PUBLIC TRANSPORTATION AND TRANSPORTATION NEEDS OF THE ELDERLY AND HANDICAPPED

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Section 16(a) of the Urban Mass Transportation Act of 1964, as amended, declares as national policy that urban public transportation shall be available to the elderly and handicapped and that this shall be transportation that they can effectively use. This paper reports on a series of interviews concerning the most efficient and economical means of ensuring the availability of transportation that meets that requirement. The paper discusses the characteristics of these citizens, defines the dimensions of the problem, and focuses on the major measures already in existence or proposed for facilitating their use of urban transit. Measures include modification of the types of vehicles currently in service, use of taxis, development of new vehicles in the TRANSBUS and Small Bus Programs, and demand-responsive service. In the opinions of those interviewed, the most efficient and economical means of providing transportation that the elderly and handicapped can effectively use is to centralize, and support by public subsidy, transportation in the principal urban transit systems: TRANSBUS and small bus for the ambulatory and semiambulatory and demand-responsive vehicles with attendants who would assist invalids and nonambulatory through the doors of their homes and through the doors of their destinations. Interviewees agreed that, regardless of the solution, a sustained program of education is essential to convince and remind the public and the typical rider that the needs of the elderly and handicapped deserve special attention.

*SECTION 16(a) of the Urban Mass Transportation Act of 1964, as amended, declares,*

It is ... to be the national policy that elderly and handicapped persons have the same right as other persons to utilize mass transportation facilities and services; that special efforts shall be made in the planning and design of mass transportation facilities and services so that the availability to elderly and handicapped persons of mass transportation which they can effectively utilize will be assured; and that all federal programs offering assistance in the field of mass transportation (including the programs under this Act) should contain provisions implementing this policy.

Section 16(b) of the Act states that 1 1/4 percent of the total funding of Urban Mass Transportation Administration programs may be set aside to assist state and local public bodies and agencies in providing public transportation facilities and services for elderly and handicapped passengers. The full text is as follows:

In addition to the grants and loans otherwise provided for under this Act, the Secretary is authorized to make grants or loans for the specific purpose of assisting states and local public bodies and agencies thereof in providing mass transportation services which are planned, designed, and carried out so as to meet the special needs of elderly and handicapped persons. Grants and loans made under the preceding sentence shall be subject to all of the terms, conditions, requirements, and provisions applicable to grants and loans made under Section 3(a), and shall be considered for the purposes of all other laws to have been made under such section. Of the total amount of the obligations which the Secretary is authorized to incur on behalf of the United States under the first sentence of Section 4(c), 1 1/4 per centum may be set aside and used exclusively to finance the programs and activities authorized by this subsection (including administrative costs).
The words "effectively utilize" in Section 16(a) are of particular importance. The Congress has clearly stated its intent not only that urban public transportation shall be available to the elderly and handicapped but that this shall be transportation that they can effectively use. This paper addresses the problem of planning and designing transportation facilities and services in such fashion that the elderly and handicapped can effectively use them.

CHARACTERISTICS OF THE ELDERLY AND HANDICAPPED

As defined by Section 16(d) of the Act,

The term "handicapped person" means any individual who, by reason of illness, injury, age, congenital malfunction, or other permanent or temporary incapacity or disability, is unable without special facilities or special planning or design to utilize mass transportation facilities as effectively as persons who are not so affected.

According to a study by the Transportation Systems Center (1), an elderly person is an individual 65 years of age or older. The definition of the Act in effect establishes 2 groups: those who can effectively use public transportation and those who cannot use it so effectively as the first group without special facilities or special planning or design. Just as there are gradations within the group of the ablebodied, so there are gradations within the group of the handicapped, and any solution to the problem of providing the most effective transportation must take these gradations into account. Therefore, this paper will use the following classifications as aids to discussion:

1. Invalids—persons who are disabled for active service or movement and are virtually confined to bed;
2. Nonambulatory—persons who, for all practical purposes, are confined to wheelchairs;
3. Semiambulatory—persons who, although handicapped to some extent, can walk with difficulty and generally use crutches or canes;
4. Ambulatory—persons who, although handicapped by age or infirmity, can walk without serious difficulty; and
5. Able-bodied.

