RURAL HIGHWAY PUBLIC TRANSPORTATION DEMONSTRATION PROGRAM EVALUATION--PROGRESS REPORT

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Section 147 of the 1973 Federal-Aid Highway Act established the Rural Highway Public Transportation Demonstration Program which authorized funds to encourage the development, improvement, and use of public transportation for residents of non-urban areas, so as to improve access to employment, health care, retail centers, education, and public services. Total funding of $24.65 million for FY 1975 and 1976 permitted the selection of 102 projects from more than 500 applications. Ninety-eight of the projects have been authorized to proceed with about three-fourths in actual operation. A variety of organizational arrangements, service types, and sizes are being demonstrated. There is a significant evaluation component to the program which will provide needed information for future decisions regarding possible national programs for rural transportation. The results of the first two quarters' evaluation, although preliminary, show performance measures comparable to or better than previous rural public transportation projects. It is significant to note that over half of the initial projects studied were performing according to pre-project estimates of ridership and service.

Section 147 of the 1973 Federal-Aid Highway Act established the Rural Highway Public Transportation Demonstration Program which authorized funds to encourage the development, improvement, and use of public transportation for residents of non-urban areas, so as to improve access to employment, health care, retail centers, education, and public services.

The original legislation authorized the expenditure of $30 million for fiscal years 1975 and 1976, and the responsibility for the adiminstration of the program was delegated jointly to the Federal Highway Administration (FHWA) and the Urban Mass Transportation Administration (UMTA).

To implement the provisions of the law, four basic program objectives were established:

1. Increase the mobility of those persons in rural areas who do not have reasonable access to alternate forms of transportation and are often deprived of mobility where public transportation is inadequate or nonexistent.
2. Encourage the various programs or agencies which provide transportation or social services to develop a coordinated approach to the organization and financing of public transportation.
3. Develop the results of the demonstration into a useful guide for rural areas needing public transportation.
4. Develop the technical, organizational, and economic information needed for future decisions regarding national programs for ruraltransportation.

The following sections discuss the program results as compared to these objectives, describing the progress that has been made to date, evaluation results, and problems that have been encountered.

Service Characteristics

Initially, Congress authorized $30 million for FY 1975 and 1976. The authorization was later increased to a total of $75 million by the 1974 amendments to the Federal-Aid Highway Act. However, actual appropriations for the 2 years that this program was funded amounted to only $24.65 million. This level of funding permitted the selection of only 102 projects from more than 500 applications that were submitted over a 2-year period. Ninety-eight of these preliminarily selected projects have completed the public hearing requirements and have been authorized to proceed with project implementation. To date, three-fourths of these projects have begun actual operations, with the others expected to begin very shortly.

The projects represent a variety of types, sizes and organizational schemes. They can range from the smallest one-bus, fixed-route system sponsored by a local town or social service organization, to relatively large, multicounty or regional transportation authorities providing fixed-route, demand-responsive, and contract-type service. The actual services are operated either by the project sponsors themselves, or by existing private operators under contract.

One of the more interesting approaches being observed is a six-county project operated by a regional transportation authority. A survey of the six counties found that there were several

small, private bus companies, mostly working on charter and school contracts. After determining the type and level of public transportation service that was needed, rather than establish a new operation, the authority decided to request bids from private operators (on a cost-per-vehicle-mile basis). In areas with insufficient vehicles, the authority purchased the necessary additional buses and made them available at cost to the private operators. The authority also acts as a broker and arranges contract service with the local social service agencies. Since the agencies pay a fixed price based on the route miles of service, they have a strong incentive to fill up the vehicles and thus reduce the per-passenger cost. Due to the success of this operation, the area's largest agency on aging has recently decided to abandon its own service and will contract exclusively with the authority.

In order to ensure the provision of transportation service on an ongoing and cost-effective basis, many of the projects have been quite resourceful in obtaining different sources of support. In addition to the previously mentioned contracts with social service agencies, projects have obtained subsidies from local towns or counties through grants or agreements for sharing expenditures based on vehicle miles of service provided to the different jurisdictions; universities have agreed to purchase full fare passes to be made available to the student body at discount; projects have obtained capital and operating assistance from State programs available for such purposes; projects are acting as local ticket agents for larger intercity carriers that serve the project area; and finally, many projects obtain additional income through package and meal pickup and delivery services.

Coordination

The second objective, coordination, has been strongly emphasized throughout the program. It was recognized in the developmental stages that, this being a demonstration program with only "one shot" funding, every effort would have to be made to obtain ongoing local support together with any other Federal or State funding support available, not only for the demonstration period, but for continuation beyond the demonstration phase as well. With this in mind, a decision was made early in the program to administer the demonstration projects through the State transportation agencies. With 102 projects covering 48 of the 50 States, this decision to work through the States has proven to be a fortunate one.

