

Conference Summary and Findings

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Throughout the conference, several recurring themes provided a common basis for the deliberations within and between the workshop groups. As is usual with a group this size, however, there were also several issues that eluded efforts at resolution. In this summary of the conference, we will attempt to describe in detail the underlying themes or agreements that are in many ways the most important results, while also highlighting those issues that are of significant concern to many individuals but that require further attention. (More detailed descriptions of the discussions and recommendations of each workshop will be given in the workshop summaries found in the following sections of this Special Report.)

CHANGING ENVIRONMENT OF TRANSPORTATION: THE ROLE FOR TSM

Whereas the Minneapolis Transportation System Management (TSM) Conference focused almost exclusively on the definition of TSM, both as a concept and as a program, this conference focused on the future of TSM and its institutional and methodological dimensions. Every participant shared the sense that significant change could be facing the entire transportation profession in the near future and thus focused on the role that TSM could most effectively play in a rapidly changing environment. Although many participants were most concerned about the serious impact of fuel shortages on travel behavior (and by implication on the transportation planning process), others argued that funding constraints, political considerations, and changing societal values will by themselves require fundamental changes in the way transportation decision making now occurs.

The themes that recurred throughout the conference and served as the basic points of departure for most of the workshop discussions clearly reflect this changing perspective on transportation decision making. They also have significant implications on the methodologies used, the type of skills needed by those individuals actively involved in TSM planning and implementation, and the institutional structure in which it occurs. These themes are described below.

Regional Versus Local Orientation

In each workshop, it was recognized that there is a clear distinction between regional TSM actions and metropolitan-level organizational responsibilities versus local-level TSM actions and impacts and implementation responsibilities. In the workshop on institutional roles, great importance was placed on developing

the interests, skills, and opportunities in TSM at the local level. As stated by one workshop participant, focusing on individuals and the skills they need for effective TSM planning and implementation is simply recognizing that it takes people, not organizations, to get things done. The concept of an "entrepreneur" was developed by this group to illustrate the skills needed and the roles to be played by these individuals. (Because this concept was an important topic throughout the conference, it will be discussed in greater detail in a later section.)

In the other two workshops, the one examining high-achievement TSM actions and the other developing a methodological framework that can provide a prominent place for TSM, the importance of local-level TSM planning and implementation was accepted, but that there is an important role for a regional perspective was also acknowledged. Indeed, in the third workshop, a methodological framework was developed that explicitly recognizes the important contribution that subarea or local TSM efforts can make in the overall process and it was recommended that the level of analysis and the types of solutions should be scaled to the range and scope of the problems. There are thus problems that can be best dealt with at the regional scale, but there are also many others more appropriately handled by a wide variety of actors at the corridor or local level.

Focus on Management

One of the original objectives of the TSM policy was to encourage the more efficient use of existing facilities through operational and regulatory actions, i.e., the transportation system should be better managed. This focus on management, both by the traditional definition of orchestrating or guiding actions in an organizational context and by a new definition of coordinating policies and programs at a regional and subregional level to effectively manage the transportation system, was found throughout the conference. In the first case, the concept of an entrepreneur is very much based on the idea of project and program management, i.e., the ability to manage the progress of specific projects or programs through the many institutional barriers that hinder successful completion. In the second case, the conference participants recognized that coordination of the many TSM activities, not all of which are applicable in all situations, is necessary to improve the performance of the transportation system. Both the types of high-achievement actions considered during the conference and the overall planning methodology developed are affected by the interrelationships among different TSM ac-

tions and their impacts and thus require a management focus.

As noted by some participants, one important implication of this management focus is that TSM planning begins with the existing transportation system and then examines the types of improvements that could be made to improve system and program performance or to better achieve regional and local objectives. Given this focus, it becomes apparent that one of the pressing needs in future years will be maintenance, i.e., the physical rehabilitation of the transportation system. As one participant observed, some of the most controversial transportation decisions at the local level in recent years have related to the question of what level of resources should be allocated to maintenance versus other priorities. As maintenance projects begin to compete with other types of TSM actions for increasingly limited resources, this trade-off will most likely become even more controversial.