DIMENSIONS OF THE PROBLEM

The Transportation Systems Center study (1) estimates that the elderly and handicapped population in the United States in 1970 was as follows:

<table>
<thead>
<tr>
<th>Category</th>
<th>Number</th>
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</thead>
<tbody>
<tr>
<td>Elderly who are not handicapped</td>
<td>13,110,000</td>
</tr>
<tr>
<td>Elderly who are handicapped</td>
<td>6,990,000</td>
</tr>
<tr>
<td>Nonelderly who are handicapped</td>
<td>6,400,000</td>
</tr>
<tr>
<td>Total</td>
<td>26,500,000</td>
</tr>
</tbody>
</table>

Of this total number, 11,700,000 are estimated to live in nonurbanized areas and 14,800,000 in urbanized areas. This paper is concerned only with the latter group. An estimated 4,400,000 of the 14,800,000 are able to drive their own cars. The remaining 10.4 million are divided into the following groups (1):

<table>
<thead>
<tr>
<th>Category</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have no transit available</td>
<td>4,200,000</td>
</tr>
<tr>
<td>Are able to use transit</td>
<td>3,000,000</td>
</tr>
<tr>
<td>Are not able to use transit</td>
<td>1,200,000</td>
</tr>
<tr>
<td>Can go out</td>
<td>500,000</td>
</tr>
<tr>
<td>Cannot go out</td>
<td>700,000</td>
</tr>
</tbody>
</table>
## Category

<table>
<thead>
<tr>
<th>Category</th>
<th>Number</th>
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</thead>
<tbody>
<tr>
<td>Have transit available</td>
<td>6,200,000</td>
</tr>
<tr>
<td>Are able to use transit</td>
<td>4,600,000</td>
</tr>
<tr>
<td>Are not able to use transit</td>
<td>1,600,000</td>
</tr>
<tr>
<td>Can go out</td>
<td>600,000</td>
</tr>
<tr>
<td>Cannot go out</td>
<td>1,000,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>10,400,000</strong></td>
</tr>
</tbody>
</table>

Thus, the number of elderly and handicapped for whom urban transportation must be provided is approximately 8.7 million, an undetermined number from the 1.7 million who cannot go out but must occasionally be taken to a hospital or other medical facility, and an undetermined number from the 4.4 million who can drive themselves but might prefer to use transit either regularly or occasionally. The number of elderly is projected to increase by some 40 percent during the next 3 decades, and presumably the numbers in all of the categories above will increase. However, this paper discusses only the estimates for 1970.

### SERVICES FOR THE ELDERLY AND HANDICAPPED

Existing and proposed services for the elderly and handicapped are of 2 main types: those directed at alleviating the costs of transportation and those directed at compensating for physical disabilities. In the first group are services such as reduced fares, transit stamps for those with incomes below a designated level, coupons for taxis, volunteer services arranged by social and welfare agencies, and transit system buses leased by social and welfare agencies. Services in the second group include modification of the types of vehicles currently in service, taxis, TRANSBUS and Small Bus Program vehicles, and demand-responsive vehicles. This study is primarily concerned with the second group. The merits and drawbacks of these approaches to the problem will be discussed in succeeding sections. First, the research procedures that were followed are explained.

### RESEARCH PROCEDURES

Initially it was planned to interview individuals at institutions in selected U.S. cities to ascertain their views concerning transit services available and the modifications needed to effect improvements. A questionnaire was prepared but attempts to conduct interviews in Dade County, Florida, and in Oakland, California, disclosed serious inadequacies in the procedure.