In our view, the State role as coordinator is extremely important. Effective coordination means much more than the physical linking of transportation services over a defined territory into a multicounty regional network. It also means coordinating the activities of various State and Federal agencies that can be used to promote effective public transportation, such as regulatory agencies like the public utilities commission and the insurance commission, as well as State agencies whose functions often require them to provide transportation, most notably departments of education and departments of human resources or welfare.

Some examples of State activities that have provided assistance to the Section 147 applicants are:

1. Technical assistance to applicants in developing a service plan. This included the preparation of a detailed operating plan, a budget, and the development and printing of a report document which served as an application. States also provided sample resolutions and assisted in the development of an operating organization.
2. Advertising and conduct of the public hearing on the project, including arrangements for a verbatim transcript.
3. Preparation of a contract between the State transportation agency and the applicant agency, and assistance in development of local agreements necessary for multijurisdictional areas forming transportation authorities.
4. Assistance in developing vehicle specifications and purchase of vehicles through State purchase orders.
5. Assistance in hiring and training drivers, selecting and acquiring garage, maintenance, and dispatch facilities.
6. Assistance in conducting ridership surveys.
7. Financial assistance during and after the demonstration project.
8. Coordination with other State agencies to encourage their use of the transportation services provided by the project.
9. Investigation of regulatory and statutory restraints that create barriers to the provision of public transportation services, and development of legislative action to overcome these restraints.

To encourage coordination at the local level, each applicant had to identify all existing transportation providers (public and private) in the proposed service area and had to describe how these existing services would be integrated into the proposed operation. In addition, applicants were requested to provide statements of commitment from agencies or organizations providing or needing transportation to use the areawide service funded under the demonstration. This commitment to coordination was one of the most important criteria in determining which applications would be selected for funding. Not surprisingly, (and with varying degrees of enthusiasm) coordination and consolidation of transportation services at the project level is taking place.

Finally, at both the Federal-regional, and the national level, representatives of the various Federal agencies which either need or provide transportation for the delivery of their services were brought together with representatives of the Department of Transportation to see what could be done in terms of coordinating transportation services across the many programs which they administer and for which they provide funding support. In the case of the Department of Health, Education, and Welfare (HEW), this has resulted in the review of their existing statutory requirements and administrative procedures for the delivery of social service programs, so as to identify any actual or perceived barriers to the coordination and consolidation of their service delivery systems. The HEW field offices have been instructed to make every effort to streamline administrative procedures to facilitate such coordination and to report to the national office any problems or obstacles in achieving this objective.

Performance Evaluation

The last two program objectives relate to the evaluation of the demonstration results. On a quarterly basis, each project reports to us summaries of the following information: vehicle trip statistics, passenger-trip statistics, trip purposes, revenues and costs, and a narrative

discussion. From this information we calculate performance measures for each project and for the national program, and compare these measures to those of the previous quarter. As most of the projects have become operational since the first of 1977, our operating data so far is based on a relatively small number of projects.

Each quarter, a set of three computer tabulations are produced for each project that is operating vehicles and has submitted the completed data forms. The format allows for comparison of the particular project with its peer group and with the national average of all projects evaluated for that quarter. Peer groups were not developed for the first two quarters because of the small number of projects (8 and 18 respectively). Results of the second quarter evaluation follow.

Ridership

Passenger-trips per quarter for the April - June 1977 quarter ranged from a low of 65 trips (for a project operating one vehicle) to 17,347 trips (for a project operating 21 vehicles). For the 18 projects, an average of 27.4 percent of the trips were by elderly riders (with a range of 2.1 percent to 58.3 percent). Handicapped riders comprised 12.4 percent of the trips, with a range from 0 to 53.9 percent. While all projects are required to be able to meet the service needs of elderly and handicapped riders, some projects have obviously been more successful than others.

Excluding to-home trips, the predominant trip purposes were work, school/education, and shopping, the three making up over one-half of all trips; the remaining included nutrition sites, social/recreation, medical, and other miscellaneous trip purposes. The 1972 study of transportation of the rural disadvantaged by Burkhardt (1) showed the predominant trip purposes in the five States studied were also work, shopping, and school.

Costs and Revenues

Drivers' wages account for just over half the operating costs. Fuel, repairs, and insurance are the other significant items, and contribute about a third of the operating costs. Administrative costs, which are calculated separately, are made up predominately by supervisory labor, with office expenses being the other significant cost item in this category.

Operating revenues come from a variety of sources, but the predominant sources are: contracts, 49.6 percent; and fares, passes, and contributions, 40.4 percent. Revenues for the 18 projects averaged $0.62 per passenger trip and covered about 20 percent of the operating and administrative costs.

Grants for the rural projects came 74.3 percent from Federal sources, with States contributing 18.7 percent, and local and private agencies contributing 7.0 percent.

Performance Measures

Performance or productivity measurements provide meaningful comparisons between projects and useful national rural transportation indicators. Several different performance measures--e.g., per vehicle-mile, vehicle-hour, passenger-trip, or passenger-mile--have been used to evaluate transit systems. All were used in our evaluation so the measures could be compared to various other studies.

