the products that should evolve, who should perform planning, and how it should be financed. Many of the findings are applicable to system planning for all areas, large or small.

Transportation Action Program

Archie B. Lowe, Local Government Assistance Section, Arizona Department of Transportation, Phoenix

The development of transportation plans and programs that are responsive to community needs is a strong advocate position. This paper presents an approach used in Arizona that, although not new, may be useful in many other areas. This transportation action program is discussed as an approach to the identification of transportation issues and problems (real and perceived) in a small or medium-sized urban area.

The transportation action program (TAP) was conceived in 1974 after many years and thousands of dollars had been spent in developing transportation plans for five Arizona cities having populations of more than 10 000. But after all this effort, money, never-ending meetings, coordination, and frustration, the final products were little more than a fancy plan that had no real meaning or community support.

This is not to say that planning is not good or necessary but that the plans developed were, for the most part, too ambitious and were seldom implemented due to lack of funds or community consensus as to what was needed. It is necessary to work at the level of consideration of whether streets should be striped or whether a yield sign should be replaced by a stop sign or removed entirely to develop the people's attention.

The TAP program is one that evolved from the results of the Federal Highway Administration traffic operations to improve capacity and safety (TOPICS) program and the effort expended in developing transportation plans by using highway and research funds in smaller communities. The TAP program brings together the best of the TOPICS program and transportation planning coupled with community involvement. It provides a program whereby the community is involved at the grassroots level and implementation for the most part is their responsibility.

Planning for transportation in small urban areas has been quite successful in Arizona over the past decade; plans have been developed for Douglas, Flagstaff, Kingman, Prescott, and Yuma. These studies, however, have been somewhat costly in terms of funds and staff needs and, as a result, many communities have not been able to participate. Consequently, TAP was developed by the Arizona Department of Transportation (ADOT) to bring transportation assistance to all communities through a community involvement approach.

TRANSPORTATION ACTION PROGRAM APPROACH

The approach taken in TAP is to use the knowledge available within the community to pinpoint existing problems and to identify future transportation-facility needs to serve existing growth areas and those anticipated by the community. The local news media is included in the program to keep the community informed.

To illustrate how TAP works, let us look at how it was applied in Globe, a community that has a population of 10 000. A bus tour was scheduled to motor along the local streets and observe existing traffic characteristics while discussing possible steps leading to transportation improvements. The team consisted of 25 persons and included city, county, state, and school officials and Chamber of Commerce representatives. The route taken on the tour basically consisted of the major and collector streets as determined by functional use.

After the tour, the team met and discussed in greater detail the problems observed, as well as others in areas not covered, and future growth and its related transportation system.

One of the most important factors to be considered in upgrading existing roads and constructing new ones is that of land use. To be effective, the transportation system must be compatible with the land uses and adequately serve them. Each street performs a primary function—traffic movement or land access and, consequently, becomes part of a total network. Classification of the existing street system by function provides a basic tool for analysis and planning.

Traffic volumes are a quantitative yardstick of the transportation system. In the Globe study, the average weekday traffic data collected early in 1974 by the traffic division of ADOT was used in lieu of traditional desire-line networks.

Thus, land use, street classification, traffic volumes, and the tour comments were woven together, using both local and outside expertise to develop recommendations that would lead to adequate and safe transportation facilities for the Globe area.

Some of the recommendations from the Globe study include the following:

1. Eliminate angle parking as off-street parking becomes available.
2. Perform a detailed engineering study to evaluate the transportation impact of a proposed public school development.
3. Conduct a study to determine the feasibility of a pedestrian overpass.
4. Extend a facility to provide for route continuity.
5. Consider providing left-turn lanes at various subdivisions.
6. Eliminate parking on a narrow two-lane street.

Because little can be accomplished without proper guidance, it was recommended that the suggested improvements be pursued by appointing a coordinating committee to follow through. It was also recommended that a workshop be held one year later to determine the effectiveness of this endeavor.

TAP was an attempt to coordinate transportation ideas and knowledge in the Globe area through direct involvement of individuals living and working in the community. A practical approach was taken in an endeavor to capitalize on the available knowledge within the com-

Table 1. Evaluation of transportation action program.