The interviews revealed that the mental and physical characteristics of the interviewees were so intertwined that it was impossible to categorize any one individual by his or her specific disability. Thus, any attempt to summarize the results of the interviews would have been meaningless because of the mixed characteristics of those interviewed. Medical and administrative personnel who tend to the needs of the elderly and handicapped on a daily basis agreed that individuals having an identical physical disability might be totally dissimilar in inherent mobility. Such dissimilarity is attributable to the great number of possible variables, a few of which are listed below:

- **Age**
  - Chronological age
  - Age at which physical or mental disability occurred
  - Degree of senility
- **Experience**
  - General experiences prior to disability
  - Work experiences prior to disability
- **Family and friends available to help**
- **Financial status**
  - Eligible for veterans, welfare, or other financial programs
Nature of physical handicap
   Permanence of handicap
   Dependence and degree of dependence on others for mobility
   Degree of mobility
   Types of travel barriers involved
Degree of mobility

Nature of mental handicap
   Permanence
   Dependence on others for decisions and thinking
   Degree of incapacity
   Attitude (assuming no mental handicap)
      Depression or enthusiasm
      Degree of resentment of handicap

Local, municipal, and state programs for the handicapped
   Financial
   Transportation
   Welfare, social, medical aid, rehabilitation

Local transportation facilities available
   Taxi
      Hours of operation
      Willingness or ability of dispatchers to supply cabs to all neighborhoods
   Handicabs, Medicabs, or others

Residence
   Location in relation to medical and other destinations
   House or apartment
   Ground floor or upper floor
   Other travel barriers imposed by housing

In addition, administrative objections were encountered. Those in charge of the institutions pointed out that their patients were reluctant to discuss physical disabilities with strangers and that they did not wish to place the patients in potentially embarrassing situations. The administrative and medical officials, on the other hand, welcomed the opportunity to discuss the mobility problems of their patients and residents and indeed were delighted that the transit industry was taking an active interest in improving transportation for those under their care. Accordingly, the personnel who were attending to medical, administrative, and transportation needs of the elderly and handicapped were interviewed for their opinions concerning the most effective means of making public transportation available.

Summaries of the interviews were sent to the interviewees for review, corrections, and comments. In many instances, expressions of encouragement were returned plus requests for information on the progress of the search for the most effective means of providing mobility for the elderly and handicapped.

MODIFICATION OF EXISTING VEHICLES ON REGULAR ROUTES

One approach is to modify vehicles already in service or to modify the designs for new vehicles to accommodate the elderly and handicapped. Inasmuch as the ambulatory and the semiambulatory are able to ride on the vehicles as they are, the modifications should meet the needs of the nonambulatory. The reaction of most interviewees to this proposition was that this is only partly true. (Although the proposal for modification applies equally to rapid transit vehicles and to buses, the following discusses mainly buses.)

The usual modification to a bus to accommodate the nonambulatory is adding a hydraulic lift or equivalent device that will raise a wheelchair and occupant from the curb into the bus and lower the wheelchair and occupant from the bus to the curb. Space for wheelchairs within the bus is provided by removing seats or using foldup seats. Other assists include anchoring points for the wheelchairs and handholds for wheelchair occupants while riding.
Interviewees commented that modifying standard vehicles is not the most efficient and cost-effective way to enable the elderly and handicapped to effectively use transit. Some interviewees even asked whether modifying standard buses actually would enable the elderly and handicapped to effectively use transit. Discussion centered on whether all or only some of the vehicles in the transit company's fleet should be modified and whether such modification truly fulfills the company's obligation under Section 16(a).

In the opinion of most interviewees, modifying only part of the fleet would observe the letter but not the spirit of the requirement that "the availability to elderly and handicapped persons of mass transportation which they can effectively utilize will be assured." Wheelchair users would have difficulty knowing when and where to find the specially equipped buses if only a few were in service. Even if run on regular, published schedules, the special buses would be of little use to wheelchair users who, after getting to the bus stop on time, found all available wheelchair spaces taken and had to wait for the next bus. Confidence in the dependability of service could be developed only if every bus were equipped to accommodate wheelchairs. Otherwise, the nonambulatory would not try to make use of the service, and the high-priced special equipment would run unused.

Even if costs could be ignored, equipping every bus with hydraulic lifts would not necessarily enable the nonambulatory to effectively use transit. In many areas, wheelchair users could not board and alight from a bus unaided regardless of hydraulic lifts.