The average trip length (passenger-miles/passenger-trip) of 9.7 miles (range 3.9 to 91.5 miles) reflects the longer trips for rural systems as compared to average urban public transportation trip lengths--e.g., 8.3 miles for work travel. (2)

Seat-miles per vehicle-mile averaged 14.7 whereas passenger-miles per vehicle-mile were only 1.8 on the average. The resulting load factors (passenger-miles per seat-mile) averaged 12.1 percent, with a range from 4.8 to 36.5 percent. The Governor's Task Force on Rural Transportation in Pennsylvania (3) assumes load factors of 18 and 33 percent to calculate costs for proposed rural operations. Since many of the Section 147 projects are in initial operations, the load factors are expected to improve over time.

Operating cost measures vary considerably. Operating and administrative costs (i.e., all non-capital costs) per passenger-trip average $3.25 for the 18 projects, the range being $1.54 to $10.47. Revis (4) reports that operating costs for van-type service for the transportation disadvantaged in rural areas appear to have ranged from $3.50 to $7.50 per passenger-trip. For specialized services in urban areas, Revis estimated costs of $1.20 to $1.50 per passenger-trip. Operating costs per bus passenger for conventional urban transit averaged $0.54 in 1976. (5)

Operating costs (including administrative costs) per vehicle-mile averaged only $0.59 for the 18 projects. Costs reported by Revis (4) for rural projects were $0.50 to $0.70 per vehicle-mile. Bruton, et al., in 1972 (6) reported similar costs for rural projects, i.e., $0.33 to $0.60 per vehicle-mile. McKelvey (7) reports similar cost results. Operating costs per vehicle-mile for urban systems were $1.90 in 1976. (5) This reflects factors such as higher labor costs, lower speeds, and larger vehicles for urban operations.

Operating costs per passenger mile averaged $0.33 for the 18 rural projects. This is an important measure of performance but, unfortunately, few other programs or systems have collected passenger-mile information.

Fuel efficiency for the 18 projects averaged 16.0 passenger-miles per gallon. Dividing by 1.8 passenger-miles per vehicle-mile gives 9.0 miles per gallon. This is about as expected for a minibus or van (8) operating at an average speed of about 20 miles per hour. Typical urban transit bus fuel efficiency is about 4.3 miles per gallon. (9)

For 17 of the 18 projects which had submitted pre-operational estimates of passenger-trips and vehicle-miles, a comparison was made to actual performance. It was encouraging to find that, for 10 of the 17, performance was close to or above expectations; one project is carrying four-and-one-half times more passengers than expected with half the vehicle-miles. The remaining 7 projects anticipated substantially higher passenger-trips than they are actually getting.

It should be emphasized again that these results cover only a small number of the total projects in the 147 program. Also, as stated earlier, data for most of the projects are for the early stages of their demonstration period. Crain (10) indicates significant improvement in unit operating costs over time in an UMTA-sponsored demonstration project for the elderly. For both of these reasons, the performance measures are likely to change in subsequent quarters.

Start-up Problems

The start-up period has taken considerably longer than had been expected--from 6 months to a year from the date a project is selected for funding

In addition to the requirement for having public hearings, which are mandated by Congress, there are delays in developing vehicle specifications, obtaining vehicle insurance, delivery of vehicles from manufacturers, etc. Some projects waited over 6 months to get deliveries.

Another factor contributing to project start-up delay is that the proposals that were selected for funding had been written quite some time ago and changes in the local political situation had occurred since that time. The former governor or county commissioner or mayor that was very supportive of a project, for example, might no longer be in office. The new county commissioners might not be nearly as supportive of the public transportation project, especially when they realize that it might take quite a bit of local financial support to keep the operation going once the demonstration period ended.

Other things that tend to delay start-up are regulatory problems in certain areas and objections to the proposed service from existing providers. Some projects also have problems with inter-local agreements as the projects might be serving several different jurisdictions, all of which are, of course, expected to join together to support the system and share the costs. Problems develop as jurisdictions usually strive for a higher level of service and a lower share of the costs.

The experiences of many of the projects with the above problems have lead to successful efforts in seeking and obtaining solutions. Several State transportation agencies have developed standard vehicle specifications and have agreed to purchase, through State procurement channels, the vans and buses needed for the projects. State agencies, working closely with the projects, have also succeeded in developing new model regulations governing the licensing and operation of smaller local public transportation systems. This, in turn, has led to efforts to obtain more reasonable insurance rates for these previously difficult-to-classify projects. Increasingly, programs are also being developed at the State level to share the costs of establishing and operating rural public transportation systems.

In conclusion, we are pleased with the overall progress that has been made through the initial operational stages of the demonstration program. With all of the projects either operating or on the verge of becoming operational, efforts over the next year will be concentrated on program monitoring, evaluation, and information dissemination.

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5. Proceedings of the First National Conference on Transit Performance, Norfolk, Virginia, UMTA-DC-06-0184-77-1, September 1977.

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