

Workshop Summaries

The reports that follow were prepared by the presiding officers of each of the five workshop sessions. They summarize the principal highlights of the participants' examination of (a) long-range regional transportation planning; (b) project planning—evaluation of alternatives and impacts; (c) planning for transportation management and operations; (d) planning for financing, implementation, and evaluation; and (e) the future of the urban transportation planning process.

Long-Range Regional Transportation Planning

Gordon A. Shunk

The workshop on long-range regional transportation planning in the 1980s considered the time frame of regional transportation planning and prepared a list of recommended improvements in transportation analysis methodology to meet the anticipated needs. Discussions were organized to define the most important functions of a long-range or regional nature. Significant issues to be addressed by those functions were then identified, and important considerations and products for those planning efforts were specified. Needed improvements in current methods were then proposed along with necessary research and development.

The proposals of this workshop are especially important because of the broad constituency that is represented by agreement among the participants. Six each were from state departments of transportation and metropolitan planning organizations. Most of these agencies have been active leaders in long-range regional transportation planning. The other participants represented a nearly complete spectrum of other interested groups: cities, associations, consultants, universities, and the federal government.

ROLE FOR THE 1980s

The role of regional transportation planning in the new decade will be to provide technical support for decisions by local elected officials. In this context the process might be called regional transportation policy analysis. Decisions will be related to facilities or services that are both regional and local in scope. Analytical planning efforts will usually be specialized and dictated by particular problems and decisions affected. Preparation of long-range plans will give way to maintenance and updating of previous long-range plans and to more consideration of intermediate plans and staging.

The planning time frame will be a function of the problem addressed. Short-range planning (time frame of less than 5 years) currently dominates transportation analysis, but there will still be considerable concern for strategies in the 5- to

15-year period. The goal-oriented 20-year plan is also an important factor in nearer-term decisions. As a practical matter, available financing will often dictate the time frame of analysis.

Plan Maintenance

Maintenance of the regional transportation plan is a function that needs to be continued. The regional plan provides a context or framework within which transportation developments occur; the plan provides direction for transportation improvements. Maintaining the plan involves updating to reflect current concerns and needs and utilizing or preparing updated comprehensive planning information. The revised plan should reflect new policies and constraints that have become effective or will do so within the affected planning horizon. The plan should include both short- and long-range actions and policies. It should consider available or anticipated resources: natural, social, financial, and economic. The plan revision should also address institutional and organizational considerations that affect the infrastructure for developing and operating transportation services. Above all, the plan should be a dynamic instrument that anticipates change, but also is capable of responding to change that is not anticipated. The plan should also be relevant both to current issues and to the manner in which the plan is used by government and the public. It should not be developed along rigid guidelines only for purposes of its own existence. The revised plan should include the results of any refined technical analysis conducted since its previous revision, particularly updated regional travel demand. However, it will not usually require extensive technical analyses of the type required for developing original plans. The plan should be prepared, presented, and used in a context that permits and responds readily to expeditious updating.

Subarea Analysis

Subarea analysis addresses the need for detailed analysis and planning within the context of the regional plan. Such refinement will become more important as regional plans become more general. Subarea and corridor planning are the first steps in the detailed analysis that leads to project development. Subarea planning should consider a full range of alternatives, especially options that reflect changes or anomalies in traditional assumptions. Among these alternatives should be statutory, organizational, and institutional modifications as well as availability of natural, financial, and human resources. The subarea analysis process should be carefully designed to meet the needs for which its results are intended and should not be overly detailed because of regulatory requirements or analytical attractiveness. Above all, these analyses must be prepared in a timely manner to respond expeditiously to concerns of decisionmakers. The results of subarea analyses could include recommendations for both policies and action, as well as prioritizing various actions.

Problem Analysis

Problem analysis is performed in response to particular concerns, usually those of elected officials or other management, about specific problems, situations, or conditions. Much of this kind of analysis yields short-range solutions, but there can also be important longer-range considerations and implications. This function differs from subarea analysis in that it may be more detailed, localized, and site-specific. It differs from policy analysis because problem analysis responds in a manner tailored to a particular problem rather than to a general class of problems. Problem analysis is solution-oriented and should include identifying effects of recommended actions.