A thoroughfare in Washington, D.C., traveled by perhaps a dozen bus routes, is lined with brick islands at which approximately 50 percent of the buses load and discharge. For a wheelchair user to descend the curb at the sidewalk, push out into the street, mount the island curb, and then get on the bus would be difficult even under ideal conditions. Rush-hour crowds, construction sites, cars parked double, traffic circles, busy intersections, and other hazards would add to the difficulties. There is also weather. Few wheelchair users can handle the problem of alighting into or beside a snowbank or on icy pavement. Merely waiting in rain or snow is more of a problem for people sitting in wheelchairs than for those standing.

Interviewees criticized the assumption, implicit in the plans to equip regular buses with hydraulic lifts, that wheelchair users are capable of doing virtually everything for themselves except get on and off the bus. That a nonambulatory person can wheel 2 blocks to a bus stop does not signify that he or she can secure the chair once it is aboard a bus, can use hand grips to keep braced against the bus movements, can unfasten the chair to get off, and once off can maneuver through a crowd of commuters to his or her destination. The wheelchair user who is capable of doing these things is definitely not typical. Interviewees felt strongly that buses for the nonambulatory would have to carry not only special equipment but personnel willing and able to extend assistance.

For these and other reasons, respondents were generally of the opinion that modifying regular buses is not a satisfactory solution to the problem of providing public transportation for the nonambulatory. Several of those interviewed commented on the inadvisability of holding out to the handicapped the hope of riding like everybody else. All persons interviewed agreed that the nonambulatory are unavoidably different from regular transit system patrons, notwithstanding the assertions of some spokesmen that the handicapped do not wish to be treated differently or transported separately from the able-bodied. Although modification of existing equipment will enable some nonambulatory to ride who cannot now ride, at best it is a partial solution even for these few. Accordingly, some interviewees inclined to the view that modifying standard vehicles does not truly satisfy the obligation to ensure "availability to elderly and handicapped persons of mass transportation which they can effectively utilize." Interviewees also noted that modifying standard vehicles will do nothing whatever for invalids.

TAXIS

At present the best means of transportation for the elderly and handicapped in many cities is a taxicab with a helpful and friendly driver. A physically sturdy driver who
is willing to help a handicapped person move from wheelchair to cab seat, fold and store the wheelchair, unfold it at destination, and assist the passenger from the taxi into the chair provides as good a means of transportation for the elderly and handicapped (except the invalids) as can be found. But questions of expense aside, there are many conditions that prevent the use of taxicab service by the nonambulatory.

Not all cab drivers are young enough and strong enough to help a handicapped person from the wheelchair and into the cab. Not all are good-natured enough. Not all are willing to accept the responsibility. Some taxicab companies even instruct their employees to accept wheelchair users as passengers only if they can climb into the cab without assistance and pull their wheelchairs in after them. Some require handicapped persons telephoning for a cab to indicate the nature of their handicaps and direct drivers to refuse the handicapped as passengers if they have not done so. Furthermore, in many cities cabs cannot be depended on to go to certain sections of the city, especially during peak hours or night hours.

This is not to write off the taxicab as a means of transporting the nonambulatory. Indeed, there may be opportunity for the taxi industry to combine with the transit industry to provide satisfactory service with special vehicles.

**TRANSBUS PROGRAM**

TRANSBUS is the name given to a bus currently being designed and tested under a program financed by the Urban Mass Transportation Administration. Subcontracts were let in 1971 to 3 manufacturers to develop their own designs and produce 3 prototype buses by 1973. Evaluation tests will be conducted on all 3 designs, and in 1974 UMTA plans to select the best design. This design will be made available to all manufacturers bidding to build future fleets for city transit operators.

Although TRANSBUS is not being designed specifically for the handicapped, they will be benefited by many of its features. Illumination of bus steps will be better than that in present vehicles. The first step will be only 6 inches up from the curb, and each subsequent riser will be no more than 7 inches high. Front doors will be 25 percent wider, seats will be wider and spaced farther apart, and loudspeakers will enable the driver to assist passengers with route and stop information.