Relationship Between Professional Staff and Local Elected Officials

The success of a program such as TSM is greatly dependent on a continuing interface between TSM planners and implementors and local elected officials. Councilman Richard Smith of Dallas in his remarks before the conference, stressed the need for a partnership between professional staff and local elected officials in implementing TSM strategies. Smith suggested four actions on the part of a professional staff to improve the transportation decision-making process and transportation system management:

1. Professional staff should anticipate problems and discuss them with local elected officials rather than trying to hide them.
2. Professional staff should never assume that anything can be imposed on a community against the will of that community. Smith emphasized that local elected officials "must be a partner in an effort to clean up the air", but diamond lanes, toll booths, parking bans, growth restrictions, and such "cannot be imposed from above."
3. Professional staff should identify options for decisions by local elected officials. Smith emphasized that the total transportation program should be developed by local elected officials represented on the metropolitan planning organization after presentation to them in the form of options (rather than as predetermined staff decisions).
4. Professional staff should allow local elected officials to be constructive. Smith noted that "we need not be demagogues, we can work regionally, we can take the heat (and we do that better than anyone), we can work for long-range decisions, and we can support TSM rather than overcostly and flashy capital projects."

Relationship Between Planning and Implementation

There was general agreement among the participants that one of the critical problems facing effective transportation planning today is the often inconsequential link between planning and implementation. The conference participants noted that this link has been very difficult to develop because of the different organizations responsible for each activity, the varied staff skills necessary in each task, and problems of incompatibility and non-existence of funding programs.

In all three workshops, the planning-implementation relationship was explicitly considered in developing

recommendations. The strongest stand on this issue was taken in the workshop on institutional roles, which recommended the entrepreneurial style of program and project management to foster the implementation of TSM actions. This entrepreneurial style was considered necessary to "fill the gap between planning and implementation" and requires professionals having the necessary skills "to build constituencies, bridge the gap between disciplines, involve the private sector, and respond to local publics and special interest groups." The concept of an entrepreneur is thus very much focused on the dynamics of the implementation process.

In the workshop on neglected high-achievement TSM actions, a wide variety of issues that hinder the implementation of TSM actions were examined, and it was concluded that to the extent possible the implementation process should stress positive incentives. In the third workshop, an overall framework for the planning process was developed in which characteristics of the TSM implementation process were explicitly considered. Monitoring of TSM actions was also considered a particularly important component of the methodology to provide feedback to the implementation process so that adjustments in project implementation could be made.

Role of the Private Sector

Many of the conference participants observed that the private sector is playing an increasingly important role in the initiation and implementation of TSM actions. Actions such as ride sharing, alternative work schedules, parking management strategies, urban goods movement strategies, and employer-subsidized transit programs require active participation and commitment from employers. As noted by Volk, the private sector can play a valuable role in TSM planning and implementation in that it can

1. Identify problem areas and potential solutions,
2. Provide data on current and future industrial expansion and travel demand,
3. Assist the public sector in making trade-offs among strategies and in packaging groups of projects,
4. Play a direct role in both inducements and actual implementation,
5. Promote or support public-sector projects (or both),
6. In selected situations, provide all or part of the funding for preliminary engineering, right-of-way acquisition, or construction, or combinations of these factors, and
7. Perform the function, along with the public sector, of monitoring progress and suggesting changes needed in projects, process, institutional structures or legislation.

Flexibility in Planning and Funding Programs

It became apparent early in the conference that one of the most important characteristics of a transportation planning process, and of the funding programs that support it, is the amount of flexibility that planners and other interested individuals have in undertaking different types of activities. In this regard, it was noted that there is not one TSM planning process in an urban area, but many different processes that look at a diverse group of TSM actions and involve a wide variety of actors. This multifaceted characteristic of a TSM program was considered in many discussions throughout the conference and was reflected in the workshop recommendations. In the workshop on planning methodology, for example, this flexibility was incorporated into the recommended framework by the provision of an important place for subarea or local TSM studies. These studies could be initiated by regional and local agencies or by local community groups and individuals. In the workshop on institutional

roles, the possibility of providing greater funding flexibility by combining various categorical programs and by changing some discretionary programs into formula-based programs was examined. Allowing this greater flexibility in planning and funding, however, was not considered by the conference participants to be synonymous with eliminating the need for a coordinating role in the region. Such a role was considered necessary, although there was significant disagreement as to how pervasive this influence should be.