Policy Analysis

Policy analysis is emerging as an important activity of the regional transportation planning process. Its importance has increased due to reduced federal proscriptive involvement, financial constraints, and resource limitations, which together have made local officials more aware of needs to assure efficient and cost-effective transportation development. Policy analysis is the process of (a) identifying if and what kind of broad, directive guidance is needed in a particular situation and (b) preparing information that can be used to decide what those policies should be. The policy analysis process involves issue clarification, consideration of a full range of alternative policies, identification of effects and costs of the alternatives, and recommended policies and policy implementation strategies. The analysis of effects should consider full costs, life-cycle costing, and economic impact evaluation of other than cost-associated factors. The process should consider the role or use of the policy being addressed as well as associated organizational and institutional factors and effects and laws or regulations that impinge on the results. The process must also consider the time available for analysis in order to provide information expeditiously.

Strategic Planning

Strategic planning will occur in both the long-range and the short-range time frames. In fact, most short-range strategies have longer-term ramifications that should be considered as part of their development, and vice versa. Strategic planning refers to a broad range of activities that focus on defining how to accomplish a desired objective and/or how to respond to a particular situation. The problem identification and description steps are especially important in order to assure that the strategies defined focus on the problems of interest. The process must consider a full range of alternatives, especially those involving less conventional strategies such as modified institutional factors and organizational arrangements. In many strategies the key activities will be coordinating or negotiating with and among various government and private entities. Another key aspect of strategic planning is identifying and analyzing trends and determining their implications. The nature and speed of change in such trends are important determinants in the design of strategies. Assessment of uncertainty or risk is another key consideration for strategy development. The uncertainty of both trend extrapolation and other forecasts, including analytical results, may be sufficient to signifi-

cantly affect the probability of achieving anticipated results and thereby risk the success of the chosen strategy. Strategy development should carefully consider the use of results of the process, the timing for action on the strategy, and the need for change to law and regulations.

Impact Analysis

Impact analysis provides for estimating the effects of transportation and service changes before implementation as well as monitoring effects of such changes after implementation. The process should include interpreting the implications of impacts, i.e., demonstrating how and why effects occur, who is affected, and why the effects are important. This activity is important because it identifies weaknesses in assumptions, data, and processes that should be remedied in order to provide better information for use in future transportation decisions. The impact analysis process should be carefully designed to answer specific questions, not merely to broadly identify impacts. This activity should also be designed to recommend policies and actions for guidance of future transportation analyses.

Goods Movement

Interest in movement of freight within, to, and from urban areas has been increasing and will continue to grow. This is due in large part to increased costs of fuel and labor but also to the effects of trucks on traffic congestion on roads and in activity centers. Analysis and planning for goods movement must address a considerable institutional problem because most goods transportation is provided by the private sector. This presents the dual difficulty of obtaining reliable data and negotiating an acceptable solution to the problem.

Information Resource

The planning process provides a considerable resource for information and procedures that can be used by the public and government agencies. A major service, albeit an obligation of planning agencies, will be to prepare and provide long-range travel and transportation information. Such agencies can also provide technical capabilities to conduct or assist with analysis or to train analysts. The information and procedures are primarily oriented to travel demand forecasting and transportation facility characteristics and usage, but comprehensive planning data, financial analysis, and impact assessments are also important resources. These efforts can consume considerable time, funds, and staff resources so it is important for agencies involved to adequately plan for the time required. In preparing to supply these services, the quality, accuracy, and usefulness of data and procedures must be carefully assessed because of the credibility they have for both the process and the agency.

Coordination

A major activity of long-range planning will be coordination among participants and constituent agencies. This is neces-

sary to assure technical consistency and credibility of the process. Coordinating planning activities for the short and long range will also be important, especially to the extent that these activities may be the responsibility of different entities. The coordination process must recognize the roles, interests, and concerns of various participants in the planning process, especially as the organizations are interrelated in the total institutional structure. Particularly important activities in the coordination effort are sensitive mediation and negotiation because they are so often necessary, even in smaller conflicts, to accomplish intended implementation results. A newly emerging role is brokering, an activity in which the broker seeks out a match between a need and a resource to provide transportation services. Many of these coordination activities occur in the very near term, on a day-to-day basis, but they often address longer-range problems and solutions or short-range solutions with longer-range implications.

RECOMMENDED REVISION AND DEVELOPMENT

The workshop identified 12 issue areas that are likely to be faced by transportation organizations in the new decade. For each of these areas, existing methodology was cataloged and its capability to meet anticipated needs was assessed. Needed revisions in existing methods were then proposed and, where greater improvement or more work seemed needed, recommended research and development were identified.