One prototype of each manufacturer's design is being fitted with experimental devices such as electrically controlled ramps and lifts that will enable passengers in wheelchairs to board. The purpose of building these prototypes is to assess a possible means of complying with Section 16(a) of the Urban Mass Transportation Act. Whether these specially equipped models will become standard production remains to be determined.

Interviewees noted a fundamental conflict between the goals of the TRANSBUS Program and the experimental equipping of prototypes with special equipment for the nonambulatory. One of the reasons for producing TRANSBUS is to provide the passenger with such efficient transportation as to wean him away from using the automobile in urban environments. To this end TRANSBUS will move commuters more rapidly than present buses; it will have faster acceleration and deceleration rates and power to maintain speed on hills. Lower steps, wider doors, and better illumination will reduce passenger loading and discharging time from the current 3 seconds per passenger to $1\frac{1}{2}$ seconds per passenger. This goal, however, clashes with the objective, inherent in the installation of special equipment, to safely load, secure, and discharge wheelchair users.

To stress the incongruity of designing a bus for high speed and then equipping it with features to delay it, an interviewee recounted an incident that occurred with some retirement home residents who from time to time were transported to social functions by bus. On one occasion the bus stopped at another retirement home to take on passengers who were even more elderly and enfeebled than those from the first home. The members of the first home were quite critical and exasperated at the time necessary to safely load the members of the second. Similarly, regular patrons of a high-speed bus could be expected to be exasperated at the time that would be required to load, secure, unsecure, and discharge wheelchair users.
In addition to the foregoing conflict of goals, specially equipped TRANSBUSES would be an inadequate solution to the problem of providing efficient and economic transportation for the nonambulatory because all of the shortcomings applicable to modification of existing vehicles would also apply to TRANSBUS. Moreover, TRANSBUS would do nothing to ease the plight of the invalids.

Our conversation with Harold Willson of Alamo, California, was informative with regard to present and future buses and the needs of the elderly and handicapped. Mr. Willson is employed by the Kaiser Foundation Health Plan, Inc., of San Francisco and has devoted years to obtaining public recognition for the needs of the handicapped. He was instrumental in persuading BART to consider many of the design features for vehicles and stationary sites that would improve the mobility of the handicapped.

He concurred with the observation that only few of the nonambulatory are sufficiently aggressive and determined to function like normal persons to want to get themselves lifted aboard a bus in a wheelchair on a daily basis. The importance of weather as an influencing factor was also acknowledged. Finally, he agreed that an overcommitment to one segment of the handicapped population (such as those nonambulatory who have the will and initiative to get themselves to work every day) might have an adverse effect on programs for aid to the nonambulatory who have other degrees of disability. Insistence on converting all transit vehicles in a fleet to the needs of selected nonambulatory persons could stimulate a negative reaction for future programs to help the handicapped in general. Mr. Willson recognized the validity of all these arguments but also indicated that he would like to see provisions for wheelchairs on all main-line bus commuter routes and in subway systems to provide sufficient mobility for the competent wheelchair users so that they might accept gainful occupation in employment centers.

SMALL BUS PROGRAM

UMTA has announced its intention of developing a general and performance specification for an advanced small urban transit bus. This specification will be similar to the general and performance specification for the TRANSBUS but specialized to reflect small bus requirements. Under the Small Bus Program, the kinds of services that small buses now provide and might provide in the future will be examined, and investigations will be made to establish the detailed nature of these services and specialty bus design features needed to accommodate them. For example, investigations will be made of downtown circulation, demand-responsive service, and other operations to accommodate the general public and the elderly and the handicapped. Certain of these investigations will be extended to evaluate and appraise other existing modes of transportation and vehicles in meeting the urban transportation needs of the elderly and handicapped, and recommendations will emphasize new equipment designs and operations.

Thus, the scope of the project will cover the transit industry's needs for small buses to accommodate 25 passengers or fewer and for demand-responsive vehicles with special equipment to provide transportation for the elderly and handicapped. These would probably be a van type of vehicles that handle as few as 8 passengers. The American Transit Association has recommended to UMTA that the Small Bus Program be started as soon as possible and that the study of needs of the elderly and handicapped be finished as early as possible so that the findings are available prior to the decision-making point in the TRANSBUS Program.