These themes provide a useful basis for placing the workshop recommendations in context. Several opportunities were provided for interaction between workshops and, thus, these underlying concepts and ideas were discussed and, where appropriate, incorporated into the workshop findings.

INSTITUTIONAL ROLES IN TSM: THE ENTREPRENEUR

The emphasis on local-level participation in TSM was reflected most forcefully in the conference discussions on appropriate institutional roles in TSM planning and implementation. Many participants argued that the most-effective TSM institutional arrangement cannot be and should not be one that is prescribed from above, but rather should reflect the different styles, organizational arrangements, and levels of TSM planning and implementation found in the specific metropolitan area. What should be done, however, is to identify those institutional barriers that hinder effective TSM implementation and to encourage an entrepreneurial style of program management that recognizes the importance of the committed individual or group of individuals in successfully implementing a TSM action. As stated in the results of the workshop on the roles of organizations, public and private enterprise, and the professional disciplines in TSM planning, programming, and implementation, it is to be hoped that the future environment for TSM will include an increasing number of professionals who

- [1.] Are comfortable serving multiple objectives,
- [2.] Are able to cross the lines between the public and private sectors,
- [3.] Are able to operate in complex political environments and build or catalyze political coalitions to achieve implementation,
- [4.] Have the technical ability to identify and define problems and yet also can assess alternative options,
- [5.] Can provide expertise in a politically acceptable way,
- [6.] Can operate at different levels of problem scales and in response to different constituencies (sometimes simultaneously),
- [7.] Can visualize the need for, and ensure the provision of, a variety of different services designed to meet different needs, [and]
- [8.] Are able to accomplish all this quickly and effectively.

This emphasis on local-level initiative and participation in TSM planning and implementation created concern among some conference participants in that it is difficult to envision how these many different entrepreneurial programs can be related to one another, i.e., how, if at all, would these programs be coordinated? Implicit in this concern was the issue, What role will the metropolitan planning organization play in this locally based program? The need for leadership in project initiation and planning was deemed critical for a successful TSM program, but the entrepreneurial style suggests an approach to project development that is almost laissez-faire. The response to these concerns was that the entrepreneurial concept is not meant to replace the existing organizational structure, but rather to enhance the position of the entrepreneurs already in it. Leadership is indeed lacking in most urban areas, where what is needed is an atmosphere in which leadership can develop, individuals are willing to take risks, and the

focus is on implementation. The entrepreneurial style of TSM planning and implementation creates such an atmosphere.

Although most of the participants agreed that the concept of an entrepreneur is a useful basis for TSM planning and implementation, it was recognized that, if it is to be carried out in any serious manner, some fundamental changes will be necessary. These changes related to federal-state-local red tape and funding inflexibility, agency and staff perceptions of their missions, inadequate communication channels between major TSM actors, and a more-flexible analysis framework that would allow a relevant and systematic evaluation of TSM options. The recommendations that resulted from the discussions in the workshop on institutional roles and in the plenary sessions suggested the first steps that would have to be taken to implement this new image of TSM planning. Specifically, the following major recommendations and statements on institutional change were made (see the workshop results for a more detailed list):

1. There should be a single, annual metropolitan planning process that has a clearly defined focus—to produce an agreed-on program to be used for all planning and implementation funds available to the locality for the next year. This would provide for an explicit annual decision point in formulating a strategy for transportation actions in a metropolitan region.
2. The federal and state processes should be streamlined so as to produce project approvals within six months of local program adoption. There was near-unanimous agreement that project-level certification should be eliminated and that certification acceptance procedures should be implemented at a much higher organizational level.
3. Funding programs should be modified to provide the flexibility needed to encourage the entrepreneurial style of TSM planning.
4. Transportation professionals should be encouraged to perceive transportation planning more broadly. This implies efforts at disseminating information, establishing a new focus in training and education programs, developing communication and coordination skills in local TSM actors, and creating an organizational environment in which TSM entrepreneurs can survive and indeed be rewarded for their efforts.
5. Transportation-related agencies such as the U.S. Department of Transportation and the Transportation Research Board should disseminate information on innovative projects in progress, the availability of funds for promising actions, and the process to be followed for project implementation. It was pointed out in conference discussion that three demonstration projects that embody the entrepreneur concept are under way in California, Florida, and Connecticut.

