems, public involvement, planning and programming relations, multimodal planning and programming, energy, land use, and surveillance and evaluation. The overriding issue in most states is that expected highway revenues will not meet expected highway needs. The states' responses highlight the need for state governments to manage available resources more effectively. Courses of action available to the states include preservation of the existing transportation system, emphasis on possible rather than desirable improvements, focus on specific corridors for modal trade-offs, more extensive education in energy conservation, land use control to protect highway utility, early and continued public involvement, and management's accountability for implementation of state transportation improvement programs. These activities are discussed and examples are given of how some states are dealing with the issues.

This paper describes the observed trends, state of the art, and expressed concerns and approaches suggested and used by state transportation agency planning and programming officials to deal with critical issues in statewide highway planning. The paper is intended to highlight how some states are dealing with current critical issues. The critical issues that emerge include fiscal problems, public involvement, planning and programming relations, multimodal planning and programming, energy, land use, and surveillance and evaluation. Each of these is discussed separately, although they must be considered together in the management of the statewide transportation-planning program.

FISCAL PROBLEMS

Many states have expressed concern over the current trend of declining growth rate of motor fuel receipts. In a majority of the states that collect taxes on motor fuel, the funds are dedicated by statute or by constitutional amendment to be used only for highway or other transportation purposes. During most of the time that these funds have been in existence, the available revenues have kept pace with the costs of expansion, improvement, and maintenance of the state's highway facilities. However, the past decade has not reflected a similar ability to keep pace, and costs of necessary service have begun to exceed user-tax revenues.

Much of this problem can be related to recent large increases in construction costs. The national construction index has risen from 67 to 220 between 1950-1978 (1). To compound the problem, the absolute amount of fuel taxes collected is projected to decline in many states because of greater fuel efficiency of new vehicles and reduced travel. States have reacted to this situation in several ways. Two approaches have been (a) to reconsider the perceived need for certain transportation improvements or (b) to look for ways to make optimum use of available funding among alternative improvements. Other approaches seek other funding sources or increases in existing sources.

Texas and California handled the question of need by

reevaluating the appropriateness of existing improvement standards in terms of the benefits that could be obtained from the improvement. The result was a system-oriented approach (2,3). Three guidelines are used to generate highway improvements that move a system toward a higher level of total benefits:

1. Design for system balance—Projects developed should balance projected quality of service in safety and mobility (speed) throughout the transportation network.
2. Provide for system continuity—Projects should close gaps in the existing transportation system. One completed facility is likely to offer more benefits than two partially completed facilities.
3. Seek low-cost design alternatives—The broadest range of possible alternatives must include minimum-cost projects. Customary design is often sacrificed to such designs as narrower highway medians, fewer overpasses, less than 20-year design, a combination of freeway and expressway segments, ramp metering and special bypass lanes, and modified interchange design.

In California the recommended system-oriented approach was kept within the existing funding level and new funds were not emphasized. Texas used the system-oriented approach along with a strong appeal and supporting analysis for additional funds. South Dakota has taken an approach similar to that of California and Texas to evaluate individual routes to determine the project mix that would be most cost effective at that scale. This subject of financially restrained plans is discussed further in a paper by Wilson and Cannon in this Record.

Jurisdictional realignments have the indirect effect of making optimum use of available funds. Roads have been added to state highway systems without consideration of the consequences of whether the road serves a state-level interest. Florida, for example, was required by recent state statute to classify all highways functionally to determine those that were of importance to the state and for which the state will take responsibility. Other highways will be the responsibility of county or city governments, as appropriate.

The state of Minnesota Department of Transportation plan dealt with the issue of available alternative revenue sources for transportation programs (4). Seven alternative sources were investigated:

1. A sales tax on motor fuel that would be tied to price,
2. Additional general funds,
3. Increased present motor fuel tax,
4. Increased motor vehicle license fees,
5. Funding of the department of public safety from the general fund instead of from state trunk highway funds,
6. Dedication of an increase in the general sales tax to transportation, and
7. Assignment of revenue from the motor vehicle sales tax to transportation purposes instead of to the general fund, as is currently done.

These alternatives were presented to regional task forces for comments on aspects of the plan development. The task forces thought that user charges should continue to be user supplied; thus policy options 1, 5, and 7 received the most support.

