

practicing planners, these problems outweigh the advantages of the methods (primarily data efficiency, better understanding of travel phenomena, and computational efficiency).

Middle-management training in these methods has not kept pace with the research in methods development. Support for training, dissemination, and implementation of methods has focused on entry-level professionals rather than on key middle managers, who make decisions on what methods to use. These problems are often compounded by poorly packaged and disseminated findings, tendency of results to be published in limited-circulation sources, and failure to demonstrate the practical value of the results to middle management. In some cases, the small scale of the proposal may not justify the use of advanced analysis tools, but often the awareness of such tools in the practicing profession is limited. Willingness of agencies and personnel to undertake retraining is also essential.

4. The 1980s should focus on technology transfer.

The conference concluded that the 1980s should be primarily a time in which the gains already made in travel analysis methodology are implemented. More widespread diffusion of the conventional as well as of the newer methods is needed for the practicing profession. The following approaches were suggested to speed technology transfer:

1. Short courses and "road shows" on the more readily usable techniques;
2. Dissemination of packages, materials, and very short courses for mid-level managers;
3. Documentation comparisons between procedures in real-world settings;
4. Coordinated local-based training, drawing together local planners, the university community, and consultants;
5. Syntheses of good practices and how-to manuals;
6. Pilot demonstrations and field tests of evolving methods;
7. Improved packages of techniques geared to user-friendly formats such as that of the microcomputer;
8. Reduced use of jargon in summaries and executive reports intended for the practicing professional and improved documentation;
9. Retraining programs for practitioners and interim reassignments or transfers; and
10. Use of large national meetings (e.g., those of TRB and the American Association of State Highway and Transportation Officials) to sponsor selected training seminars and sessions.

Although many agencies have responsibilities in these areas, the federal government or national-level bodies such as TRB should take the lead, since other agencies do not have the ability to mount such efforts on a national scale. A clear and strong commitment to technology transfer is essential.

5. Research on selected topics should continue.

Although the primary focus in the 1980s should be on technology transfer, basic research and methods development should not go unattended. Although progress has been made, more work needs to be undertaken:

1. Development of simplified demand methods in which complexity and accuracy are commensurate with time scale, level of detail, and importance of the issue;

2. Better understanding of travel behavior, particularly as influenced by social concepts such as life-cycle and life-style, activity patterns, perceptions, dynamics of choice, uncertainty in forecasts, and network equilibrium;

3. Certain subjects such as goods movement, parking, pricing, ridesharing, pedestrian circulation, and revenue forecasting;

4. Basic needs and direction for travel data collection and system operations monitoring;

5. Applications and use of microcomputers;

6. Forecasts of basic determinants of travel (population, cars, economy, energy, etc.); and

7. Distribution of impacts on users and nonusers.

The conference concluded that travel analysis methods are available and adequate but not adequately applied. Technology transfer of methods to the practicing profession is the primary need for the 1980s.

ACKNOWLEDGMENT

The activities and support of a number of individuals and institutions, which made this conference possible, should be recognized. First, great appreciation is expressed for the financial support provided by UMTA and FHWA for the conduct of the conference. The chairpersons of the workshops, authors, and panel members deserve thanks for their efforts in preparing materials and ensuring that sessions went smoothly. Members of the U.S. Steering Committee should be particularly recognized for their continuing assistance over a long period of time in undertaking the plans necessary to hold the conference. Members of the International Liaison Committee have provided us with continuing advice and assistance and have disseminated materials on the conference to interested individuals in their respective countries. Thanks go to each of these individuals and organizations. Finally, all conference members join in acknowledging particularly the staff support of James Scott, Mary Lou Damon, and Ian Kingham of TRB.

Opening Session

Keynote Address

RICHARD B. ROBERTSON, Federal Highway Administration

In October 1962 the 1962 Federal-Aid Highway Act was passed, and over the next few years considerable effort was expended by the federal, state, and local planners in defining methods for a new "3C" planning process. Since then, enormous advances have been made in the methods used to conduct urban transportation planning.

The catalyst for continual improvement in planning methods has been conferences such as this one, the Airlie House conference held in November 1981, and the series of four earlier conferences on travel behavior.

At the Airlie House conference there was a consensus that many policy changes were needed in the urban transportation planning process. There was discussion about methods, but it was obvious that more detailed discussion was needed on how planning

methods relate to the issues raised at Airlie House and on the changing national issues in the United States and other countries.

For the United States this is a time of one of the most significant changes in national priorities and federal involvement in state and local roles since the 1962 highway act. With shifting roles come increasing responsibilities, which may not always be easy to cope with.

Now that policy changes are taking place, we must be sure that the technical planning process is sensitive to these changes. Good planning practice must be based on sound methods and continuing attention to the improvement of these methods.