These recommendations do not reflect a conservative approach to bringing about desired changes. They suggest significant changes in legislation, major efforts to streamline certification procedures and, perhaps most difficult, a fundamental change in the attitudes of many transportation professionals. Most of the conference participants felt, however, that these changes will be necessary if we are to revitalize the transportation planning process and get projects implemented.

HIGH-ACHIEVEMENT TSM ACTIONS: WHY HAVE MANY BEEN NEGLECTED?

One of the major purposes of this conference was to identify those high-achievement TSM actions that have largely been ignored, investigate the reasons underlying

this lack of interest, and suggest factors that could increase local interest in such actions. As noted by Morin, lack of a constituency, the need for effective interagency coordination, intense competition for funding, and political sensitivity have all contributed to the slowness of implementation of many high-achievement TSM actions. The types of actions were grouped by the workshop participants into nine major categories (see the results of the workshop on neglected high-achievement TSM actions)—ride sharing, traffic control strategies, alternative work schedules, parking management, high-occupancy-vehicle (HOV) incentives, transit operations, urban goods movement, pricing, and bicycle and pedestrian incentives. Each of these categories was then examined for potential barriers that obstruct its implementation, e.g., political sensitivity, funding processes, agency biases, lack of enforcement, and then related to offsetting measures that could be used to bypass these barriers, e.g., community involvement, provision of funding and organizational flexibility, and incremental approaches to development.

The participants in the workshop on neglected actions agreed with the other groups in that the emphasis in implementation of TSM actions occurs at the local level and that the involvement of local officials in the process is critical to the success of TSM. They also concluded that (a) the metropolitan planning organization role relates best to coordinating functions, (b) effective communications (marketing) is essential in TSM implementation, (c) system operations management appears to be handled best through existing operating frameworks, (d) the implementation process should stress positive incentives, (e) contingency programs should be pursued aggressively against the event of serious disruption to system behavior, and (f) continuing research is needed to investigate the short- and long-term effects of selected TSM actions (e.g., flextime and shorter work weeks).

The types of neglected TSM strategies considered by the workshop (and in particular those not considered) sparked much debate among the conference participants. One participant noted that an entire set of TSM actions—taxis, other forms of paratransit, and alternative transit strategies—was missing from the workshop list. The importance of this missing set was found in the types of additional agencies that must be included in the TSM process if these actions are to be seriously considered, e.g., in the case of taxis, the public utilities commission would most likely be involved. Another important observation about the characteristics of the projects on the workshop list related to their orientation toward the work trip and that a potentially significant opportunity that has, up to now, been neglected is related to non-work-trip travel.

The most controversial issue in this area, one that was not satisfactorily resolved, was that of the provision of user subsidies to encourage changes in travel behavior. Preferential parking and pricing for carpools was used to illustrate the point that lower costs per vehicle do indeed provide incentives for carpools, but that they are in many ways cost-ineffective because (a) people are already carpooling, (b) encouraging additional carpooling aggravates the competition between carpools and transit, and (c) carpooling creates an administrative nightmare in monitoring compliance to the rules. The money used for this type of subsidy could be spent more effectively by subsidizing vanpools or bus passes. This discussion was expanded to a general debate on the desirability of government intervention in the transportation market, and some participants suggested that market forces should be allowed to operate so that the most cost-effective results would occur.