The state of Washington, when in need of increased available funds, chose to raise the motor fuel tax. The approach involves a variable gasoline tax that can fluctuate between 9 and 12 cents, depending on the average retail price of gasoline.

PUBLIC INVOLVEMENT

Public involvement in all stages of statewide transportation planning is critical so that a base of support can be established for discussions with the legislators on financing programs and discussions with the public on project development activities. The most commonly used method to gain public input has been public meetings, which are normally held on a regional or community scale. For example, in Iowa critical transportation issues and suggested policy changes were identified by 8 (now 10) regional citizen advisory councils. Continuous involvement is maintained through monthly council meetings, mailbacks, response sheets, and newsletters.

Public meetings have been used in Minnesota as a forum to help identify and deal with issues and problem areas that the transportation plan will address. Additional input is obtained through response to letters and brochures to legislators, other elected representatives, interest groups, and the general public. Public involvement will be maintained through agreements with regional development commissions to assist the department of transportation in periodic revisions of the transportation plan.

During the development of a regional transportation plan for southeast Alaska, the Alaska Department of Transportation and Public Facilities held public workshops in 17 communities. Participants identified transportation services in their communities, listed their likes and dislikes in regard to these services, and recommended priorities for transportation improvements. Several principal transportation system options were considered at another series of public workshops, which led to a preferred transportation plan.

Arizona has held 19 public forums throughout the state to obtain inputs on the future direction of transportation. Attendance ranged from 16 to 150 and averaged about 40 participants. Background information on the status of the systems was provided in a previously circulated report and briefly summarized at the meetings. The participants responded through small workshop groups. A monthly newsletter that covers progress on the plan development and invites response from readers keeps the public involved.

Louisiana holds hearings annually on the state's proposed short-range program. The hearings are conducted by the Joint Legislative Committee on Highways and Public Works. The state department of transportation provides staff to address technical issues at these hearings. The Minnesota, Arizona, and Louisiana participatory processes are discussed further in the Wilson and Cannon paper in this Record. Two common characteristics in the above examples are the early involvement of the public and provisions to keep the public involved and informed on a continuous basis.

Advisory committees, composed of a variety of memberships and structures, are often used in the plan development process. For example, Michigan has established modal committees, including modal carrier representation, for the state's multimodal needs study. Wisconsin uses a broad-based state transportation plan ad-

visory committee to aid in the development of statewide plan alternatives. Alabama has a citizen group that worked closely with the Alabama State Highway Department to develop a long-range plan and financing packages for the legislature.

Several states have used special surveys to gain public opinion. Washington used transportation surveys and television-callback programs to obtain representative public input. Colorado used a modified questionnaire technique to gather information from the public on transportation issues, goals, and alternative state development futures. A 30 percent response rate was obtained. In nearly all of the above examples, some form of written communication was provided to the public, such as reports, minutes of meetings, or newsletters.

PLANNING AND PROGRAMMING

The view taken during the Federal Highway Administration (FHWA)-sponsored seminar series was that the program should be a primary product of planning and both are aspects of planning management. Part of the separation that exists between planning and programming can be attributed to organizational structure and separation of responsibility. Planning and programming officials often report to different individuals and both functions may be carried out independently. Similarly, state highway agencies may centralize planning, although the initial development of the programming is done at the district level. The central office control may only be to ensure that total spending limits will not be exceeded. The relevance of planning to programming is critical and may be improved through a sound, continuous process for decision making and accommodating change. Individuals and issues may change over time and assumptions made during plan development may no longer hold; therefore, effective planning management must be sensitive enough to adjust and respond accordingly.

California's response to a statutory requirement for a quadrennial needs study is an example of this adjustment. Between the 1974 and 1977 studies, officials recognized a need for low-capital intensive improvements and for a shift of emphasis away from dependence on the private automobile (5).

The difference in needs between 1974 and 1977 is summarized in Table 1 (5). There are two major differences between the two programs:

1. In 1974, deficiencies in the system were supposed to be eliminated by construction of new facilities or reconstruction of existing facilities to full modern standards. The 1977 needs estimate contains more proposed improvements but fewer proposals for new facilities. The current estimate includes 480 new highway proposals, whereas the 1500 projects in 1974 were almost all new highway proposals.

