Research Needs

1. Improved goods-movement demand estimation methods

a. Investigate truck travel, which is a significant component in many highway facilities and of particular concern for maintenance and restoration projects
b. Determine technique capable of addressing basic shifts in goods-movement traffic characteristics; neither existing survey-based nor four-step model-based techniques are applicable

2. Compilations of travel demand data, proved to be useful in two important respects (as back-up data when resource constraints prevent local data gathering and for a broadened understanding of demand characteristics in different contexts), should be updated and expanded in scope (e.g., manuals such as NCHRP Report 187, Quick-Response Urban Travel Estimation Techniques and Transferable Parameters: User's Guide, and Characteristics of Urban Travel Demand)

3. Measuring impacts of changing cost environment (changes in disposable income, relative transportation costs, and real or perceived automobile capital and operating costs)

a. Determine whether these relationships have been significantly altered
b. If so, develop a strategy for modifying existing forecast models

4. Assessing decisionmakers' needs

a. Reassess these needs
b. Objectively examine the usefulness of planning methods in meeting these needs

Workshop on Urban-Microscale Planning

Workshop Summary

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The resource paper prepared by Bautz emphasized the critical importance of changing institutions as a determinant of needs in the urban-microscale environment. A number of references were cited to support the contention that the United States is undergoing an important change in both societal structure in general and expectations with regard to transportation services in particular. Thus for the 1980s, Bautz foresaw the development of new models for public services involving nongovernmental providers, involvement of employers in work travel, a range of services and institutions, market segmentation, a decline in fixed-route service, deregionalization of transit operations, and the revitalization of market forces as important in service provision. For the planner, this would mean a broader range of alternatives and changes in the institutional framework within which planning would occur.

In the urban-microscale environment, alternative service planning, traffic, parking, and pedestrians will be of primary concern, according to Bautz. Strategies to be considered include service alternatives to provision of parking, pricing changes, automobile restrictions (including residential areas), and the need to design these strategies with specific users in mind rather than as services to aggregations of anonymous users. This need for attention to detail was described as an important gap in currently available methods.

DEFINITION

The ensuing discussion focused first on defining more specifically the urban-microscale planning environment. The consensus was that microscale planning involved projects that could generally be implemented in the short term within small geographic areas such as CBDs, major activity centers (MACs) such as suburban employment or commercial concentrations, neighborhoods, and areas close to large development projects for which site impact analysis was required. Planning in this environment would include both new facilities and changes in services and system operations. It was felt that this planning ought to address both the design of supply as well as, on the demand side, identification of problems and the activity needs of citizens.

The discussion leading to this definition emphasized that this was a multimodal problem and that although short-term, small-area planning was involved, longer-range demand would have to be served by the facilities and services provided and that the impacts of changes were likely to be felt in a wider geographic area. A number of participants also referred to the land use implications of transportation in this environment in terms of serving intensified development, mitigating negative effects of traffic on neighborhoods, and tying together the fine details of urban design. The need for demand- and activity-related thinking beyond simply designing services and facilities was also strongly supported.

The participants also identified a number of problems that are likely to be important in the urban-microscale environment. It was felt that good practice in this type of planning would focus first on assessing the problem to be solved, which would likely be among those listed below; identifying a range of alternative system changes; using demand forecasting techniques to assess the alternatives; and determining which was most cost-effective. Problems and objectives of microscale planning include

1. Improving the local urban environment in terms of livability, security, and social interaction;
2. Providing access to the microscale area;

3. Providing access within the area;
4. Balancing development and transportation system capacity in the broadest sense;
5. Reducing the negative impacts of traffic on the microscale area;
6. Improving the economic viability of an area--CBD, MAC, etc.;
7. Reducing the negative impact of new development and its generated traffic on neighbors;
8. Increasing a jurisdiction's tax base;
9. Providing for pedestrians; and
10. Reducing congestion within the microscale area.

FUTURE ENVIRONMENT

Serving demands in the urban-microscale context will be made difficult in the 1980s by constraints on funding for new facilities and services. The participants concluded that investments on infrastructure are likely to remain stable and few new major facilities will be constructed. More private involvement in transportation in the microscale environment was felt to be likely in the form of employers, merchants, and private provision of services. Economic conditions may also result in declining expectations with increases in dwelling units and automobile occupancy.