DOOR-THROUGH-DOOR DEMAND-RESPONSIVE TRANSPORTATION

The word "through" differentiates door-through-door service from other types of demand-responsive transportation service in that the transit system supplies one or more persons who extend individual help to those using the service. Those persons enter the residences, assist the handicapped persons out of their houses and into the vehicle, and assist them from the vehicle and through the doors at their destinations.

HANDICABS, Inc., is an example of a private enterprise door-through-door transit system. We interviewed the founder John Leonard Lovdahl of Milwaukee, Wisconsin (himself a paraplegic).
HANDICABS has (as of February 1973) 120 small buses and vans equipped with special loading doors and ramps. Approximately 50 percent of each bus provides regular seating, and the remainder provides space for persons in wheelchairs and for persons who must be transported prone. All buses and most vans are equipped with first aid kits, a spare wheelchair, and seat belts that are used to secure the wheelchair.

Each van is equipped with a "handiramp" that is hooked to the inside of the loading door and stands to one side, out of the way, but pulls down to meet the sidewalk, curb, or street when in use. Although the lowered ramp has a fairly steep grade, wheelchairs may be pushed up relatively easily because there are steps in the center of the ramp, and the employee pushing the chair stands on a horizontal surface while pushing up the incline. The edges of the ramp are raised to prevent the wheelchair from slipping off either side.

Most of the company's business is derived from contracts for transporting handicapped children in the local schools, but 10 of the vans are used entirely to provide demand-responsive service to the handicapped. In this operation, a telephone operator relays incoming requests for service to a dispatcher who routes the vans by radio to obtain maximum productivity (passengers per trip) in the minimum time. A van that has delivered all of its passengers and has no immediate instructions does not cruise but stops at a major crossroads or center to wait for further directions from the dispatcher. Typically between 35 and 40 dispatches per hour are made with the 10 vans.

At the time Mr. Lovdahl was interviewed the rates were $3 minimum for the first 30 blocks and an additional $3 for each additional 30 blocks. The rate was $7 minimum for a round trip to nursing home or hospital or to airports. In many instances trips for medical purposes were paid for by Medicaid. Not a single customer, however, was using HANDICABS for daily transportation to and from work. Mr. Lovdahl remarked that his service was too expensive for the usual regularly employed handicapped person and said that a taxi would be a more desirable and economical service for persons sufficiently mobile to use taxicabs. HANDICABS provides not only door-to-door transportation but physical assistance to the passenger door through door. Its employees do not have medical training but receive training in assisting handicapped people and in supplying first aid.

The consensus of most persons interviewed was that the nonambulatory must have public transportation that is different from that of the general public because they themselves are different from the general public. Door-through-door transportation accommodates all capability gradations of the nonambulatory and is the best solution to the problem of ensuring the availability to elderly and handicapped persons of public transportation that they can effectively use. But there is the problem that door-through-door transportation is too expensive for most nonambulatory. An important question, then, is whether financing can be arranged to bring door-through-door demand-responsive transportation within the means of the handicapped who have to get by on limited resources.

FINANCING TRANSPORTATION FOR THE ELDERLY AND HANDICAPPED

Few urban public transportation systems in the United States operate without public assistance as a subsidy or some other form. Given the fact that the transportation needs of the elderly and handicapped are different from those of the able-bodied, the costs of supplying special transportation must inevitably be higher. Thus, funds supporting transportation for the elderly and handicapped must come either directly from general revenues in the form of subsidies for a transportation authority, from funds provided by separate acts of city or state legislative bodies, from medical, social, and welfare agencies, or from other public sources.

Interviewees indicated that a number of social and welfare agencies of Milwaukee resisted transferring their requirements to HANDICABS and tried to meet their needs themselves. They soon found, however, that to use HANDICABS was less costly than to supply equally reliable and safe service individually and to stick to their own lines
of endeavor was more efficient. Although HANDICABS is now self-sustaining, it had a long struggle to become so. The more common experience is for small enterprises to fail for lack of funds. HANDICABS operates with nonunion drivers, some of whom are part time, as befits the peak-hour nature of a portion of their business.