2. The 1974 needs were directed almost entirely at capacity problems. Underlying structural, safety, or operational problems added priority to new highway construction but were not usually problems for correction in themselves.

The 1977 needs report was much more comprehensive and included various operational, environmental, and multimodal improvements.

States such as California are developing a system planning process that will allow management to better evaluate success in fulfillment of the agency's mission. Managers also recognize the need for stronger coordination between planning and programming so that data developed by planners will be responsive to the needs of programmers.

MULTIMODAL PLANNING AND PROGRAMMING

True multimodal programs (i.e., a statement of work that recognizes the abilities of each mode to satisfy travel demand and the optimization of these abilities) are rarely developed at the statewide level. One of the reasons is the difficulty in assessing the comparative advantages of each mode. All modes have characteristics that can be defined and measured in similar terms, but these characteristics often are not the significant ones used to make modal trade-offs. For example, speed, frequency of service, capacity, and operating costs can be measured for all modes but do not necessarily indicate the reason why a particular modal choice is made. However, all modes also have unique characteristics that can be defined and measured (in not necessarily similar terms), and these characteristics are significant in making modal tradeoffs. Examples are the rates that can be charged for service, minimum size of shipment, union operating rules, and the degree to which modal choice is influenced by regulation.

For example, nondirect transportation costs in freight movement can have a significant effect on modal choice. Table 2 shows the types of economic considerations related to inventory costs that a freight receiver must make (6). These considerations include annual volume, warehouse costs, the minimum shipment size for various modes, freight rates, and transit time. Our example is for a warehouse that has an annual volume of 163 293 kg (360 000 lb) valued at \$8.82/kg (\$4.00/lb). The base rail inventory is 77 564 kg (171 000 lb) and the base truck inventory is 28 576 kg (63 000 lb). In the example case, rail transport is \$16 200 more expensive than truck transport. Direct transportation costs favor rail; however, the associated inventory costs that arise due to frequency and size of shipment tip the economic scale to favor trucking.

Another problem is that a true picture of freight modal activity is difficult to obtain. Many freight carriers will

not release information. This situation has led to a number of alternative approaches. In Texas manufacturers were contacted to obtain the type of goods shipped and modal information; the response rate was 64 percent. Arizona attempted to obtain freight information from shippers and receivers rather than from transportation companies. Oregon will attempt to obtain information only on those commodities that are particularly significant to the state's economy in order to reduce data collection costs.

Subtle issues must be weighed for modal trade-offs of such questions as, What are comparative advantages of intercity bus service relative to automobile service? How large a public investment should be made to support such bus service? Would publicly supported rail adversely affect bus service within the same corridor?

Effective approaches will emphasize modal-specific and corridor-specific issues, show where modes would complement each other, and avoid complex simulations of competing modal systems. For example, Iowa depends heavily on a transportation network that can move grain efficiently during harvest. The state was instrumental in developing a combination rail-barge tariff for corn and soybeans shipped to the Gulf of Mexico for export (7). This tariff eliminates the daily fluctuations common to barge rates and offers the shippers an annually contracted rate.

Multimodal interstate and intrastate studies of passenger movement have focused on bus and air modes. Michigan and Oregon conducted bus studies that include such items as the number of companies operating, routes, schedules, frequency of service, financial statistics, user profiles from onboard surveys, and trip purpose.

ENERGY

The energy issue has become a most important consideration in statewide transportation planning and has some of the most profound long-term ramifications. The transportation sector accounts for about 40 percent of total gross energy consumed when indirect uses are included and over 50 percent of all petroleum consumed. Moreover, the automobile accounts for half of the nation's transportation energy consumption (8). Thus, the transportation sector, and particularly the automobile, are obvious choices for implementation of energy conservation measures. A multitude of options are open to the transportation planner, and literature regarding their implementation and effectiveness is voluminous, yet even reliable sources differ on fundamental considerations. In addition, a lack of consensus on the extent and even existence of an energy problem requires that extensive public education be an integral part of most conservation measures.

Statewide energy conservation measures may seem ineffectual when compared both to the enormity of the energy problem and to the energy savings produced by a national policy, such as the mandating of greater fuel efficiency in newly constructed vehicles. However, state planners should recognize that conservation mea-

Table 1. Construction needs by program element.