The European situation was contrasted with that in the United States. In Europe, some densification is occurring with increases in the use of transit and nonmotorized modes. Expenditures in new infrastructure were felt to be unlikely; the public sector will retain a large role in transit service provision.

REQUIRED CHARACTERISTICS FOR METHODOLOGY

Initial discussions on methods focused on the characteristics that demand forecasting methodology ought to have in order to be useful for urban-microscale planning. It was concluded that methods should be able to address what facilities, services, and policies should be chosen among a wide range of alternatives. Clear indications should also be given on what not to do. Demand forecasts should allow for the estimation of costs and benefits of all possible alternatives in terms of common measures of effectiveness.

A number of sample situations in urban-microscale environments were discussed to highlight the kinds of issues and strategies that methodologies must be capable of addressing. In one case, public policy supported revitalization of the CBD through redevelopment and a variety of small-scale urban design changes. In this situation, detailed forecasts were required in order to determine the investment in infrastructure required to support the increased activity expected. Further discussion highlighted the fact that a variety of parking policy measures could have a role in such decisions if methods were available to analyze them properly.

A related problem involved major expansion of a suburban employment center. A range of alternatives to the expansion of parking, including ridesharing, vanpooling, and subscription services, was considered. Convincing methods demonstrating that these modes would provide adequate work-trip service for employees in the absence of normal levels of parking capacity were required in deciding on site location and parking-lot sizing.

Other circumstances were covered in which fixed-route transit services would be compared with a variety of alternative nonconventional service types. In these cases, information is needed on the market for such services and on the resulting demand for the nonconventional service. To date, this analysis has typically been done on a trial-and-error basis without use of rigorous demand analysis methods. Recent research in market opportunity analyses and other behavioral-related techniques appeared to have some applicability in this area.

These examples led participants to conclude that techniques for microscale planning needed to be capable of dealing at a more detailed level than traditionally possible in demand forecasting. Much promise was seen in disaggregate, behavior-based techniques relying on data collected at a detailed level.

Concern was expressed about the gap between the state of the art and the state of the practice. The group perceived that many techniques and methods were available but were not being applied. From the point of view of methodology characteristics, it was concluded that underemphasis had been given to the importance of ensuring that theoretically well-based approaches were presented in ways that allowed for ease of application.

METHODOLOGICAL AVAILABILITY

Reports from the methods workshops allowed the participants to assess the availability of methodology to address the issues and strategies likely to be of interest in the urban-microscale environment. Methods described were judged against the criteria implied in the earlier discussions, primarily focusing on the existence of appropriate methods and techniques rather than the generality of their use. The discussion centered around methods from the workshops on data needs and collection, transit and highway operations and management techniques, and quick-response and sketch-planning techniques since these are most directly related to the kinds of problems and strategies and manner in which planning for urban-microscale areas was felt likely to occur.

The discussion was structured around consideration of a set of likely microscale strategies and the availability of methods capable of successfully addressing their impacts on travel demand.

In the area of traffic operations and engineering, it was felt that current methods were adequate, although forecasting of very small-scale impacts and alternatives could be improved. Quicker and more flexible methods with improved detail would also be helpful.

Better methods to address parking-management techniques such as pricing and supply changes are needed. More information is needed on the impact on overall travel demand of these policies as well as of residential permit parking programs.

The participants felt that adequate methods for fixed-route service planning were available but that these suffered from a lack of widespread knowledge. Improved technology transfer was felt to be more important than new research here.

Means of assessing fare policy changes such as small fare-free zones, fare prepayment, employer or merchant fare subsidies, or fare structure changes were felt to be in need of attention.

Additional understanding of the behavioral implications of employer-based ridesharing programs was felt to be needed to allow for better estimation of demand for these programs. These methods would allow for better estimation of site development impact where ridesharing is being proposed to allow for increasing the density of development without provision of new fixed facilities or to mitigate the impact on surrounding areas.

The impact of automobile restraints in CBDs or residential areas on trip generation and automobile ownership was identified as an area of need. The

level of street activity in retailing areas that could be forecast if there were better information could aid in convincing merchants about such schemes.

Although it was felt that most special user services would be constrained by fiscal considerations, a better understanding of the demand for and travel behavior implications of these services was felt to be required.