At the federal level we have been engaged in several efforts to address these changing priorities, in particular, two studies. The first is a comprehensive review of the urban transportation planning process undertaken jointly with the Urban Mass Transportation Administration (UMTA). The second is a review of our role in providing technical assistance to state and local planning agencies. Our view of this role reflects the state of the practice in the transportation studies and is a good indication of needed improvements.

First, some details on the FHWA-UMTA review and new federal regulations. Since the 3C process was mandated by Congress in 1962, the additional congressional requirements and policies of five administrations have significantly expanded and in many instances unnecessarily complicated the scope of the process. Although I believe that the original precepts on which the 3C planning process is based are sound, it is time for a change. As you recall, FHWA and UMTA issued an interim final rule in August 1981 that provided for some moderate changes to the joint planning regulations that had been in effect since 1975 while it completely rejected the proposals issued on January 19, 1981. At about the same time, we started the comprehensive review that looked at all the requirements established since the 1962 highway act. We wanted to determine the appropriate federal, state, and local roles in urban transportation planning in light of the Reagan Administration's policies. The review was done in house but relied to a large extent on the views and comments of all organizations and individuals interested in urban transportation planning. Most of the issues covered were the same as those discussed at the Airlie House conference in 1981.

This review has resulted in the proposed new regulations, which were published in the Federal Register on August 26, 1982.

In general, the proposed regulations substantially reduce the heavy federal hand in planning activities that are essentially state and local concerns. The format is much more streamlined than the previous regulations, eliminating lengthy appendices and detailed lists of planning requirements. State and local officials, transit operators, and other implementing agencies will have much greater say in how they should work with one another in carrying out their roles and responsibilities in the urban transportation planning process. As prescribed by law, the metropolitan planning organization (MPO) is to be designated by the governor and local officials. We are recommending that principal elected officials of general-purpose local government be adequately represented on the MPO. However, the ultimate decision is with state and local officials, not the federal government.

The state and local agencies conducting transportation planning have shown over the years that they have the ability to judge the technical needs of their own planning processes. Some of the planning

activities required in the past were time consuming, costly, and not necessarily of practical value to every urbanized area. We have eliminated the detailed planning requirements and advisory appendices in favor of the minimum regulation necessary for proper federal stewardship of the urban program. This approach recognizes the distinct differences among urbanized areas and provides the necessary flexibility to meet these needs. The basic requirements proposed are a transportation plan (without the requirement for long- and short-range elements) and a transportation improvement program/annual element (TIP/AE). State and local officials will have the flexibility to determine how these products will be developed and endorsed. Annual endorsement will no longer be necessary; it is required only when a new TIP/AE is submitted.

A unified planning work program endorsed by the MPO will still be required to support requests for federal planning funds in areas that have more than 200 000 population. But for areas with less than 200 000, a description in almost any format agreeable to state and local officials of how federal planning funds would be used is all that is needed.

One of the most significant changes is the provision for state and local self-certification. Rather than a federal stamp of approval, each area will have the opportunity to certify that its planning process is in accordance with all applicable federal laws and regulations, except for civil rights and private enterprise requirements, which will be maintained under a federal certification. This should give the states and local areas more flexibility and control in their planning process. There will be a need for a federal finding on the certification, but this is not an extensive review.

That is a broad picture of the new regulations. What are the implications of these changes on the technical planning process? Will the relaxation of the federal role have an effect on the scope and type of urban transportation planning being conducted at the local level? My answer is generally No, but with the new regulations the process should be a lot less onerous to the states and MPOs than in the past. Our intent is to ensure that federal requirements do not get in the way of good planning, and I believe that planning in the urbanized areas has been sound.

The increased flexibility for state and local decisions on how to conduct the planning process is likely to result in a call for more technical assistance and sharing of procedural information. With no detailed technical requirements in the regulations and with a wide-open format for the urban transportation plan, I think there will be a tendency toward a much broader array of technical procedures used to support plan development. This, coupled with the changing economy and a need for more emphasis on cost-effective transportation improvements, will create a demand for supportive analysis techniques. With shifting priorities and limited federal resources, local areas will also have to accept more responsibility in the programming and financing of transportation improvements. Overall, I see a continuance of the sound planning process that has evolved over the past 20 years. But I also believe that the shifting of responsibilities has implications for the scope of the analytical process and the type of research that needs to be explored more fully.

Because of the implications of these policy changes on the planning process, we recently undertook a review of the technical assistance needs of state and local planning agencies over the next few years. The objective was to assess our role in providing urban transportation planning guidance in re-

lation to changing national policy and local issues. Technical support will be needed for a variety of areas, such as new and small urbanized areas, pavement management, maintenance, financing, and cost-effectiveness analyses. The review looked at technical assistance in its broadest sense, including training, research, manuals, guidelines, computer software, and other planner aids.

