

# Special Transit Needs Program in the Denver Metropolitan Area

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The special transportation needs of people within Denver's Regional Transportation District who have limited mobility are being served by a program that includes special equipment for the handicapped, special midday shopper service for the elderly, and a plan to make regular service more accessible to these groups. The special equipment for vehicles that provide subscription service to handicapped patrons includes wheelchair lifts, lower-step entry, side destination signing, and several other special features. The needs of the elderly are met in part by special midday shopper service on a weekly schedule. A program to make the entire fleet of buses more accessible by retrofitting certain items, such as extendable steps, grabrails, and side destination signing, is under evaluation. The entire special-needs program is continually being reviewed, modified, and upgraded.

The object of transportation planning is to design transit systems that will maximize the achievement of community goals as they relate to the total transportation system with the least social cost and maximum social benefit. A special goal cited regularly by Denver area groups is that plans should be made for a balanced community that provides residents with a wide variety of opportunity. The ultimate goal of the Regional Transportation District (RTD) is to develop, maintain, and operate a public transportation system for the benefit of the residents of the district in accordance with governing legislation. The RTD's Board of Directors has approved objectives and adopted guidelines to achieve this goal. One of these guidelines specifies that transit improvements must recognize the needs and demands of the elderly and handicapped and must be responsive to those needs.

The elderly and handicapped may be defined as having limited mobility when their access to usable public transportation is severely restricted or nonexistent. In September 1973, when the RTD became an operating transportation authority, there was no special public transportation service to accommodate such people. Handicapped and elderly persons had to contend with the same characteristics of the system that confronted the entire transit-riding populace, including fixed routes, high steps on buses, inadequate signing, and insufficient grabrails. Some of these characteristics, which present little or no obstacle to most patrons, actually prevent others from using the system.

Before service could be designed for the elderly and

handicapped, it was necessary to determine the characteristics of the groups to be served. Estimating the number of handicapped persons within the district has been difficult since no real data are available. A rough estimate of between 9 and 25 percent has been made from projections based on a 5 percent sample from 1970 census data (1). The estimate of 25 percent would include all disabilities, whether or not they limit mobility. For transportation planning, it would seem more reasonable to use the 9 percent figure, which covers a wide range of handicaps and includes people who, with some assistance, could use an unmodified transportation system, as well as those to whom the system would be inaccessible without some major engineering and design modification. It includes both the temporarily and the permanently disabled, the person with a broken leg as well as the person who can expect to spend the rest of his life in a wheelchair. For transportation planning, it includes all who, for any of a variety of reasons, have impaired mobility, including those whose ability to walk is reduced or absent without personal or mechanical assistance and those whose visual loss is sufficient to prevent movement without assistance. Impairment or loss of motor skill can make it difficult or impossible to use public transportation. Serious mental disabilities may also reduce a person's capacity to perform the actions that are required to use public transportation.

RTD has accepted the responsibility of providing public transportation to all segments of society, including those with limited mobility. Fortunately, members of the elderly and handicapped communities within the district have been eager to assist in defining their transportation needs and in planning to meet those needs. To facilitate a cooperative working relationship with RTD, two committees have been formed, Mobility Among the Disabled and the Elderly Advisory Committee. The Elderly Advisory Committee was organized by the Council on the Aging of the Denver Regional Council of Governments. With the encouragement of RTD's staff, the handicapped themselves organized Mobility Among the Disabled. A number of groups and organizations are represented on these committees, for example, Muscular Dystrophy, Easter Seals, Cerebral Palsy, Denver Regional Council of Governments Council on the Aging, and

Denver Community College. The two committees function in an advisory capacity similar to that of the 10 other citizens' committees that serve RTD. They review problems, discuss solutions, and make suggestions for changes. RTD supplies the technical assistance the committees need to fulfill their advisory functions. Without the help of Mobility Among the Disabled and the Elderly Advisory Committee, it is unlikely the program for transportation services to these groups would have developed in the same form. It is also unlikely it would have progressed as quickly without their help.