Most interviewees favored centralizing transportation for the elderly and handicapped in the principal urban transportation system—TRANSBUS and small bus for the ambulatory and semiambulatory door-through-door demand-responsive transportation for the invalids and nonambulatory.

An operation in Cincinnati is an example of how financing of demand-responsive transportation for the elderly and handicapped might be accomplished. Sandra Willingham, director of the Model Cities Agency’s On Call, reported that 5 of the original demand-responsive vehicles being used by On Call were donated by other Cincinnati social and welfare agencies who were happy to have On Call take over the responsibilities and costs of this transportation service. Now that Model Cities funds for On Call are to be terminated on June 30, 1974, Cincinnati agencies are beginning to consider whether some of the social and welfare costs that used to be spent on individual station wagon or van transportation of the elderly and handicapped might best be turned over to On Call so that one agency could perform the work more efficiently. Indeed, one of the city’s churches has volunteered to provide $2,500 to have On Call’s services extended into a neighboring area.

Interviewees felt that transportation for the elderly and handicapped can best be provided by consolidating welfare and social transportation means and funding so that (a) an efficient transportation operation is established with safe, reliable, properly maintained, and efficiently dispatched vehicles and (b) welfare and social aspects are taken care of through social and welfare funds, with local transportation funds added to provide a viable level of service.

Do major transit systems want to take on the responsibilities of demand-responsive transportation? Foremost among the advantages are the fulfillment of the obligation under Section 16(a) in a manner that would enable the elderly and handicapped to effectively use urban transit. A program combining TRANSBUS (standard version, without special equipment), small bus, and demand-responsive door-through-door would preserve the objective of TRANSBUS to provide high-speed service and at the same time provide public transportation for all categories of the elderly and handicapped, including the nonambulatory and invalids. There would be other advantages, too:

1. Satisfaction from meeting the needs and desires of the elderly and handicapped;
2. Public relations benefits from supplying essential services to the handicapped;
3. Avoidance of having to purchase and maintain specially equipped buses for use on regular runs; and
4. Potential for effectively using some employees who are idle during the nonpeak hours.

There would, of course, be problems facing a transit system that provides demand-responsive service. In particular, there would be the labor problems of training bus drivers to provide the personal attentions demanded by door-through-door service. Assignment of drivers to such duties would have to be on a purely voluntary basis. From the drivers’ viewpoint, the responsibilities of helping the nonambulatory would be offset by the advantages of driving small vehicles, following relaxed schedules, and having freedom from crowds and heavy traffic conditions throughout the day. Through the union seniority system of choosing assignments every 3 or 6 months, some bus drivers in several cities have already indicated their preference for driving demand-responsive vehicles.

PUBLIC EDUCATION AND ACCEPTANCE

A steadily sustained program of public education is essential to achieve public acceptance of the concept of public transportation for the elderly and handicapped. Such a program is required regardless of whether needs are met with regular buses or demand-responsive vehicles, for the public will ultimately bear the costs.
News media, government officials, and citizens must be acquainted with the plight of the elderly and handicapped and the benefits of providing them with transportation to help them obtain employment and have improved access to medical, recreational, educational, religious, and other institutions. They must be acquainted with the costs of alternative means of providing such transportation. Whatever mode of transportation is decided on, they must be given the reasons for selecting that mode to retain their support.

In the opinions of those interviewed, the most convincing case can be made for demand-responsive transportation for meeting the needs of the elderly and the handicapped. No matter what solution may best meet local conditions, a continuing educational campaign is needed to remind the typical rider that the needs of the elderly and handicapped merit special attention.

SUMMARY AND CONCLUSIONS

This paper reports on a series of interviews concerning the most efficient and economical means of ensuring the availability of urban public transportation that elderly and handicapped persons can effectively use. The consensus among those interviewed was that modifying regular commuter transit service will not fully meet the needs of invalids and the nonambulatory and that the preferred means of achieving the objective is through use of a combination of standard transit vehicles, specialized small vehicles, and demand-responsive service.

REFERENCE