Community	Year of Evaluation	Number of Improvements Identified	Improvements Completed	
			Number	Percentage
Globe	1974	25	10	40
Payson	1974	18	12	67
Somerton	1975	8	4	50
Wickenburg	1976	18	9	50
Page	1976	25	24	96
Clifton	1977	11	3	27
Holbrook	1977	23	17	74
Nogales	1977	18	13	72
Marana	1978	28	15	54

Note: As of November 1978.

munity and assist this through the services of outside engineers and planners. This produced a community report, developed through local participation, that should result in an action program to enhance traffic flow and safety.

Fifteen such programs have been completed since 1974; it has been found that the effort required of any one individual is minimized because of the broad range of expertise available and, consequently, the time expended can be absorbed in a normal work load. The ADOT planning division acts as coordinator for the program and the traffic operations division provides the engineering expertise. Maps are provided by the community, as are planning data, a tour chairperson, a meeting place, and invitations. In keeping with the community participation concept, the local school system provides a school bus for transportation. ADOT provides the traffic counts, planning and engineering expertise, drafting, analysis, photographs, and a published report illustrated with photographs and maps. There is no cost for this service to the community; the average cost to ADOT is about $3000/study, the maximum to date has been $4000. It should be remembered that the concept is that ADOT should go into the community, identify the problems, recommend a solution, and get out and let the community go to work.

The results in some of the communities that have been visited are summarized in Table 1. In the nine communities, as one would expect, there is a range of activity from do-little to significant improvements.

TRANSPORTATION ACTION PROGRAM BENEFITS

1. Local people realize a direct return on their gasoline tax dollars. One of the first questions asked when the program is discussed with the community is, How much is it going to cost us? There is always a pleased look when people are told that their tax dollars provide the service at no extra cost.
2. A partnership relation is established with the community. The positive feeling of working together is generated. The individuals from the various agencies participating develop first-name contacts with the elected and appointed officials and with the general public. This dispels the we-they antagonisms that sometimes occur when contacts are only through official communications, which give local citizens the feeling that they are being directed by a faceless bureaucracy.
3. The perception of reality (e.g., limited funds, statutory restraints, constitutional requirements such as the highway trust fund monies, and the numerous regulations) is brought into focus at the local level.
4. A published document is provided to focus attention and to keep in the forefront the list of things that should be done. This not only aids the community but also enhances ADOT's credibility, especially when its responsibilities, as outlined in the report, are accomplished.

Abridgment

An Explanation of Why Synthetic Transportation Studies Work

Vergil G. Stover, Department of Urban and Regional Planning, Texas A&M University, College Station

Various validation studies have shown that synthetic urban-transportation-study techniques can achieve acceptable results when compared with conventional traffic assignments and ground counts. Does this favorable comparison indicate that the trip matrix developed by synthetic procedures reflects actual travel patterns? How sensitive is the assignment to the input data? A sensitivity analysis that used data from the Tyler, Texas, urban transportation study was performed to help answer these questions. Four matrices were assigned to the same network and compared:

1. Assignment 1 matrix—a stochastic trip matrix constrained only to the total number of trips in the study area,
2. Assignment 2 matrix—a stochastic trip matrix constrained to total trips and trip-length frequency,
3. Assignment 3 matrix—a stochastic trip matrix constrained to total trips, trip-length frequency, and trip ends at each external station, and
4. Existing trip matrix—the fully modeled trip matrix.

Analysis of the results from the assignments indicates that, as long as an accurate trip-length frequency is used in generating the trip matrix, the assigned vehicle kilometers of travel will very closely match the counted vehicle kilometers of travel, even when the distribution of zonal trip ends is unrealistic.

As in all urban transportation studies, the Tyler zonal structure reflects the geographical distribution of activities in the urban area. This can be illustrated by subdividing the area into four concentric rings: Ring 1 consists of the central business district (CBD), rings 2 and 3 consist of the remainder of the developed urban area, and ring 4 consists of those zones in the fringe