#### LEVEL OF ACCESSIBILITY

One of the first issues to be resolved in planning transportation services for the elderly and handicapped is the desired level of accessibility or the degree to which it is physically possible to get on and off the vehicles. Should the system be designed and engineered to allow anyone, no matter how severely disabled, to use it or is a modified approach in order?

At first, the committees argued that the entire system should be totally accessible. Separate services, they contended, could not be equal and separation leads to undesirable social effects. To support the argument for a totally accessible system, they cited Section 16 of the Urban Mass Transportation Act of 1964 as amended in 1970, which states that the elderly and handicapped have the same right as others to use mass transportation facilities and services and that special efforts must be made in the planning and design of transportation facilities to ensure the availability of usable mass transportation to the elderly and handicapped. Federal highway legislation (Federal-Aid Highway Act of 1973, Section 165B) has also indicated that highway funds will not be granted to transportation agencies or authorities that are not currently planning toward implementing transportation services for the elderly and handicapped.

For the purposes of the Urban Mass Transportation Act, the term "handicapped person" means any person who, by reason of illness, injury, age, congenital malfunction, or other permanent or temporary incapacity or disability, is unable, without special facilities, special planning, or design, to use mass transportation facilities and services.

The guidelines of the Urban Mass Transportation Administration (UMTA) for implementing Section 16 are as follows:

In the planning and design of mass transportation facilities and equipment, reasonable efforts should be made to ensure that the elderly and handicapped will be able to effectively use the facilities.

This is especially important when new facilities are to be built, but modifications to present facilities and equipment must also be considered. The question then is whether Section 16 or UMTA's guidelines require total accessibility. UMTA has not addressed the question formally but its informal position has been articulated in a number of intra-agency memos and demonstrated by its administration of Section 16.

UMTA and the transit industry are concerned with the operational problems inherent in making a fleet of buses totally accessible. UMTA aided in drafting and supports a provision of the Unified Transportation Assistance Program that provides for alternative transportation for the elderly and handicapped in lieu of total accessibility.

The real transportation issue in UMTA's opinion has apparently been service rather than hardware. Guaranteeing access to transit vehicles and facilities does not necessarily guarantee real access to the system and may be remote from reality. The point here is that route

modifications, the addition of special service, and modification of buses short of the ability to board wheelchairs can be undertaken to provide mobility without providing total accessibility to the system. But total accessibility to the system cannot be undertaken and be effective without the concomitant addition of special service, route realignment, bus modification, and so on. Because there is a finite amount of resources and financing available, a transportation authority might very well be forced to choose between total accessibility (i.e., ability to board wheelchairs on all vehicles), which would not resolve the question of mobility because it does not necessarily provide service to the elderly and handicapped, and alternate service, which would provide mobility but would not resolve the issue of total accessibility to the system.

At the suggestion of the advisory committees, RTD investigated the feasibility of providing a transportation system that would be fully accessible to the handicapped and elderly. Close examination revealed that the cost of such a system would be staggering. Cost estimates obtained for fitting buses with wheelchair lifts alone, perhaps the single most expensive modification, were more than \$10 000 a bus. Assuming that funds could be allocated to remove all barriers to transportation facilities and equipment, there would still remain topographical, architectural, and social barriers over which a transit operator has no control. The handicapped person would have to arrange for his trip to the boarding point and would be responsible for the completion of his trip upon debarking. He would have to contend to varying degrees with hilly or rocky terrain, steps, curbs, and rough-textured streets over which it might be difficult to maneuver a wheelchair. Inclement weather could become a serious hindrance to mobility.