Land Use

Revisions in current techniques include the following. More factors than transportation service may need to be incorporated in the analytical techniques. Demographic forecasts should account for life-style and life-cycle influences as well as increased numbers of women in the labor force. Research and development are likely to require the development of a better understanding of quantitative patterns and trends, particularly relationships between separate metropolitan areas and different national regions, as well as a better understanding of shifts within cities and of the relationship to changes in transportation service. Demographic forecasts need to be improved to reflect the effects of improved travel opportunity, i.e., transportation service.

Financial Forecasting

Revisions in current procedures are needed to improve capabilities that will take into account the effects of inflation and diesel-powered trucks, as well as the cost of money in the long term. Development is needed to permit considering effects of fleet mix as related to consumer economics and choice of motor vehicle.

Costs of Operation and Construction

Revisions are needed to improve the manner of allocating costs to beneficiaries of transportation investments, to im-

prove methods of estimating and forecasting maintenance and rehabilitation costs, and to facilitate life-cycle costing for various modes and facilities independently and in the aggregate. Revisions are also needed in approaches to assess and improve transit productivity. Development needs are for methods of accurately estimating or anticipating opportunity cost, for improved maintenance practices and ways to estimate their cost, and for techniques to assist in analyses leading to investment optimization, i.e., identifying trade-offs associated with alternative strategies to invest in transportation improvements.

Energy

Current fuel-use estimating procedures should be improved to better reflect increased engine efficiency in newer vehicles. The effects of increased efficiency on vehicle use are proposed as a subject for further research to develop procedures that accurately reflect anticipated feedback to the travel-demand stimulus. Development is also needed to improve information and procedures for estimating indirect energy consumption and for identifying cost transfers in the energy use structure.

Air Quality

Improved accuracy is needed to measure and estimate carbon monoxide emissions and concentrations. Current estimates are too inaccurate or unreliable to be used for legal action. This will require both improved data and better monitoring procedures. The need for increased accuracy may require more research than is implied in simple revisions of current techniques.

Safety

Revisions needed in current procedures are improved data about vehicle characteristics and crash capabilities, as well as reflected changes in vehicle mix. Development needs are for information and procedures that reflect changing demographics, e.g., more women in the labor force, and the effects of safety policies such as passive restraints.

Technology

Development needs identified were for research on communications as a substitute for transportation, alternative vehicle fuels, improved propulsion systems, and changes in vehicle size.

Resources: Time, Human, and Material

Current approaches need to be improved to better reflect time values, to better represent location decisions, and to consider trade-offs within household time budgets and personal or family activity schedules. Research and development should concentrate on improved methods for understanding and repre-

senting time-space trade-offs made by people when deciding to locate and travel. There are also development needs associated with the availability of material resources and the usefulness or reasonableness of using alternative materials.

Deregulation

Research is needed to identify direct and indirect effects of deregulation of trucking, air, rail, and water transportation. The results of this research are necessary to develop procedures for estimating impacts of further regulatory change.

Equity

Current techniques related to the equity factor could be improved by identifying strategies for mainstreaming disadvantaged segments of the population. Research is needed to identify effects of shifts in consumer demand. The results of this research may be useful for market segmentation and for achieving future market stability.

Public Expectations

This issue is related to what the community desires or anticipates from both planning and transportation improvements. It involves community participation activity as well as citizen involvement. The proposed revisions in current methods include increased emphasis on public education and citizen participation. There is also need for approaches to heighten citizen awareness of planning activity. This will involve effective use of communications media to inform the community. Finally, there is a need to effect interaction between what the community expects from services and the forecast effects of those services, i.e., an approach to assure that community expectations are consistent with what is forecast and promised. Development needs for this issue are in the area of communication techniques and technology.

Travel Forecasting

The traditional approaches to travel forecasting need improved representation of speed, capacity, and access in computerized networks; improved updated trip-generation rates; capabilities for multipath consideration in mode-split models; procedures for microcomputers; data base management procedures; and traffic simulation improvements, including better equilibration and hierarchical strategies. Development needs appear to be confined to improved traffic assignment algorithms.

Multinomial travel forecasting techniques require better packaging and training to improve their use. Improvements are also needed in network representations; the transferability of these techniques should be examined and improved as necessary. Research should concentrate on representing and integrating constraints that reflect modal and facility capacity. Research is also needed to improve the characteristics or variables included in such models.

Household-based and pivot-point forecasting needs include basic research and development to estimate generation rates, to identify data requirements, and to represent non-system options. The limitations of these techniques, particularly pivot point, should also be identified.