Other participants took issue with these statements by

noting that travel behavior is not the same in every section of the country and that, although there may be large numbers of carpoolers in eastern U.S. cities, the same is not true in western cities. If ride sharing is to be successful in these areas of the country, some incentive must be provided to encourage HOV travel, or alternatively (and perhaps in combination), the cost of travel in non-HOV vehicles should be increased. One participant noted that, in both cases, the marketing of ride-sharing programs is absolutely critical if we are to convince the public that they will be better off if they participate.

The debate on high-achievement TSM actions underscores one very important observation—TSM actions, whether individually or strategically packaged, can result in high achievement only when designed to local circumstances. There are, however, important questions of concept (e.g., effects of subsidies) and implementation (e.g., increasing local support) that still need to be considered in greater detail.

AREA PLANNING FOR TSM: REGIONAL AND LOCAL CONTEXTS

Among the most vexing problems in TSM have been that of defining the limits of TSM as a planning process and the questions of its appropriate relationship to the broader comprehensive transportation planning process. In the course of examining these problems, the participants in the workshop on an areawide planning context for TSM proposed a reorientation of the urban transportation planning process that would result in TSM actions playing a more important role in the overall process. The characteristics of a comprehensive new planning process, one that reflects the changing environment of transportation planning, were identified as the recognition that

1. Attaining an important goal for transportation planning—to provide mobility—is subject to many constraints and that many times these originate in sources external to the metropolitan area (for example, air quality standards and fuel-conservation levels provide constraints on the level of mobility that can be provided in an urban area);
2. The scope of the process must be comprehensive, i.e., the planning and implementation of TSM actions should not be a separate process, but should be an integral part of a total, areawide transportation planning process;
3. TSM-type actions should be prominent among the options considered;
4. The process must not have a top-down orientation—operators, local officials, and private-sector interests should be encouraged to actively participate in the planning process;
5. The process must start with the existing system and its problems;
6. Solutions and levels of analysis must be scaled to the problem levels; and
7. Other federally sponsored transportation programs, e.g., those of the U.S. Departments of Energy and Housing and Urban Development and the U.S. Environmental Protection Agency, must be tied into the process.

The proposed transportation planning process attempts to unify regional, subarea, and local demands; long-range and short-range needs; and capital-intensive and low-cost improvements, actions, and policies. The three major activities in the process include (a) the establishment of a regional context; (b) the development of

subarea transportation policies, plans, and actions; and (c) the synthesis of an overall regional transportation plan from the policies and plans developed at the subarea-local level. In developing this proposal, the workshop participants realized that the implications of this process on programming, implementation, and monitoring were significant (see the results of the workshop on an areawide planning context for TSM).

One conference participant voiced concern over the apparent absence of a goals orientation in the overall process (or, more correctly, the focus on one major goal subject to constraints). In particular, he pointed to the absence of any discussion of two of the most important concerns of many transportation engineers—safety and maintenance. The most difficult task in current programming involves the consideration of projects having safety objectives, because oftentimes the available accident data are insufficient to gauge the likely effectiveness of particular projects. In the case of maintenance, there is likely to be significant pressure in the near future to put large amounts of resources into maintaining the existing transportation system (which will put maintenance into competition with traditional TSM actions).

The discussion on TSM goals stirred one participant to request that the conference adopt a definition of TSM that would be widely recognized by the profession and easily understandable by the community. The definition "to optimize the use of transportation resources" was not accepted by some because of the multiple interpretations of "optimize". Another definition, "to move, promote, and assist in the least-cost solution to transportation problems", was more readily accepted by some; however, others expressed concern about the definition of "least cost".

Another participant noted that the proposed planning process contravenes the direction set by the other workshop groups in that the process implicitly emphasizes a strong regional orientation while the other groups had focused almost exclusively on developing a TSM program based on grass-roots support. In support of his statement, he pointed to the goals orientation of the process, which ignores the fact that local officials and entrepreneurs might not have mobility as an objective and would most likely not place great weight on air quality and energy constraints, which are more regional in scope. Furthermore, the three major activities in the process—the establishment of a regional context, the development of subarea studies, and the synthesis of a regional plan—suggest a sequence of events that requires the establishment of the regional context before the other activities can be done. This clearly differs from the concept of a TSM program based on flexibility and entrepreneurial behavior.