Consideration of the implications of a fully accessible transportation system also revealed operational disadvantages. Constraints on the size and capacity of buses would probably permit space for only one wheelchair on each bus. Once this space was taken, no other wheelchair patron could board that bus. A wheelchair-bound person could conceivably have to wait twice as long as or even longer than a nonhandicapped person for a bus that could accommodate his needs. Upon boarding, the wheelchair patron would have to maneuver to the tie-down space and secure the wheelchair. A fully accessible system would also result in irregularities in service that would affect all patrons. It takes from 3 to 5 min for a wheelchair patron to board a bus with a lift device, which could be a significant factor in unpredictable and uncontrollable schedule delays. Such delays would diminish the attractiveness of the system for other patrons.

To meet the special mobility needs of elderly or handicapped persons, consideration must be given to all mobility barriers, not only those directly related to the transportation industry. To find timely feasible solutions to the problems relating to transportation services for the elderly and handicapped, RTD is using mobility, not total accessibility, as its goal.

Mobility Among the Disabled is divided in accepting this posture. Some believe that mobility rather than total accessibility is an acceptable start and that the program will be expanded to reach greater numbers of handicapped people. Others still believe a fully accessible system is the only acceptable way to approach the problem. The ultimate solution to this conflict should be brought nearer by what is learned from this program. In the meantime, it will demonstrate significant steps toward the attainment of that solution.

#### SERVICE NEEDS

Before appropriate service could be initiated, it was

necessary to determine the needs of the groups to be served. By and large, people over age 65 are not employed and do not attend school. The majority use transportation mainly during the off-peak hours for medical, social, shopping, and recreation trips. Most of the elderly could use existing public transportation more extensively if it were modified to make it a little easier to board and deboard. Lower steps and extended nonskid grabrails are among the useful modifications.

Many of the handicapped, on the other hand, could take advantage of employment and educational opportunities if they had the means of reaching the appropriate facilities. It quickly becomes apparent that there are three groups of people defined as elderly and handicapped—(a) those who can use the existing bus service, (b) those who can use buses if certain modifications are made, and (c) those who need transportation provided by vehicles especially designed to accommodate their more severe mobility problems. Transportation services for the elderly and handicapped should be designed to address all these needs.

The Special Transit Needs Program at RTD therefore has three parts. One, the HandyRide program, provides transportation services and facilities for the handicapped. Another, which grew out of the HandyRide program, provides midday shopping services for the elderly. The remaining part is the retrofitting program, which involves modifications to existing rolling stock to meet the needs of the elderly and the ambulatory handicapped.

#### HandyRide

HandyRide got its official start in April 1974, when the RTD's board authorized the lease of 12 buses specially equipped for the handicapped. That same month, requests for proposals stating general guidelines for vehicle specifications were sent to bus manufacturers. Those guidelines related to vehicle size and accessibility. At the subsequent bidders' briefing, requirements were discussed in more detail. The committees' recommendations were given as a guide to the degree of specialization required. Bidders were informed that vehicle choice would depend on overall quality, innovative design, attention paid to specific needs of the elderly and handicapped, and the ratio of value to cost. The lowest bid would not necessarily be the one accepted. Four bids were received, and the RTD staff and the two citizens' committees evaluated them independently. There was a consensus to accept the bid submitted by the FMC Corporation of San Jose, California. Two citizens' committee members, one who is a quadriplegic and a practicing engineer and one who is not handicapped, went with RTD personnel to the FMC offices at San Jose to assist in designing the vehicles.

The FMC bus is built on a custom chassis with four-wheel independent suspension for a smooth ride and greater traverse stability during turns and lane changes. The passenger door is 71 cm (28 in) wide, 5 cm (2 in) wider than standard. There are two steps from the ground to the 47-cm (18.5-in) floor height. One of the steps is electrically operated by the driver for use where curbs are absent or a lower step is required.