FEDERAL RESPONSIBILITIES

The workshop addressed the assignment of responsibilities for methodology revisions, research, and development in order to initiate activity to effect recommended changes. It was felt that the federal government should be responsible for developmental research in areas of interest nationwide or for issues related to national goals. This responsibility could be through contracting or funding contracts with other organizations. The federal government should also serve as the "marketing agent" to publicize research results and new techniques generated by research sponsored by other organizations. In these efforts the federal agencies should make best use of and encourage activities of all transportation research organizations, both in and outside the government.

REGULATORY REVISION

The workshop discussed the existing transportation planning regulations only and prepared the following recommendations for revision.

MPO

The MPO should be comprised primarily of local elected officials and should be the group responsible for regional transportation policy. It should exist as a separate entity in urban areas where there is more than one local government unit.

Requirements

Federal requirements for transportation analysis, planning, and monitoring should depend on the size of the urban area. Smaller urban areas should have fewer and more flexible requirements as to what they must do and how often. This relates to both regulatory and technical aspects of the process.

Certification

Once the planning process for an urban area is certified, it should remain so until there is a demonstrated basis for decertification. Periodic recertification should not be required.

Regional Plan

A regional transportation plan with short- and long-range elements should still be required. The nature of the plan's contents should be the responsibility of the MPO board and should be structured in only the most general terms by the federal

government. The plan should be reviewed periodically and updated where necessary.

Transportation Improvement Program

There should be a transportation improvement program (TIP) for the forthcoming 5-year period with particular concentration and detail on the annual element. The content of the TIP should be much more flexible than it is now and should be the responsibility of the MPO board.

Unified Planning Work Program

The unified planning work program (UPWP) should be prepared in sufficient detail to demonstrate how funding will be allocated. Components of the program currently required should be optional at the discretion of the MPO board if they are not necessary to support the description of fund allocation.

Section 8 Funds

Section 8 funds should be allocated without a grant application, primarily on the basis of a formula, so that fund availability is reasonably predictable. A small portion of Section 8 funds should be retained for discretionary allocation to finance special purpose studies such as corridor analysis.

A-95 Review

Review of the plan, TIP, and UPWP in the A-95 process should not be required if there is a memorandum of understanding that delegates responsibilities between the MPO and the A-95 agency.

State Implementation Plan Conformity

Requirements for a state implementation plan should be dropped.

Technical Requirements

Federal requirements for the planning process should be dropped in favor of guidelines and recommended alternative methodologies.

Project Planning: Evaluation of Alternatives and Impacts

Hal Kassoff

The objectives of the workshop on project planning were (a) to assess current practices in this area; (b) to identify strengths and weaknesses in planning methods and requirements; and

(c) to recommend improvements in the process. First, the workshop defined project planning as the process of developing sufficient information about the feasibility, costs, benefits, and environmental effects of alternative transportation improvements and of making an informed decision about whether and how to proceed with implementation. The workshop maintained that the process and act of decisionmaking are the culmination of project planning.

Methodology

In the areas investigated by workshop participants, current methodology was described as well-developed. However, better, and more focused, application of the tools that exist, as well as significant changes in federal requirements that have dominated the project planning process, are needed.

The workshop developed a guide for requirements in the 1980s, which was based on the following seven points of reference.

First, decisions on whether and how to implement significant transportation improvements should be part of the project planning process.

Second, to the extent possible, project planning should address alternative transportation improvements within a framework that reflects public policy, plans, and objectives. The project planning process should be capable of responding to guidance from elected officials and policymakers, whether or not that guidance went through a formal systems planning framework.

Third, the project planning process should be flexible and responsive. Participants in project planning are dealing with a process of information development for decisionmaking and are examining a series of alternatives. Planners have to respond not only to their own findings but also to the participation of other interested parties.

Fourth, the project planning process should be guided by those who have a decisionmaking responsibility for implementation.

Fifth, the parties that are significantly affected by any of the probable outcomes of project planning must be involved in the process—citizens, elected officials, fellow bureaucrats.

Sixth, the level of effort in project planning should be governed by the scale and complexity of the project.

Seventh, the technical process must be focused toward providing information needed for timely, clear-cut and well-founded decisions. Although a great amount and diversity of information are generated, occasionally sight is lost of the fact that the information is of value only in that it bears on the final decision and not in simply satisfying another checklist.

The state of the art in traffic forecasting and in travel demand forecasting, the workshop agreed, is adequate to project planning, although improvements in key areas are needed. A major problem is in the application phase.

