

Statewide Transportation Planning Program

ROBERT BREUER, Principal Transportation Analyst, Planning and Research Bureau,
New York State Department of Transportation

•NEARLY EVERYONE by now is familiar with the comprehensive transportation planning process. It is reflected in the 1962 Federal Highway Act, and has been followed in urban transportation programs throughout the United States. It has six important steps:

1. Statement of objectives;
2. Inventory of existing conditions;
3. Development of interrelationships based on inventory data;
4. Forecast related to travel-generating bases;
5. Development and evaluation of alternative plans; and
6. Implementation of plans.

These steps can be contrasted with the transportation planning of the past, which typically would include an inventory of existing volumes and deficiencies followed by a trend forecast of future volumes and resulting deficiencies. The resultant "plan" was a straightforward description and cost estimate of the projects for the alleviation of these anticipated deficiencies. Planning for most other intercity modes—rail, aviation, and ports—was of a similar nature. There was no intensive effort toward development of alternative plans, nor was there an objective statement of goals and the criteria by which these alternative plans would be weighed. There was little or no modal and intermodal system impact estimation.

The comprehensive transportation planning process is as applicable to the statewide transportation problems as it is to those of urban areas. There are several reasons for the persistence of traditional methods. First, transportation needs cover a broad spectrum, and the various modes—aviation, rail, water, roads, and pipelines—are quite specialized. Therefore, the goals of transportation improvement cannot be stated easily; assumptions that are valid for single modes are often inadequate when applied to two or more different modes. Second, the scale of planning for statewide transportation needs is vastly greater than for an urban area; the State of New York, for example, has an area of some 50,000 square miles, and the number of alternative amounts, combinations, and locations for transportation investments can approach the infinite. Finally, there is a vast amount that is unknown when it comes to describing intercity and rural transportation in common terms. To illustrate this more fully, the elements of the comprehensive planning process will be discussed, and some of the considerations that arise and must be effectively dealt with in their application to statewide transportation modes will be highlighted.

COMPREHENSIVE TRANSPORTATION PLANNING PROCESS APPLIED TO STATEWIDE PLANNING

Goals

Goals for transportation give direction to planning and become the basis for evaluating alternative courses of action. Establishing goals for intercity travel networks, however, is a task fraught with complications because of the variety of interests involved. These include users who want reduced travel time and cost but increased con-

venience and comfort; suppliers, both private and government, who are concerned with reliability and safety as well as the costs of building and operating facilities and providing services; and members of the public who are concerned with the environmental effects of transportation systems.

As in urban planning, goals should reflect the attitudes of people and their expectations for a transportation system. Traditionally, the cost of a transportation network has been based on a simple average value for the cost of a person's travel time. This, however, does not appear quite applicable for statewide transportation planning. People have varying incomes and abilities to pay for transportation. They will, therefore, travel for different reasons and by varying distances and modes. Differences also occur in the shipment of goods. Shippers of perishable food products will select a different transportation mode than will a shipper of lumber.

Inventories

Urban transportation planning starts with an accurate data base describing the activities that generate travel, the facilities that connect these activities, and the travel that occurs on these facilities. A similar base is needed for statewide transportation planning, although questions such as "How much?", "How detailed?", and "How to gather?" are yet to be answered.

Consider the amount of data that could be recorded for an intercity trip. The total trip—door-to-door—may consist of time going from the origin to an intercity terminal; from the terminal to another city via some intercity mode such as rail, air, or bus; from the terminal at the other city to another mode, such as from the air terminal to a taxi, limousine, or transit vehicle; and, possibly, from this mode to another that would carry the tripmaker to his destination. The data recorded for this trip should describe the total trip including the terminal, distribution, and intercity interconnection aspects.

Some secondary sources of data on intercity travel are available, although many of them have significant inadequacies. The Civil Aeronautics Board compiles data on intercity origins and destinations from a sample of air travel tickets; however, analogous data do not exist for rail and bus travel. Moreover, information provided by rail, plane, and bus schedules does not provide complete information about the entire door-to-door trip. None of the existing travel data are matched to the characteristics of the travelers or the travel-generating activities, knowledge of which is essential to future generation and simulation investigation.

Research, Analysis, and Simulation

During the past two decades relationships have been established from data obtained in urban transportation planning between land use and travel (accessibility and urban development), trip distribution and travel assignment, and travel by public transit and automobile. These relationships have been used to develop simulation models and other tools for analysis. Analogous tools are needed to simulate the choice of intercity modes, considering significant travel factors such as frequency, distance, speed, purpose, and number in the traveling party. Consideration must also be given to technological changes, both revolutionary, such as tube flight and guided automobiles, and evolutionary, such as jumbo jets or oil tankers. Each type of change would have significant effects on routes, fares, and schedules.

Forecasts

In statewide planning, as in urban planning, forecasting and planning are intertwined. Without some knowledge of the amount and location of future population, employment, and other activities, the amount and location of transportation facilities cannot be determined very accurately. This will require information from other state planning agencies regarding their policies for development to which accessibility by transportation facilities must be provided. In New York's 14 Appalachia counties, for example, intensive efforts are to be made to upgrade their social and economic status. Trans-

portation will be a critical factor and must be closely coordinated with parallel industrial, recreational, educational, and other resource development programs.