The door for wheelchair use is 104 cm (41 in) wide and features a 91 by 114 cm (36 by 45 in) hydraulic elevator. The outboard section of the lift is hinged to restrain the wheelchair by an upward tilt of the ramp. The hinge is also used to provide adjustment on irregular terrain and to serve as a ramp when backing the wheelchair onto the lift. Designed for a 320-kg (700-lb) load, the lift is capable of traveling from the floor height to a point 7.6 cm (3 in) below ground level to satisfy adverse loading conditions. The lift platform is hinged inside the

door line and is brought to a vertical stowed position before the doors are closed. When stowed, the elevator protrudes 30.5 cm (12 in) into the coach's interior. The elevator doors are interlocked with the vehicle's accelerator and brakes to prevent inadvertent motion of the vehicle while the elevator is in use. Similar vehicle locks are provided for the passenger door. Space is provided for four wheelchairs and 12 seated passengers. There is also space for a seeing-eye dog.

RTD also required bench seating, flip arm rests, specially coated nonslip handrails and stanchions, audible signals for doors to assist the blind, additional lighting in stepwell and door areas, and an internal public address system. At the discretion of FMC, accessible signal tape switches also were provided. The buses were to be painted to be consistent with the district's established graphics. "The Ride," the name chosen for the entire system, is painted in large brown letters on the white buses and "RTD" is painted in red. In addition to these standard graphics, the international wheelchair logo is painted on the sides and fronts of the HandyRide buses.

Once the order was placed it was time to prepare for putting the buses into service. Schedules had to be planned efficiently to accommodate as many as possible of the prospective patrons. Routes had to be planned to provide curb-to-curb service, since it would be difficult or impossible for many patrons to get to a bus stop or travel any distance to complete a trip. The decision was made to establish subscription service, dynamically scheduled to accommodate the special needs of those with limited mobility. Subscription to this service was accomplished by filling out a form with specific trip information including origin, destination, days of the week, and times that service would be desired. Additional information was requested on trip purposes and type of handicap. About 25 000 of these forms were delivered to social service and rehabilitation agencies, nursing homes, high-rise apartments for the elderly, appropriate clubs and organizations, and anyone else who requested them. The citizens' committees were helpful in distributing forms and in suggesting places to distribute them. A cut-off date was established for the return of the forms, although people who returned forms late were not necessarily denied service. The initial cut-off date was established merely to facilitate the scheduling of the initial service.

To qualify for service, applicants had to need to make regular trips and were required to complete and correctly fill out the application for subscription service. From the metropolitan Denver area, 637 qualified applications were received by the deadline. An additional 527 were received after that time. Of the 1164 from the greater Denver area, 50 percent were 65 or more years of age. The remaining 50 percent were handicapped. Of the handicapped 22 percent (11 percent of the total qualified applicants) were confined to wheelchairs. From Boulder County, 259 qualified applications were received by the deadline. Of these, 176 (68 percent) were handicapped and 83 (32 percent) were elderly. Twenty percent of the handicapped (14 percent of the total qualified applicants) were confined to wheelchairs.

Many of the forms received were incorrectly or incompletely filled out, largely because the initial form was quite long and somewhat confusing. The form was redesigned and condensed to alleviate such problems.

With only 12 buses, it was not possible to serve all the qualified applicants. Priorities were established to give preference to the handicapped over the elderly, to the handicapped in wheelchairs over other handicapped persons, and to work or school trips over other trips. Last priority was given to those whose disabilities did not significantly interfere with their use of public trans-

portation. Included in this category were, for example, the mentally retarded and those with epilepsy.

Before the service began, a sensitivity training program for drivers was conducted. Drivers were selected from a group who had requested to participate in providing the service and a 2-day training session was conducted for them. Members of the RTD staff and Mobility Among the Disabled met with them and provided ample opportunity for the drivers to ask questions of those who planned and would be using the service and their representatives. In addition, members of the committees explained what they would expect of the drivers.

A prototype bus was received by RTD in November 1974 and was examined by both staff and citizens. The bus was then sent on a tour around the country for display. Suggested modifications were incorporated in the RTD buses.