The findings of this review point to a continued need for assistance, particularly in the form of training, simplified planning techniques, and dissemination of information on the types of assistance available. In all cases, we will continue to view the federal level as playing a supportive role to the state and local planning agencies that perform the actual planning.

As I see it, our role will be that of a central clearinghouse for the dissemination of information and technology. FHWA and UMTA will continue to maintain a package of computerized transportation planning programs for large computers and will support a central source of information for applications of microcomputers to the transportation planning process. Finally, we will continue to improve and jointly distribute manuals, guidelines, and planning references to local and state planning agencies. I believe that in this way we can play the most cost-effective role in supporting state and local planning agencies but at the same time allow them to continue to be primarily responsible for the planning process.

One of the concerns in the study was the relevance of planning output to project decisions, and it appears that, in most cases, planning techniques can provide timely policy input and project support but more quick-response and short-range methods would help. These procedures have to be simple and used with judgment and insight.

Local areas will be undertaking more critical reviews to determine which projects are truly needed and are likely to examine a project's cost-effectiveness more intensively. Local governments, like the federal and state governments, will be pursuing only those projects that hold the most promise for the least investment. Various financing mechanisms and funding sources will have to be identified in each area in order to develop the best mix of revenue sources tailored to the area's specific needs.

At the federal level, we are encouraging greater reliance on local creative financing and are studying the use of private funds for major highway improvements. Part of the relationship between public and private sectors may be more financial support from the private sector that benefits from transportation improvements. We need to explore more fully the various aspects of financing transportation improvements, and I hope that some answers will be provided in the workshop on investment and financial analysis techniques at this conference.

Another area we are concentrating on is improving the management and performance of existing transportation facilities. This includes such activities as the Highway Performance Monitoring System (HPMS) and pavement management. We are also emphasizing cost-effective alternatives to costly capital improvements to the transportation system. Particular emphasis in FHWA is being placed on evaluating ridesharing and transportation system management (TSM) projects. These projects are testing innovative transportation alternatives such as transportation brokerage and arterial traffic management. Our evaluation approach to these projects will isolate those techniques that prove most promising and effective, thus crystallizing the best practices for dissemination to other agencies. These methods should be of great value to many areas preparing to

undergo reconstruction of major facilities and needing to plan for handling the traffic. The results of these evaluations will serve as an important resource in our technology transfer program. A major focus of our efforts in the next three years will be on the dissemination of these state-of-the-art practices. We also intend to develop performance standards for our ridesharing projects so they may be compared with each other and to other types of transportation improvements. Once again, the goal is cost-effectiveness, both in ridesharing activities and in their choice over other alternatives. I hope these issues will be discussed in your operations and management techniques workshop later in this conference.

Computer technology (i.e., microcomputers) supporting urban transportation planning methodology will expand at an enormous rate over the next few years. But microcomputers will not be applicable in all cases and it will be necessary to ensure their proper application to appropriate problems at the state and local levels. FHWA and UMTA will be supporting microcomputer applications through user support centers and encouraging a wide range of technology sharing. We do not, however, see much new software development similar to PLANPAC or the Urban Transportation Planning System (UTPS) sponsored by the U.S. Department of Transportation (DOT).

It is clear that there will be a continued need for better accessibility to planning methods by city and county staffs. These methods will have to be simple, easy to understand, and quick to apply. More techniques of the quick-response variety [discussed in National Cooperative Highway Research Program (NCHRP) Report 187, Quick-Response Urban Travel Estimation Techniques and Transferable Parameters] are needed and will be the focus of our procedural development program. These will include planning for corridor TSM and traffic engineering improvements, microcomputer software for the quick-response procedures, and case studies in census use and small-urbanized-area planning.

Under FHWA administrator Ray Barnhart, research proposals are being subjected to closer scrutiny to ensure that the efforts are cost-effective and directly supportive of FHWA's programs. We have established a continuing process for assessing research needs and setting priorities. Major research project proposals are evaluated by top management to ensure that they are focused on mission requirements and provide a good return for their cost. To pass this review process, projects must be deemed essential and have a high probability of success.

We will continue to have an interest in a number of other agencies that support the highway program, such as NCHRP and TRB. These programs of federal-state cooperation represent the type of relationship with states that FHWA will continue to encourage.

Two things are clear from the technical review. One is the need for efficient implementation packaging and distribution of material and new procedures as they are developed, with adequate follow-up marketing and education. Second is the need for a sensitivity in the research community to the capabilities of state and local planning staffs (e.g., resources and time) versus level of effort needed for the various current planning methods and any new methods that are developed. Here again, education will have to play an important role in the implementation of new methods.