These statements initiated a series of comments that indicated that there was still some disagreement over the relationship between entrepreneurial TSM activities and the need for some regional perspective. Several points were made. First, the process indeed implies a sequence of activities, and this sequence is appropriate. There was no intention of ignoring the fact that subarea and local TSM actions are occurring all of the time but, for an overall planning process in which TSM activities are but one component, it is indeed necessary to first set the regional context so that appropriate decisions are made. Second, subarea-local studies are a major element of the proposed process. The structure of the process allows entrepreneurs to seize opportunities and initiate actions that will be implemented quickly; however, it also allows these actions to be placed within a sense of regional priorities. In general, the process was developed to be robust enough to address all levels

of transportation problems, but also sufficiently rigorous to allow a systematic appraisal of transportation options.

The recommended transportation planning process has important implications for the federal statutes and regulations that govern all aspects of transportation planning. Because there was insufficient time for the workshop participants to make specific recommendations, a series of questions was raised to pinpoint future research and policy directions (see the results of the workshop).

CONCLUSIONS

This conference provided an opportunity for lively discussion and debate on issues that are likely to face TSM planners and implementors in the near future. Most important, the conference participants focused on the future and did not dwell on such past issues as inappropriate focus of the TSM regulations, ineffective implementation strategies, and problems of compliance. There was a definite sense among the conference participants that the environment of transportation planning is changing rapidly and that changes must be made in the way our transportation systems are planned, so that projects and programs can be implemented and, in some cases, implemented quickly.

Although many issues were identified during this conference, two stand out as being critical for the future of TSM.

1. Everyone present agreed that an important actor in the TSM process is the local official, operator, or individual who initiates and guides the progress of TSM actions through the complicated institutional process of project development. There was a significant difference of opinion, however, on the relationship between these TSM entrepreneurs and the other, more established, transportation agencies found in a metropolitan area. Another facet of this issue was the link between these local TSM initiatives and the regional TSM program. An investigation should be made of the different types of relationships and the links that can exist and of the barriers to successful implementation they may involve. It is hoped that the current demonstrations in California, Florida, and Connecticut will provide useful insights into the entrepreneur concept, but much more will have to be done if this concept is to be accepted as the basis for transportation planning in urban areas.

2. The second issue arose from the general feeling that transportation planning has become an extremely complicated undertaking and will likely become even more complex as more concerns, issues, and problem definitions (oftentimes from sources external to the transportation field) are incorporated into the process. At this period in the history of transportation planning, we should be asking ourselves how we can make some sense out of a process that has been added to, modified, and molded to incorporate new concerns but has not benefited from a fundamental rethinking of its organizational structure. Perhaps this conference, in focusing on the future of TSM, will have begun a dialogue that can provide the impetus for such efforts. However, this is only a beginning. What should the transportation planning process be? How do we get there from where we are today? How do we balance the many interests in an urban area, both metropolitan and local, that were created over the past 20 years to guide transportation planning? How do we bridge the real and artificial gaps that exist between planning and implementation? planning and programming? and TSM planning and non-TSM planning?

This conference may have raised more questions about TSM and transportation planning than it has answered but, realistically, these were the questions that had to be asked. However, it would be a mistake to gloss over the anxieties and concerns felt by some of the participants about the conclusions and recommendations of this conference, because these concerns are probably felt by many in the transportation profession. It is hoped that this conference has provided some exciting new ideas that, if pursued, could lead to new directions for transportation planning in this country. As we begin the next decade, perhaps these new ideas and directions will provide us with a greater awareness of the opportunities that TSM can offer and of the contribution that transportation

planning and investment can make in addressing the needs of an urban area.

The major conclusions and recommendations of this conference are found in the preceding discussions of the individual workshop results. Every conference participant felt that TSM as a process and a problem-solving approach is an important element of the transportation planning activities of each metropolitan area and, as such, deserves continued attention and support. Because the style and effectiveness of TSM planning is so heavily dependent on the characteristics of each metropolitan area, it is essential that information on TSM planning and implementation activities be available to provide the necessary link between concept and practice.