Since the reliability of the HandyRide coaches had not been proven, it was decided to begin service in the Denver area, where mechanical difficulties could be most conveniently handled. Service was begun with seven buses, leaving five spares. On March 10, one of those five buses was deployed within the Boulder urbanized area, reducing the number of spare vehicles to four. The reliability of the vehicles proved great enough that further service increases and consequent reductions in the number of spares could be made. The number of spares was, therefore, reduced to three in May and two in June. The greater Denver area is now being served with nine of these buses, Boulder is being served with one, and two serve as spares. There have been recent occasions when mechanical difficulties have prevented using the anticipated number of vehicles, making it necessary for other vehicles to serve more than their regular routes. Records have been kept on vehicle maintenance and are shown below.

Month	Road Calls	Driver Complaints	Inspections
February	1	72	—
March	5	85	—
April	6	40	—
May	3	37	8
June	4	6	10
July	6	11	9
August	5	15	7
Total	30	266	34

Of the 296 times the vehicles required work other than inspections, about 50 were associated with the hydraulic lift, extendable step, or wheelchair tie-down devices. The significance of this information will be considered in the overall evaluation of the program.

Fares were set at 25 cents one way. As in the regular service, passengers are required to have the exact fare. They are also responsible for getting on and off the buses themselves, although the drivers have, in fact, been assisting. Passengers may arrange for someone to ride with them to assist if required, and there are agencies within the district that refer passengers to volunteer assistants. So far, no assistants have been used on a regular basis.

Recently a Saturday shopper service for nursing-home residents was begun using the special equipment. Due to the rather severe disabilities of those nursing-home residents for whom the service was designed, it has not been successful. That service will be changed from regularly scheduled to specially scheduled, so that it will be available when needed.

Groups or organizations with special needs may charter this equipment as it is available to provide service to persons previously excluded from group activities be-

cause of special transportation needs. Charter rates for these vehicles are the same as for other RTD equipment. Chartering of these vehicles has not been frequent. The difficulty seems to be that most of the requests are for weekday charters, when the vehicles are in regular service.

#### Services for the Elderly

One of the early observations about the HandyRide program was that many of the elderly could be served with regular equipment. They did not need the wheelchair lift or other special features of the HandyRide buses. Acting on this observation, six special midday shopping trips for the elderly were initiated in March 1975. These tours originate at various high-rise apartment complexes, take elderly patrons to nearby shopping centers, and return approximately 2 hours later. Each trip runs once a week. Support for this service was enthusiastic at first, with ridership climbing from 211 weekly passenger trips when the service was begun in March to a weekly average of more than 850 passenger trips in April. The total number of passenger trips in April was 3476. Ridership has since declined however. The first week in June, the service carried only 684 weekly passengers.

Several reasons have been suggested for the decline in ridership. It could be in part because the elderly do not need to make weekly shopping trips. It has also been speculated that the reason for the decline was the weather. With pleasanter weather making it easier to get to a local bus stop, patrons switched to regular service. Another explanation may be that many of the elderly were in fact using the service for recreation and it no longer has the appeal of novelty. Members of the Elderly Advisory Committee have requested service for recreation trips, and this possibility is being considered.

#### Retrofitting Program

Improving the accessibility and usability of the entire bus fleet is the object of the retrofitting program. A list of suggested features for buses was compiled from recommendations on the specifications for the HandyRide vehicles that were made by representatives of the elderly and handicapped committees. Of the 18 separate recommendations, 4, including bright color for all buses, full-width grabrails on seat backs, yellow step-tread edging, and nonskid tread and flooring material, were already standard items on buses. Consideration of 7 other recommendations was deferred for diverse reasons. Push-bar rear exit doors are to be specified on new buses in spite of a recommendation to provide some other type of rear-exit door because the push-bar doors have a documentably better safety record. Low-level stop signal or tape switches were considered appropriate for the 12 specially equipped buses but not for regular buses since no manufacturers were, at that time, installing them. This item is now available and is specified on orders for additions to the regular bus fleet.