Traffic information should be developed that will be used in the decision process. The scope, scale, and time frame of the travel demand process must be in balance with the project. The travel demand process must be streamlined.

Project planning travel estimates should be performed in a manner consistent with system-level estimates. Base-year validation forecasts should be incorporated in any project planning forecast. The procedures used in a project planning

study should be able to adequately forecast differences in travel demand between alternatives. This is considered a key problem area, both in how the methodology is applied and where the methodology often fails.

Refinements and reasonableness checks of computer forecasts should be made standard practice, with special attention to MPO-produced travel forecasts. Input assumptions such as land use network and cost of travel should be more thoroughly examined prior to performing travel demand estimates. The best, objective local area estimates of land use and demographic activity should be used as input to project planning.

Traffic data that are presented should be directly related to the key issues involved in the project planning effort and should be tailored to the client—the key actor or decisionmaker—for whom it is being developed, be effectively and concisely packaged, and be presented to the client in understandable terms.

The U.S. DOT should develop and teach courses regarding problems, limitations, proper use, and interpretation of travel demand forecast data. The U.S. DOT and TRB should increase efforts in disseminating information and in educating state, regional, and local staffs about methodology, particularly methodology in the area of TSM and assessment of policy alternatives.

Better methods are needed for forecasting changes in time-of-day distribution of travel, particularly where peak-hour capacity is not now nor will it be ample in the future. Travel demand forecasts should deal with the issue of uncertainty and the effect that changes in key assumptions would have on travel demand forecasts.

If key assumptions made as a basis for travel demand forecasting change in the middle of this extremely lengthy project development process, forecasts should be re-done only if these changes could be expected to affect the final decision. The amount and detail of traffic data for environmental models should be carefully reviewed and reduced where possible.

Better procedures to forecast truck travel need to be developed.

The U.S. DOT should carefully assess the implications and costs to state and local staffs of no longer supporting analysis packages extensively used by those staffs.

Impact Assessment

The philosophical basis and requirements set forth in the National Environmental Policy Act represent a valid framework for project planning. While an adequate set of analysis tools exists to do impact assessment, some of the recommendations offered here concerning impact assessment have to do with the alternatives developed and the process itself.

Alternatives that have an adverse effect on critical environmental areas should be avoided where possible. The workshop agreed that the ability to make trade-offs must be retained. Alternatives should generally include low-cost, operationally-oriented options such as TSM, as well as a realistic no-build option that represents what actually would be done out in the field.

There must be flexibility in the application of physical design standards, and those involved in project planning must inter-

act vigorously with engineers on this point. The levels and methods used in environmental assessment should be commensurate with the scope of the project and the key impacts affecting the decision. Inconsistencies in the interpretation and application of technical methods should be identified and eliminated.

Evaluation

Alternatives should be developed that will respond favorably to the key criteria used in the evaluation process. These evaluation criteria should be established at the outset and represent only a range of realistic options.

In developing alternatives, any overemphasis should be avoided on standards and constraints, infeasible or poorly developed alternatives, or reliance on expensive impact mitigation measures that, in some cases, end up ruling out the project because of their own impacts or costs.

The evaluation process should focus on critical differences among alternatives. Differences represent the choice variables in the decisionmaking process. The evaluation process should identify pitfalls and opportunities; make a general statement; recognize efficiency, effectiveness, and impacts; properly account for the timestreams of costs, benefits, and impacts. Variation in timestreams can affect the ultimate outcome (if the analysis is done correctly) and provide information that is comprehensible and easy to use and apply.

The evaluation process should be a conflict resolution process.

The evaluation process itself should be cost-effective. The process should recognize risk and uncertainty. Neat matrices with nice numbers entered to the fifth significant figure do not always convey the proper message about risk and uncertainty.

In addition, the planner needs to guide the decisionmaker by conducting evaluation consistent with the above-stated technical points and by being responsive to that decisionmaker. Good working relationships need to be developed with decisionmakers, within organizations, and with elected officials.

Federal Requirements

The project planning process is too cumbersome and time-consuming. The key problems involve overly detailed and restricted federal requirements and unreasonably long review processes. Federal regulations must be streamlined and made more flexible.

Certification acceptance procedures should be applied to project planning, delegating authority to those states and implementing agencies at the local and regional levels that can demonstrate the ability to independently conduct the project planning process in a manner consistent with the National Environmental Policy Act and appropriate regulations. The certification acceptance process should be subject to procedural reviews and performance audits. The environmental assessment process should be used to provide the technical data for federal permits instead of having duplicative processes, for example, in the area of 404 permits, Coast Guard permits, and the like.