This week you will be discussing the relationships between policy issues and technical methods for the 1980s. The new regulations provide more flexibility in performing the technical analysis necessary to respond to state, local, and national priorities. The technical review pointed to the

need for more simplified and responsive techniques in the short term.

Although the planning process is taking on a broader scope and shifts in policy are occurring, many issues and questions of a more detailed and technical nature still need to be considered. We will need to look more closely at what has been termed the traditional travel-forecasting process. With a much wider latitude of analysis possible to study a wider set of problems, the old standard four-step process may need to be overhauled. Will more special-purpose analysis methods be needed? What will be the technical planning needs of urbanized areas beyond the near-term planning for major reconstruction and system management? What methods will support the direction of policy movement in the urban transportation planning process in the longer term? Are these methods available and what needs to be improved? How can they be improved? What is the role of long-range planning? What will be the likely changes in life-style over the next 10 years and what will be the impact on urban transportation needs? What is the role of behavior analysis in urban travel demand estimation? What is the relationship between attitudinal and perceived variables and objective variables? Can they be used? Do they improve forecasts? Is it worth it? How can they be made part of the on-line planning process?

In short, you have your work cut out for you. We are entering a new period that deals with new issues and new challenges. We need answers and solutions to deal with these issues. The planning community will have to adapt to new policies and we need strategies that are workable and practical to help that adaptation.

The product of this conference should be clear, concise guidance on good practice in urban transportation planning in the 1980s and recommendations on where the need exists for development of specific practical procedures.

Panel Remarks

LEE H. BOWSER, Pennsylvania Department of Transportation

In an era of severely limited resources, top-level management must be intimately involved in the programming process. To be effective, in a management sense, the programming, budgeting, and authorization processes must be closely integrated. This becomes even more critical as the nation shifts from new highway construction to transportation system management.

Pennsylvania's traditional approach to transportation programming was based on a county-by-county allocation of anticipated resources. These county-by-county allocations drove the capital program development process. Noncapital program development was scattered among various organizational units within the Pennsylvania Department of Transportation (PennDOT). Other than the 12-year forecast of available federal aid, there was almost a complete lack of financial planning. State funds were provided through bond financing.

These conditions and an indication of serious concern by the Pennsylvania Assembly about PennDOT's ability to carry out its appropriate role led the department to reconsider and restructure its operation to be more effective in the areas of development and management. In a bold organization restructuring, PennDOT shifted from its traditional

allocation approach of transportation programming to an integrated organizational approach. This restructuring was accompanied by a parallel realignment of fiscal and systems management functions. Program priorities as well as key program decisions are now made through the Program Management Committee chaired by the Secretary and made up of the department's nine top managers. Programs are developed by the newly created Center for Program Development and Management, which develops and presents options to the Program Management Committee. Fiscal implications are analyzed by the Fiscal and Systems Management Center. The entire process is monitored and managed through computerized management information systems maintained through the Fiscal and Systems Management Center.

In summary, the key to successful program development in Pennsylvania has been the department's ability to bring together programming and budget functions at the very top level of management. Information and monitoring systems have been instituted that allow top management to be involved not only in decisionmaking but also in monitoring implementation. This is accomplished by active involvement of metropolitan and county planning organizations in the program development process and continuous liaison with the General Assembly. The department's integrated organizational approach to programming has enabled Pennsylvania, within 20 months, to nearly double the amount of federal aid obligated to more than half a billion dollars. During this same period the department focused limited resources toward restoration of its extensive existing highway system.

Finally, open, effective programming has been one of the key contributing factors to rebuilding the department's credibility with the General Assembly. Two years ago a disenchanted General Assembly considered legislation to dissolve PennDOT. For the first time in a decade, the General Assembly as a body understands and endorses the department's program, believes that it will actually be accomplished, and because of this has provided the revenues to finance it.

GORDON A. SHUNK, North Central Texas Council of Governments

The crux of the most important issue before us today, and certainly for several more years and probably for many years thereafter, is how to cope with constraints on urban interaction. The list of constraints is endless, but it is headed by limitations of funding, available land, human tolerance (both physical and emotional), and natural resources. These constraints are increasingly affecting our ability to move people, to transport goods, and to effect many more types of interaction. The problem is worse in urban areas because more people and activity are located there, but it is also important in rural areas and for intercity activities.

The most important advantages we have in this situation are intellectual creativity and the human will to overcome. It is time, and this conference is an appropriate point of departure, to begin refocusing on the problems caused by these constraints and to develop creative ways to apply old and new technology to these situations. This does not mean that we should develop new tools, for too often we look for a new method to solve an old problem. We need to make better use of techniques we now have to solve the real problems. This reflects constraints on both funds and time available to solve these problems. The charge to us all is to better understand both existing situations and technology in order to attain the best fit of solution to problem.