Seven items were considered appropriate for retrofitting and in-service evaluation, including extendable steps, additional grabrails and stanchions, side destination signing, additional lighting in the stepwell and door area, internal public address system, and audio warning signals for door operations. Age was the determining factor in whether a bus would be suitable for retrofitting. The expenditure was not merited for some of the older equipment. From 37 to 184 buses were chosen to be retrofitted with any given item. It was not necessary to retrofit all items to all 184 buses since some were already equipped with several of the recommended items. Manufacturers were contacted and costs for the program, for materials and labor, were estimated at \$204 061.10.

The extendable step units chosen are manufactured by FMC of San Jose and Environmental Equipment Corporation of San Leandro. No others were available. There were some initial difficulties with fitting the extendable step units, specifically with the interlocking devices on the doors and the sensitive edge on the extendable step. The EEC unit has now been installed and is in use.

After all units have been installed, their effectiveness will be evaluated to determine whether the items should be specified on subsequent bus orders.

## EVALUATION

Although a few observations can be made about the value and efficiency of the HandyRide program, thorough evaluation will have to await the completion of a study in progress. The study involved in-person interview surveys of members of the organizing committees, user applicants, and nonuser applicants. The study, conducted with the help of a market research firm, will yield both quantitative and qualitative information on patronage, cost, and the sociological and psychological benefits of the program. The results will be used to help determine whether this demonstration program will be continued in its present form, continued in a modified form, or abandoned. Whatever the outcome of the evaluation, the program will have provided valuable information in determining not only the transportation requirements, limitations, and desires of the handicapped and the elderly, but also what public transportation can do in attempting to meet these requirements, limitations, and desires.

### Patronage

Ridership figures have been collected from drivers of the vehicles and computed using an average fare. Figures for the Boulder urbanized area have not yet been incor-

porated with those for the remainder of the system. Passenger counts for the Denver urbanized area are available and are shown in Tables 1 and 2 for the HandyRide vehicles and for the shopping services for the elderly. As part of the evaluation, data will be quantified on a common basis. Until that study is complete, only general statements can be made about patronage. Although ridership more than doubled from the initiation of service in February to May, much of that increase was due to the addition of the shopping service for the elderly. These figures will be separated for use in the evaluation. Another reason for this dramatic increase is that service was begun on a small scale to facilitate dependability.

Initial patronage figures seem to indicate a rather high percentage of patron-cancelled trips. As part of the evaluation, an attempt will be made to determine why this figure is so high and whether it can be reduced.

### Cost

The precise method of cost evaluation has not been finalized, but figures have been developed to show the actual cost of the HandyRide and the services for the elderly separately. Those figures will then be combined to show a true estimate for both services.

Cost figures have been developed to include all related expenses. They are tentative, however, in that they incorporate only preliminary patronage data. The cost per HandyRide passenger at the beginning of the service in February was \$29.44. By May, this had been reduced to \$11.70. Cost per passenger for the elderly shopper service has remained at 83 cents.

### Sociological and Psychological Benefits

Sociological and psychological benefits are the most difficult to evaluate since they do not easily yield to quantification. Nevertheless, for those persons who previously

Table 1. Productivity of HandyRide and special services for the elderly.

Month	HandyRide Service			Special Service for the Elderly			Services Combined		
	Passenger Trips	Passenger Trips/km	Passenger Trips/h	Passenger Trips	Passenger Trips/km	Passenger Trips/h	Passenger Trips	Passenger Trips/km	Passenger Trips/h
February	1714	0.06	0.72	—	—	—	1714	0.06	0.72
March	1776	0.08	1.01	586	0.28	6.36	2362	0.09	1.18
April	2044	0.08	0.93	3476	0.89	12.05	5520	0.15	2.05
May	2384	0.07	1.25	2948	0.64	13.65	5332	0.13	2.09
June	2604	0.07	1.15	2920	0.73	17.16	5524	0.13	1.91
July	3472	0.08	1.54	4216	0.89	14.19	7688	0.16	2.87
August	3120	0.08	1.44	3104	0.64	9.94	6224	0.13	2.41
September	3880	0.09	2.24	3748	0.80	8.29	7628	0.16	3.49
October	3652	0.06	1.44	3544	0.78	10.33	7196	0.13	2.33
November	2872	0.08	1.51	3280	0.64	10.09	2408	0.14	2.55
December	2860	0.07	1.32	3724	0.47	16.19	6584	0.14	2.66

