There are many people in rural areas who are either unable to or cannot afford to operate an automobile. The mobility of these transportation-disadvantaged people is severely restricted because usually there is no other form of public transportation available to them. A rural public transportation system would greatly benefit the transportation disadvantaged. It would remove their dependency on others who provide transportation at infrequent intervals; it would provide access to employment and education for those who are unemployed or are unable to become employed because they have no transportation; and it might decrease the number of people receiving unemployment and welfare benefits. It would also increase the use of community and social services by eligible persons (clients), due to their improved mobility.

Different segments (target groups) of the rural population impose varying requirements on any transportation system to fulfill their travel needs: It is necessary to explore a number of alternative concepts for rural transportation systems that might have the potential to increase the level of service available to and the overall mobility of various target groups who require transportation. One concept or combination of concepts, depending on the unique requirements of each area, could then be incorporated into the rural public transportation system best designed for the specific transportation-disadvantaged population. In many rural areas, especially those with a relatively low population density, the cost of initiating and operating an extensive transportation system is prohibitive. Therefore, the alternative transportation concepts considered include some using existing vehicles and some requiring the purchase of new vehicles with a wide range in operating (and capital) costs (1).

**SYSTEMS REQUIRING NEW EQUIPMENT**

**Demand-Responsive System**

A demand-responsive system operates in response to specific requests for transportation from designated origins to designated destinations (known travel desires). It can be adapted to diffuse rural-rural travel but is more appropriate to concentrated rural-to-urban trips. It provides flexible, personalized service in response to individual travel requests rather than operating in anticipation of rider demand. Clients request transportation service, usually at least a day in advance, through a central communications system. These demands for service are then grouped by location and time of pickup to efficiently serve the greatest number of people per vehicle trip. The system operates for a known demand, thus eliminating the operation of vehicles on fixed routes in areas where or when there is little or no demand for transportation service.

**Fixed-Route System**

A fixed-route (and fixed-schedule) system operates on a regular schedule over the same routes in anticipation of travel desires. It is generally oriented to rural-to-urban trips; the routes begin and end in developed areas where needed services are available to the target population. For efficiency of operation, service can be scheduled for home-to-work travel during peak hours and for transportation of clients to urban locations where they can shop, receive medical treatment, conduct personal business, or receive aid from local social service agencies during the day. A fixed-route system is less complicated to operate and use than a demand-responsive system.

**Feeder System**

A feeder system functions by using several small vehicles that operate on a demand-responsive basis to pick up passengers at their homes and feed them to fixed-route lines operating on primary highways. This kind of system can
serve a greater proportion of those needing transportation service than can a fixed-route system and can operate more efficiently than a demand-responsive system. Most rural families tend to be concentrated on or near primary roads where the fixed-route portion of the service would operate, but, along secondary roads where the population is not sufficiently concentrated to warrant fixed-route service, vehicles could operate on a demand-responsive basis, feeding into the fixed-route service.

Subscription Service System

A subscription service system provides door-to-door, preprogrammed transportation on a regular schedule to a relatively constant clientele. A client may subscribe to service on a daily basis, such as for a home-to-work trip, or for less frequent use, such as weekly trips for regular medical appointments or for shopping. This prearranged service provides basic, regular transportation to employment centers, medical centers, educational institutions, shopping centers, and for social-service trips. The system is primarily a fixed-route operation in its service to a regular group of clients going to particular destinations; however, the routes are flexible enough to be changed to accommodate new clients who have need for the service (or to accommodate new destinations).

Rural Family Transportation System

A rural family transportation system &(2) functions under a cooperative organization in which heads of households of rural low-income families join at little or no cost and share in a group approach to the acquisition and operation of privately owned automobiles or pickup trucks. Knowledgeable professionals assist in the purchasing, financing, insuring, maintenance, and operation of the privately owned vehicles. The individual participant benefits by obtaining the best vehicle for his money with reasonable financing and insurance and with regularly scheduled advice on the care of the vehicle, including preventive maintenance. The program has a central headquarters and outing inspection stations within selected sectors of the total area served. The headquarters coordinates the purchasing, financing, insurance, and major repairs. The outing inspection stations consist of small garages, service stations, or technical education centers staffed by qualified mechanics who perform preventive maintenance inspection of the vehicle and advise the owner of needed repairs and the estimated costs involved. Special training activities are performed at the headquarters. This system provides the family with a private vehicle to be used for all trips.

Institutional Commuter Vans

Worker-driven, institutionally owned commuter vans provide a transit service that generally uses 12-passenger vans driven by one of the passengers and provides door-to-door, home-to-work commuting for employees of the institution. The institution buys the vehicle and provides it to an employee who is willing to operate the van pool. Fares are normally priced at the break-even level with special privileges (incentives) such as free transportation and use of the vehicle in off-hours for the driver. During working hours, the van can be part of an intraintitutional (campus) transit system. A commuter van service is easy to implement and can be viewed as a logical step from a car-pool program.