Plan Development and Evaluation

Developing alternative plans for statewide transportation may be significantly different from the similar process which the state has been following for many years for urban planning or for highway planning. For the latter, it is primarily a matter of locating routes on maps. But for a multi-mode statewide transportation system, schedules and rates are equally as important as routes, if not more so. Statewide transportation plans must include, therefore, policies on regulation and taxation that affect the provision and use of privately supplied transportation services.

Implementation

In the comprehensive planning process, implementation includes the detailed design of projects and their construction and operation. The Development Division and the District Planning Offices along with the Planning Division have the responsibility within the Department to see that transportation plans are implemented. Recommending and reviewing state and national policies and legislation as they affect any transportation mode, evaluating plans by local or regional agencies and administering state and federal funds for many transportation projects, testing products of new technology in demonstration projects, and continually reviewing and evaluating the construction and maintenance programs of the Department—these are some of the activities necessary to the implementation of the statewide transportation plan.

PHASING THE STATEWIDE TRANSPORTATION PLANNING PROGRAM

In phasing the work program of the statewide transportation study, it would have been ideal to have had the luxury of both staff and time to develop the appropriate methodology for each step in the planning process. Pressures to meet established deadlines, however, did not permit such a leisurely pace. Other pressures existed as well. The Transportation Capital Facilities Bond Issue of 1967 made \$2.5 billion available for road, transit, and aviation projects. A number of construction programs were already under way, and local transportation groups were pressing for allocation of these funds for projects within their areas. The statewide planning program, therefore, was required to produce a long-range plan quickly so that local projects could be evaluated against statewide needs and development. Just as planning has no future terminal point, neither has it a starting point; it must always accept and deal with what exists or is already under way. This fact was recognized as the basic premise of the phasing of the program for statewide planning.

The result was a program phased to provide a variety of products timed to meet various needs. Phase I was a one-year effort, ending in September 1968; Phase II will extend for another two years, and Phase III will follow.

Phase I

In Phase I, a fairly comprehensive review was undertaken of the history and current status of all intercity and rural transportation modes in New York State, and the amount of travel by people and goods on these modes. Surveys also began to obtain data on services and facilities, primarily to lay groundwork for extensive transportation usage surveys to be conducted in Phase II.

An important part of Phase I was the establishment of transportation planning goals that reflect comprehensive values and objectives, that are applicable to all modal networks and services, and that provide a basis for evaluating plans and alternatives. This work was undertaken by a Goals Task Force having representatives of the Department of Transportation and the Office of Planning Coordination. The report of the Task Force will be released shortly and will indicate, among other things, directions for research by both agencies toward the development of measurable criteria for goal achievement in both plan and program evaluation.

The major product of Phase I is the report, "Policies and Plans for Transportation in New York State," completed in September 1968 as required by the New York State Legislature when it established the Department of Transportation. The report reflects the comprehensive planning process discussed above and presents policies, plans, and programs that are usable for immediate decision-making and have the necessary flexibility for more detailed application in the future.

Phase II

Phase II, now under way, is concerned with goals and evaluation measures, inventories, analyses, research and simulation, forecasts, plan development and evaluation, and implementation. During the first year, several factors that have affected the work in Phase II became apparent. In the following discussion, these aspects of planning are introduced by the characteristics unique to statewide planning.

There is a hierarchical sequence that statewide plan development must follow according to the scale of the decision to be made. In other words, the development of a plan for a balanced statewide transportation system requires a myriad of decisions to be made at every level in the social structure, including government and private industry. Many of these decisions must be made simultaneously and independently of each other. The state, therefore, has the responsibility to see that each decision-making group has available to it the assumptions, forecasts, policies, and standards that the other groups have. The state is the force that collects and guides these decisions through the decision hierarchy so that differences are resolved, agreements are reached, and an acceptable, workable plan evolves.

This also requires that statewide forecasts of regional transportation demands and service needs be consistent with forecasts and policies for growth and development in all other areas. The Technical Coordinating Committee has been established to insure the coordination of these efforts.

Statewide transportation planners must reckon with forces that transcend regional, and even state, boundaries. These forces affect markets, size and speed of vehicles, taxing and pricing, new modes, and changes in existing modes. Private transportation manufacturers and operators are particularly involved in these matters, although government legislative and operating agencies are involved as well. The Advisory Committee to the statewide transportation study, to be established soon, will provide a channel for communication among these parties.

Along with planning at the state scale there must be regional studies to determine the precise location and type of facilities and services. These studies will have a framework to guide them (the output of the state scale plan), policies, standards, forecasts, and system impacts. Planning at this scale calls for detailed knowledge of local origins and destinations and of service needs. It must also be sensitive to small-scale environmental relationships. Coordination with local transportation and local comprehensive planning is essential and will require a cooperative effort by both state and local agencies.

Phase III

To commence some two years from now, Phase III will insure that plans and projects are monitored to determine if they are being effectively implemented. In addition, it will include a continuing program to insure that a variety of factors are reviewed and updated periodically. These include the following:

1. Population and economy;
2. Goals and values, especially those reflected in legislative and executive policies;
3. Applications of technology and research;
4. Significant national events such as mergers, labor contracts, and interest and tax policies; and
5. Variations in transportation network development.

CONCLUSION

Although statewide transportation planning is more complex and at a broader scale than urban planning, the same planning process can be generally followed by both. Planning goals, accurate data base, predictable relationships, reliable forecasts, evaluation of alternatives, and implementation, review, and updating—these are the essential ingredients. The process is well under way in New York State.

We expect that during the program's second year our methodology and capabilities will improve and the state's balanced transportation system will be moved from concept closer to reality.