Table 2. Characteristics of patronage of HandyRide and special services for the elderly.

Category	February	March	April	May	June	July	August	September	October	November	December
HandyRide											
Subscribers served	30	41	51	94	107	117	125	132	137	137	130
Persons in wheelchairs	16	21	22	35	46	50	56	59	59	59	53
Other handicapped	14	20	29	58	60	66	68	72	77	77	76
Elderly	0	0	0	1	1	1	1	1	1	1	1
Persons assisting	0	0	0	0	1	1	1	1	1	1	1
Trip purpose											
Work	25	33	39	65	69	73	79	80	84	84	83
School	5	8	10	16	21	26	38	34	34	34	30
Medical	0	0	2	12	16	17	17	17	18	18	16
Other	0	0	0	1	1	1	1	1	1	1	1
Special service for the elderly											
Residences served	—	16	24	28	28	31	32	32	34	34	34

had been supported by welfare but are now able to hold down jobs because special transportation is available, there are a number of sociological benefits.

HandyRidy will also provide many elderly and handicapped persons with the opportunity to share their experiences and wisdom in the classroom, which was not often possible in the past. For the first time in the lives of many of the handicapped people, they do not have to depend on family members or friends for transportation. They now have the freedom to move from one place to another via public transportation. They are also able to use public transportation without fear of having to fight for a seat or of being hurt by having to compete with the able-bodied.

Furthermore, by providing the handicapped with the opportunity to become gainfully employed, many of their psychological needs have been fulfilled. Studies have shown that a person's ability to work is a major social device for his identification as an adult. Much of who and what people are to themselves and others is interwoven with how they earn their livelihoods.

Another dimension of the psychological benefits associated with the service is that the elderly and handicapped patrons are now able to visit shopping, health, and recreational facilities that had previously been beyond their reach. By providing the elderly and the handicapped with specialized transportation, the range of functions in which they can now participate has been dramatically broadened.

However, the very nature of the service and various submarkets within the main market classification of the elderly and handicapped indicates that before the evaluation criteria are complete a study must be conducted to give the RTD some valuable data in relation to

1. The real benefits of the service to the user;
2. The degree to which the users' lives have changed in comparison with those of nonusers since the service began;
3. The values, life-styles, and attitudes of users versus nonusers;
4. The impact on family, social workers, employers, and so on;
5. The characteristics of the system that would aid us most in increasing patronage;
6. Methods of locating handicapped persons who have not previously identified themselves;
7. The latent demand characteristics of users and nonusers;
8. The true needs of the handicapped and how they differ from those of the elderly; and
9. The communication channels that would assist us most in getting factual information about the HandyRide service to all handicapped persons (i.e., media selection, citizens' committees, friends, and so on).

## CONCLUSION

After the entire evaluation is complete, modifications may be made in the services provided for the elderly and the handicapped. We hope the service can be significantly expanded to reach more handicapped and elderly people who are unable to use regular transit service. From the applications received, RTD is acquiring valuable data related to the elderly and the handicapped that will be used to help design services that meet the needs of these groups. RTD wants this program always to have the flexibility necessary to improve service and meet changing needs.

## REFERENCE

1. The Handicapped and Elderly Market for Urban Mass Transit. Transportation Systems Center, U.S. Department of Transportation, Cambridge, Mass., Oct. 1973.