Systems Using Existing Equipment

Neighbor Compensation System

In a neighbor compensation system the owner of a vehicle shares rides with a neighbor who does not have access to a vehicle. The individual providing the service either picks up a neighbor who needs to make the same trip, or arrangements are made with the vehicle owner to provide special trips for neighbors. The vehicle owner is then reimbursed on a per mile basis. In order to match people who need rides with those who are making the same trip or who are willing to provide transportation, a central dispatching agency must be established. This agency also keeps records of the number of miles driven by each person providing transportation, for reimbursement purposes, and, if the passenger is being charged a portion of the cost, of the number of miles ridden, for billing purposes. Because this transportation is provided by automobiles, the neighbor compensation system can be easily used by elderly and handicapped persons who may have difficulty boarding buses or vans. It also generally provides door-to-door service.

Volunteer Driver and Vehicle System

A volunteer system operates either in the same way as a neighbor compensation system, but without the vehicle owner being reimbursed, or as a demand-responsive or fixed-route system in which volunteer organizations such as church groups or civic organizations, who own the vehicles, provide the service. A volunteer transportation system is the most inexpensive system to operate because no capital expenditure is necessary and the only cost of operation is a dispatching service that matches riders to vehicles and plans routes.

Leased Personal Vehicle System

In the leased personal vehicle system, an individual or family without direct access to transportation leases a private vehicle from a friend or neighbor who has a vehicle that is not being used to its full potential. There is an agreement between individuals or families for the one without transportation to lease the other’s vehicle for certain times of the day, or days of the week, when it is not needed by the owner.

Social Service Provider System

A social service provider system takes some of the services performed by social service agencies and other organizations to the rural disadvantaged population rather than transporting this scattered population to the urban center. Some of the services that may be taken to the people include public health education, public health implementation, education on self-reliance and creativity, education on social control, and specific services such as food commodity package delivery, food stamp and welfare payment distribution, banking, and postal service. This service could be provided by nurses for health care services or by trained drivers who use their own or social service vehicles for personal business services. This program especially benefits the elderly and handicapped who cannot travel or have difficulty doing so.

Group Trips (Charter Service)

This service is, as the name implies, a contracted service to provide transportation for specific groups for particular trip destinations. Groups such as clubs for
the elderly, societies for the handicapped, youth groups, church groups, women's clubs, or social service agencies could arrange this kind of transportation service either for one-time trips or for regular, repetitive trips such as those for medical, educational, or social and recreational purposes. Public agency vehicles and buses used in regular daytime transportation systems could be used for this service, but special equipment to accommodate certain elderly and handicapped persons would have to be available.

**Intercity Bus System**

A bus transit system to provide transportation on a fixed-route and fixed-schedule basis within a rural regional setting is similar to the intercity services currently provided by numerous private bus operations, both large and small, throughout the nation. Users would have to reach a central area or location on the route that the bus travels, either by walking, by riding with someone, or by using another transportation service operating as a feeder system. This kind of system would provide service to only a small proportion of the rural population needing transportation because, as it is fixed-route, it is usually confined to main highways between urban areas. Greater coverage and a higher level of service could be accomplished by scheduling feeder services from the rural areas to meet the intercity bus schedules. Because of the infrequent schedule times of the intercity (and intercounty) bus service now available in most rural areas, trips for social and recreational, medical or dental or both, personal business, and shopping purposes would predominate. Trips for work and educational purposes would be difficult to make unless arrangements could be made with bus companies to revise the usual methods of operating and scheduling. A completely new level of service for intercounty commuting to work would have to be established, based on the services provided by private enterprise and by building additional work routes (3).

**Combined School Bus System**

This transportation system could operate in the same manner as some of the other bus systems described. Because school buses usually are operated only for short periods during weekdays, they could serve many transportation needs of the disadvantaged between delivery of pupils to and from schools, at night, and on weekends. Privately owned and operated systems that contract with school districts or counties to provide school service would be likely candidates for operators. The intent would be to make maximum use of little-used vehicles.

**SUMMARY**

Transportation systems such as those described above are becoming increasingly necessary in rural areas. As more services become concentrated in urban centers it becomes more difficult for people without automobiles in rural areas to obtain these services. With some form of public transportation available, people who were previously restricted in their travel opportunities would be able to make trips to obtain education and employment to increase their income, to make the necessary basic life maintenance trips, and to have more freedom to travel because they would no longer be dependent on other individuals for transportation. Efficiently provided rural public transportation would offer low-cost transportation alternatives to rural residents (4, 5).

**REFERENCES**