Program Element	1974 (\$000 000s)	1977 (\$000 000s)
Land and building maintenance	-	30
Bridge reconstruction	22	161
Roadway reconstruction	53	315
Highway planting restoration	-	34
Safety roadside rest area restoration	-	2
Resurfacing	-	73
Protective betterments	6	43
Safety improvement	22	397
Noise attenuation	-	381
Highway planting	-	74
Roadside rests	5	45
Vista points and roadside enhancement	-	16
Traffic operational improvements	132	621
High-occupancy-vehicle facilities	11	724
Bicycle facilities	-	24
New highway construction	8295	3698
Miscellaneous	2	9
Total	8548	6647

Table 2. Inventory cost example.

Mode	Rate	Transit Time (days)	Annual Cost (\$)		
			Transportation	Inventory Investment at 10 Percent	Total Distribution
Truck	\$2.25 on 13 608 kg minimum	2	81 000	25 200	106 200
Rail	\$1.50 on 27 215 kg minimum	7	54 000	68 400	122 400

Note: 1 kg = 2.2 lb.

asures may produce a fiscal savings that can offset decreased gasoline tax revenues. Government agencies have been slow to respond to the energy situation, possibly because many conservation proposals do not fit within their traditional framework of responsibilities. Yet their response is necessary. Energy conservation is not a short-term policy. As an increasingly important fact of life, it demands the attention of those whose decisions will determine future energy use.

Transportation system management (TSM) strategies offer urban areas options for increasing the efficiency of their transportation systems. Increased efficiency, in many cases, means decreased energy consumption. TSM strategies in use can be generally stratified into two principal categories:

1. To promote the use of high-occupancy vehicles (HOV) through increased automobile occupancy and shifts to transit and
2. To improve traffic flow.

Regardless of the strategies chosen, they should be assessed in light of potential cost, time to implement and achieve results, degree of impact, and interaction with other goals, as well as their energy conservation potential.

Certain behavioral changes in travel, such as higher automobile occupancy on trips to work, could result in significant energy savings at a minimum level of investment. Unfortunately, these changes often involve perceived inconveniences and are thus very difficult to realize. Therefore, a greater emphasis must be placed on informing the public about energy problems, the need for conservation, and the attractiveness and workability of energy-efficient practices. For example, a New York research report has suggested that an energy audit program be set up to assist citizens in energy use (9). Citizens would volunteer to have their energy usage audited and would request suggestions on how to save energy for their particular situations. Successful implementation of carpools, vanpools, and public transit programs is also dependent on a public education process that emphasizes fuel and monetary savings as well as their personal savings and convenience.

Effective strategies in urban land use planning and control offer potential long-range energy savings. Police powers, taxing policies, and public works investment policies affect land patterns. The location of shopping districts, residential areas, and high-density employment centers can help reduce future demand for travel. Tax breaks are also being considered for industries that locate in urban areas to discourage suburban sprawl.

In the event of a rather sudden energy crisis, such as occurred during the 1973-1974 oil embargo, all levels of government must be prepared to act swiftly to minimize its impact. Some measures, such as a rationing program, must be handled at the federal level, but even then the state and local governments will have responsibility for handling special cases, setting up boards and panels, and conducting a public information program. Each of these activities should be organized as a part of a contingency plan before the emergency so that the transition into the crisis situation is as smooth and expedient as possible.

The North Central Texas Council of Governments has outlined strategies to modify its mass transportation system in the event of an energy crisis (10). Concerns about bus service expansions or reductions include

3. Provide peak service only along certain routes,
4. Lengthen headways,
5. Eliminate weekend service,
6. Reduce the number of stops,
7. Improve the flow of buses in traffic, and
8. Decrease the number of deadhead bus kilometers.

The Texas plan also recognizes the usefulness of using taxis and ridesharing to provide transportation to low-density areas where bus service would be inefficient.

The nationwide energy savings to be realized by implementation of any one conservation strategy generally falls within a range of 0-5 percent. Two major exceptions are (a) use of taxes to encourage a shift to more efficient automobiles and (b) increase of the price of fuel by at least 50 percent. Both of these strategies will generate considerable savings, as well as controversy. Although national savings due to conservation efforts may not be great, local savings could be significant, depending on the area and the strategy. The value of a conservation program is that it is generally low in cost and it can buy time. The major factor in its success is public support, which can be enhanced through adequate public education.