The UMTA and FHWA procedures that govern the environmental assessment process should be the same wherever possible. In both agencies, the process should culminate in a decision regarding project implementation, not just a funding decision.

Federal requirements should provide flexibility in the institutional arrangements in which project planning takes place and the techniques that are used. There are many differences among the states and urbanized areas that preclude a standardized approach.

Funding mechanisms should encourage sound decision-making and lead to efficiency. It was observed, however, that in many instances funding mechanisms, such as discretionary programs, can distort the objective outcome of the project planning process.

Where certification acceptance is not applied, the federal government should use process reviews rather than a project-by-project, step-by-step approach wherever possible. The FHWA, UMTA, and other federal agencies involved in project planning should decentralize the review and oversight process where possible. They should avoid the current practice of sequential, multiple-layer reviews.

Where multiple-level reviews are necessary, they should be conducted concurrently. There should be research and technical assistance training to improve the state of the art. The lack of consistency in interpretation in federal policy and regulations across the country was identified as a major problem within, as well as between, federal agencies.

Duplicative, overly restrictive, and irrelevant environmental requirements should be eliminated, such as using the 106 historic preservation process instead of the 4F process for addressing historic sites.

Federal regulations should be sufficiently flexible to permit an implementing agency to incorporate into its project planning process the results of a well-documented, comprehensive planning process that has developed specific transportation improvement proposals. These proposals must have been based on a sufficiently broad and valid set of criteria and objective information and the involvement of affected parties.

Planning for Transportation Management and Operations

KENNETH W. HEATHINGTON

The workshop on planning for transportation management and operations took note of the changing environment in the transportation field that has greatly altered the needs of decisionmakers. With the shifting of the majority of public transportation services in the 1960s into the public sector and with the reduction of the large construction programs in the highway field, individuals responsible for transportation activities at the state and local levels of government find themselves facing a different set of issues. Prior management requirements were oriented toward facility planning, but future requirements will be directed toward the efficient, effective, and economical management of existing systems, both physical and operational. Most likely there will be a continual merging of

public transportation operations and traffic engineering activities over the next decade, even though the amount of funds allocated for each of these areas may be substantially reduced.

As the emphasis is changed in the transportation field, new or different skills will be required for managing resources. Since the emphasis will change from design, construction, and acquisition of transit operating properties, the skills needed for day-to-day management will be quite different. Thus, transportation personnel, both academic and field practitioners, must reorient their thinking and their training programs in order to perform successfully in this new environment. Individuals coming into the transportation field must be provided with an appropriate mix of new skills to operate in this new environment. In addition, there is a need for the reorientation and retraining of individuals already in the field to meet the challenges of the different environment.

REVIEW OF URBAN TRANSPORTATION PLANNING FUNCTION

The historical role of the urban transportation planner required certain skills and expertise. The role was oriented toward long-range planning; that is, the development of 20- to 25-year transportation plans. The skills needed were in the areas of forecasting, model development, alternatives analysis and evaluation, and long-range plan development. Very few requirements, if any, were imposed on the urban transportation planner for implementing the plans that were developed. It is now seen that, for the 1980s, new roles are emerging for the urban transportation planner. These new roles will require additional and/or different skills and expertise than required for long-range planning activities.

The urban transportation planner will be moving into the management and operation of transportation facilities and services. The value of urban transportation planning will increasingly be measured in light of its ability to provide meaningful information to management. There will be less need for the development of long-range plans, although there will most likely be some updating of existing plans. The focus increasingly will be one of providing support for short-range decision-making. The skills and expertise required for the urban transportation planner to operate in the 1980s will vary depending on the organizational level at which he or she operates. To enhance the utility of planning, the planning professional will need to be linked with the decisionmaking and production processes of an agency.

While there definitely will be a need for transportation planning functions in the 1980s, these functions will vary substantially from those required during the past 20-30 years. Figure 1 outlines the functional activities required at different organizational levels for urban transportation planning in the coming decade. It is believed that there will be an urban transportation planning function at a level consistent with the metropolitan planning organization (MPO). At this level, there will still be data inventories that will enable a wide variety of analyses. In addition, there should be some form of performance monitoring of transportation facilities and services. This performance monitoring may be conducted not only on a specific facility or system, but also on a regional basis. Some of the data that will be collected and from which projections will be made can aid in