Little activity in methods of assessment was identified in demand management such as flextime and staggered hours. It was felt that transfer of the European experience as well as information from the demonstrations on these techniques could serve to assist in these measures.

Although current analytical methods appeared adequate to support studies of road pricing, the group recognized that there had been limited experience and that there appeared to be limited interest in these measures.

Large gaps in methodology were identified in estimating demand in pedestrian travel. It appeared that the European experience would be instructive in this area, which was felt to be particularly important in the microscale environment.

Better knowledge about the demands for goods movement was felt to be needed. For most goods-movement measures, it was felt that forecasting was less important.

The key area of need in the urban-microscale environment was in estimating demands for alternative services such as vanpooling, subscription service, and other forms of paratransit. The likelihood that these measures would be implemented was judged to be quite high because of a variety of trends in urban transportation. Concern was expressed that without better knowledge about the likely demand for such service, poor projects would result or alternatives would be ignored.

BARRIERS TO IMPROVED METHODS

The discussion on methodology availability described above suggested to workshop participants that the gap tentatively identified earlier between availability and general use of methodology was real and problematic. In discussing the reasons for this, the participants identified a number of barriers to the introduction of the improved methodology available for urban-microscale planning.

These barriers appeared to be similar to barriers to the practice of objective, problem- or need-oriented planning in any environment. Such planning would involve rational, objective consideration of a wide range of alternatives. Participants were concerned that planning too often concentrated on design of specific solutions without adequate consideration being given to properly defining what problem in fact was to be addressed. Barriers to doing so were identified as follows:

1. There is a lack of knowledge on the part of both the planner and the decisionmaker about the full range of alternatives available;
2. There are institutional arrangements that prohibit planners from broad enough consideration of alternative solutions (e.g., transit planners who work for organizations typically concerned with operating fixed-route transit only);
3. The objectives for the planning exercise are often poorly, incorrectly, or inexplicitly specified by the decisionmaker;
4. The decisionmaker often prematurely selects among alternatives because of preconceived notions or a desire to maximize investment by outside agencies; and
5. Analytical techniques are not adequate to fully assess all alternatives to the same level of detail or against the same measures of effectiveness.

These issues suggested to the participants that additional work is needed in understanding how to better communicate with decisionmakers and about the decisionmaking process itself. It also suggested that information dissemination on service alternatives ought to be focused on the market or problem to be addressed as opposed to describing individual service types exclusively. This information should be designed to highlight the range of options available and avoid focusing the user's attention on specific solutions prior to an examination of exactly what problem ought to be addressed.

RESEARCH NEEDS AND ACTION AGENDA

The discussion concluded by developing a number of recommendations for further research and action.

The participants concluded that action is particularly needed in technology sharing. Steps should be taken to improve the packaging of improved analytical techniques to minimize the difficulty in their application in terms of cost and risk. Needed are easy-to-apply techniques that are developed from sound theory and perhaps from more complicated models. Increased dissemination and technical assistance ought to be undertaken involving the sponsors and developers of new methods. Significant useful feedback to the methods development process is likely if this occurs.

Research needs were identified by assessing areas where gaps exist, where limited work is under way, and where interest in implementation is likely to lead to use of the methods developed. It was recommended that increased attention be directed toward reducing the barriers to implementation of good planning practice. Additional study in the areas of problem identification and the decisionmaking process was recommended.

Areas in which additional new work is needed were development of methods capable of accurately and quickly predicting the travel demand impacts of the following microscale strategies:

1. Parking management, including price and supply changes as well as residential parking permit programs;
2. Transit fare policy changes;
3. Ridesharing incentives;
4. Automobile use restrictions, particularly in residential areas;
5. Pedestrian demand accommodation; and
6. Alternative transit service types.

It was concluded that although methodological gaps exist, adequate activity was currently under way in assessing traffic operation and engineering improvements.

Participants found that although current methods are not adequate, limited implementation of the following strategies due to other, external factors made further work of limited utility: special user-group services and central-area circulation services.

It was concluded that for the following strategies, methods were in existence that would adequately provide assessments but that these were not well known. In these areas, dissemination of such methods as well as demonstration results ought to receive priority over further research:

1. Fixed-route transit services,
2. Demand management measures,
3. Bicycle enhancement, and
4. Goods-movement data collection.