LAND USE

The interrelationship of land use activity and travel has been well observed by the transportation system user and the property owner. The basic cycle created has transportation system improvement playing catch up to satisfy need created by development, which, in turn, improves land access, which improves land value and stimulates more development, and so on. The two-edged issue of the role of the transportation system in influencing land use change and accommodating the impacts of land use on the existing transportation system is basic to transportation planning. Analysts have had difficulty in quantifying the relationship (to the extent that feedbacks are obtained, for example, between land use and transportation network models) (11), and institutions have had less than full success in trying to coordinate development with transportation improvements.

The recent shift by the states away from the development of new transportation facilities and toward the preservation of the existing system contributes to these difficulties. Therefore, better land use controls and constraints (such as access control) that will help preserve or improve the utility of the existing transportation system should be added to the land use-transportation cycle. Traditionally, local jurisdictions (cities and counties) are responsible for land use planning and regulation, and planning at the state level is more often oriented to broad policy development and deals more with budgeting and capital improvement than with the specific function of statewide land use planning and regional growth and development objectives.

Another factor contributes to difficulties in achieving a state-level land use-transportation planning integration. Responsibility for land use planning generally rests with local jurisdictions and regional agencies, but the responsibility for certain activities (such as transportation) have been retained at the state level. Thus, the focus from a statewide perspective for these two functional planning areas rests at two different institutional levels. Also, activities within the same level of government related to land use and transportation are often found in widely separated departments or agencies.

A number of relatively recent actions or concerns under study either directly or indirectly affect the land use-transportation issue. For example, state legislation on environmental concerns and access needs of energy

1. Eliminate or add routes,
2. Purchase extra bus capacity,

resource development is emerging. These issues impact on transportation service. The impact of land development patterns on energy use is also becoming more critical. At the more analytical level, the impacts of transportation development on land development have received considerable study in the past. Typical are the studies on the effects on central business district growth of a proposed bypass and before-and-after studies of growth at freeway interchanges and along corridors of new facilities. On the other hand, studies have included the usual trip generation analysis part of an urban transportation study or a statewide study employing urban travel forecasting techniques. Site analysis of the impact of a proposed traffic generator on the surrounding street system is another example.

Land use control and impacts of development on maintenance of the existing functional class or level of service of a facility have become critical concerns. Protection of the utility of highways that make up an existing highway system at a point in time when few new large-scale facilities are being built increases the need for emphasis on land use control. The Highway Users Federation found that most of the state efforts at control focused on critical areas (12). The following were among the examples mentioned in the report. Other state actions taken more recently are also included.

1. In Connecticut a land use policy map is used as a guide in assessment of the consistency between land use and state public investments.
2. The Florida Environmental Management Act of 1972 allows critical environmental areas to be set aside by officials for protection and allows for protection of major public investments. The act also requires the preparation of a state land use development plan and a review process for projects of regional significance. The availability of adequate transportation service is one of the criteria used in the review of housing and commercial development of regional significance.
3. Coastal states have moved to manage growth better along their coast lines either directly by state legislation or as a result of the Federal Coastal Zone Management Act.
4. Indiana will soon begin an inventory of state resources to set protection priorities under the Indiana Heritage Program. Ten other states have similar programs.
5. Minnesota also has taken a critical area approach similar to that of Florida.
6. A number of states have passed flood plain and wetland protection measures.

As of late 1974, 21 states have a land use planning program under way (13). Twenty-six states have established a policy planning process that includes land use development aspects and some of the approaches are briefly listed below (14).

Alternative Futures

South Dakota has studied three alternative industrial and two farming policies for future growth. Consequences of alternative courses of action can be tested to provide information to decision makers. California has also used the approach. Utah has used economic and demographic analysis and projection to test alternative combinations and consequences of proposed development.

Identification of Significant Issues

In Kentucky the focus was on key decisions to be made within state management to achieve improved policy de-

velopment. In Maryland decision makers were provided guidance in relating long-range goals to short-term actions.

Public Investment Planning to Guide Growth

California has studied development strategies to renew and maintain existing urban areas. Massachusetts has taken actions to guide capital investment in central cities. In Vermont state and local officials looked at development proposals as part of the state's overall plan to guide public investment.

In addition to the above examples, the experience in Oregon is significant. The state passed a Land Use Act in 1973, which created the Land Conservation and Development Commission to develop and adopt statewide planning goals and identify critical areas for additional study. The approach used in Oregon is significant in the way it incorporated citizen concerns and attitudes on land use planning and land development. The public was invited to 56 workshops, which were held to obtain this input. Public hearings and other workshops were held to review drafts of the statewide goals. The goals were adopted in 1974 and are currently used as guides for developing comprehensive plans by the state and local jurisdictions. A citizen involvement goal was also adopted to ensure adequate input during the plan development stage.

SURVEILLANCE AND EVALUATION

Surveillance and evaluation are distinct but closely related procedures. The objective of surveillance is the observation of characteristics of the transportation system, including its uses, and the items that may affect it. The objective of evaluation is to form judgments as to the implication of the changes noted through surveillance and determine alternative responses. The key is (a) a clearly stated state transportation or highway policy, (b) a set of objectives that implement the policy statement, and (c) criteria that can measure success of the policy.

Surveillance and evaluation activities have received increased emphasis since the nation's highway agencies have entered a period of extremely limited monetary and personnel resources. The response at the state level is found in recommendations such as in Pennsylvania for performance standards and a department report card in order to communicate the level of performance to the legislature and the public (15).

Surveillance and evaluation procedures should meet these basic objectives:

1. Provide an early-warning system to identify external trends and events that call for the review of existing policies and activities or the establishment of new policies and activities, and
2. Provide a system of accountability for agency functions and identification of what has been accomplished with public funds.

The surveillance activity should be guided by the principles of the agency's mission and the guidelines embodied in a plan or program document. The data collected should relate directly to the anticipated mission and related objectives. This implies that the plan or program is specific enough to relate to the physical effects that would accompany its development.

Evaluation takes the information obtained through surveillance, determines changes, and makes a judgment about the effect that the changes will have on the success

of the agency's mission. The following are some of the typical uses of data that would be developed by the surveillance and evaluation activity:

1. Review of progress and trends in the provision of transportation services will include identification of problem areas and progress that has been made;
2. Decisions on resource allocation will be guided by the highlighting of problem areas (a comprehensive approach to determining the need for changes will help to temper demands that may be made by special interest groups);
3. Budget formulation can be enhanced by reference to the issues noted by the surveillance and evaluation process; and
4. Surveillance and evaluation would provide the types of data necessary for detailed program evaluation and analysis of future options.

The major questions management needs to answer are, Has its management been successful? and Do observed trends indicate the achievement of management's objectives? Positive responses to these questions will require that management be able to determine meaningful criteria to measure success and develop a clear understanding of what trends are worth watching.

The state highway agency's goal may be to provide fast, safe, and economical transportation. However, objectives may have been overshadowed during the attempt to achieve some intermediate goal, such as plan development, certification, or approval of an annual element or annual program. This approach has led to rather constrained perceptions of problems and an associated set of prescriptive techniques. What is lacking in these approaches has been an evaluation of management in terms of the agency's true objective. For example, the existence of an accepted plan is not the same as transportation that is actually faster, safer, or more economical than before the plan existed. Suppose, instead, certain levels of achievement could be set, such as (a) improve travel during the peak hour by 1 km/h over the next 5 years, (b) decrease highway-related deaths by 5 percent, and (c) use 7 percent less energy per kilometer of travel. After the levels of achievement are set, the participating states, cities, or counties could develop proposals that would achieve the objectives along with methods of measuring their success. Certainly, this approach could be more difficult to manage than the prescriptive approach since the methods of meeting the objectives would be more numerous; however, it would have great payoff in testing many approaches to solving a problem. Most importantly, it would deal with the actual objectives of the agency and not surrogate goals.

The work in California described earlier presents an interesting example of how a well-managed expenditure of funds can actually be more beneficial than an indiscriminate expenditure. On a dollar-for-dollar basis, the system-oriented approach provided 30 percent more benefits than did the previously used project-oriented method (3).

A surveillance and evaluation process, in general, will only be instituted at the demand of upper-level officials. Even with top-level backing, a surveillance and evaluation system may be criticized initially by those who feel the old methods are achieving desired results or that enough, or possibly too many, data are already being assembled. In the face of such criticism, advocates of surveillance and evaluation can point out that many data now being compiled do not address the impact of proposed alternative courses of action. Similarly, the increasing use of planning, programming, and budgeting

systems and management by objectives constitutes a demand for regular information about agency and program effectiveness.

CONCLUDING REMARKS

Various issues must be dealt with as though they are related and not disparate and must be linked to key state-wide planning products. The overriding issue in most states is that expected highway revenues will not meet expected highway needs. As a result, state transportation managers have to determine how best to preserve the transportation service improvement gains that have been made so far. Responses include jurisdictional realignment, redefinition of appropriate improvement standards, and consideration of additional sources of revenue.

The plans and programs that are now being developed out of this utilitarian ethic emphasize the possible over the desirable. Plans are more closely scaled to the funds expected over the long haul. Programs are more responsive to preservation of the existing transportation system and reflect a need to deal with project decisions in a system context.

Many states are trying to ensure early and continued input by the public and interested agencies. Typical approaches include public meetings on specific topics, advisory committees, and greater use of the media. Approaches seek to determine the true issues and desires of the state and the communities that are affected. Early involvement is critical to establishment of support for proposed programs and project development activities.

Multimodal planning and programming solutions to specific short-term problems tend to focus on particular issues and corridors in a state and to stay away from complex simulations of competing modal systems. Either-or questions are not asked as much as are questions of appropriateness of a particular modal service, either as the solution to a capacity problem within a corridor or as the response to the transportation needs of a particular segment of the public.

Energy has become a significant issue in program development. It spans modal choice and fund availability. Most of the transportation-related energy issues emphasize conservation as opposed to technological or economic substitution and thus must be keyed to a good public information program. TSM strategies seek to make optimum use of available facilities and to reduce energy consumption.

The move toward comprehensive state transportation plans has occurred at the same time as the focus has turned to statewide land use planning. Past difficulties in interrelating these two efforts have stemmed from the different levels of state control and interest in each type of planning. Also, land use and transportation activities within the same level of government are often found in widely separated departments or agencies. Active coordination in these two planning functions is critical and is receiving increased consideration.

Surveillance and evaluation are necessary management activities. Decision makers need to be aware of issues before they become crises and to measure their successes. Greater efficiency in the use of personnel and funds, as measured under performance criteria, has become the manager's goal.

In summary, state transportation agencies must focus on these issues as a part of improved overall management of the transportation planning program. The courses of action in dealing with the issues must move toward

1. Efficient management of scarce resources (energy, financial, social, community, and natural),
2. Preservation of the existing transportation system and maintenance of service improvement gains made so far,
3. Emphasis on possible rather than desirable standards and less emphasis on capital intensive improvements,
4. Focus on corridors to better analyze trade-offs between modes,
5. Better education of the public toward an energy conservation ethic,
6. Increased emphasis on land use control to protect highway utility (existing functional class and performance level),
7. Early and continued public involvement, and
8. Effective surveillance and evaluation through a clearly stated policy, a set of objectives that implement the policy statement, and criteria that can measure success of the policy.

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New Approaches in State Transportation Planning

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This paper provides a review of significant developments by various state agencies in two key areas of statewide transportation planning: (a) public involvement in plan and program development and (b) financially constrained state highway system plans. Brief synopses are presented of the statewide public involvement processes in Minnesota, Iowa, Arizona, and Louisiana and the plan development processes in Tennessee, South Dakota, California, and Texas. Some general similarities among the eight planning processes are discussed. The activities in these two areas reflect the realization that planning is an increasingly important resource. State transportation agency managers and state legislators are seeking public input on key elements of statewide planning, such as identification of issues, evaluation of policy options, and development of plans and programs. Also, managers and legislators are looking for

(a) planning options that satisfy travel desires but also recognize limited financial resources and (b) methods of controlling the planning, programming, and letting schedules. The desire for public involvement is a recognition of the need for public officials to respond to transportation problems identified by the public and an attempt to involve the public in some of the complexities of the transportation program.

A series of statewide highway planning seminars was held throughout the country during 1977 and 1978. They were sponsored by the Federal Highway Administration (FHWA) in cooperation with state departments of trans-