

Research in Special Paratransit Service for the Handicapped

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This paper discusses the development of the Disabled Adult Transportation System in Edmonton, focusing on the user from two points of view: research and marketing. Three research techniques were used to determine and identify the user—incidence levels, civic census, and a registration system. Each technique is defined and described with a review of its advantages and disadvantages. The underlying philosophy of the marketing program was to involve disabled persons. This was achieved by information meetings, public meetings, and an Advisory Council that included disabled persons. The Advisory Council has met on a regular basis throughout the developmental and operational stages of the system and is considered to be central to the system.

This paper describes the development of the Disabled Adult Transportation System (DATS) in the city of Edmonton, inaugurated in April 1975. In the development of any demand-responsive transportation (DRT) system, three key elements must be considered:

1. Management—organization, board of directors, management scheduler, dispatcher, clerical workers, and drivers;
2. System—equipment, scheduling, driver training, costing, fare structure, and types of services; and
3. User—profile information, disability, and trip characteristics.

In this paper the emphasis will be placed on the user, since (a) the user defines the market, (b) the user provides a control for the system by eligibility or trip restrictions or both, (c) the location of the user defines the service area, (d) the user defines the demand for the system, and (e) the characteristics of the user dictate requirements for special equipment.

It is clear that the user is a dominant factor in planning the other two key elements. The user will be examined from two perspectives, research and marketing.

RESEARCH

Three separate research techniques were used to identify the user element—incidence levels, civic census, and registration. Each of these techniques will be discussed in terms of a definition of the disabled, a description of the technique, advantages and disadvantages of the tech-

nique, and evaluation of the technique for identifying potential users.

Incidence Levels

A broad definition of the physically handicapped that includes almost all types of physical disabilities was used. The mentally retarded and the elderly, if they are physically or mentally disabled, were also included within this definition. It should be noted that the disabled population includes more people than just those in wheelchairs. It includes, for example, people with multiple sclerosis, cerebral palsy, and strokes who may not be in wheelchairs; people with disabilities that are sometimes not obvious, such as hemophiliacs and people suffering from heart problems and respiratory diseases; people with specific sensory handicaps, particularly those with impairments of hearing or vision; elderly people who are afflicted by such diseases as Parkinson's disease, arthritis, or rheumatism, which are often accompanied by impairment of hearing or vision; and people without limbs as a result of accidents or war wounds.

The technique we used is common among demographic studies. It is based on the rate of occurrence of a particular phenomenon in a larger population. Surveys conducted in Canada (10 000 households), the United Kingdom (83 000 households), and the United States (84 000 households) to determine the incidence of major disabilities indicated that 7 to 8 percent of the general population is physically handicapped.

Application of this technique to Edmonton's population indicated that 31 065 individuals were disabled, of whom 16 250 were estimated to be restricted in their use of the public transit system.

Among the advantages of this technique are that, once the incidence levels are determined, the technique may be readily applied to any population and that it provides a reasonable profile of the disabled. Among the disadvantages are that it cannot be subjected to independent verification, the incidence levels are derived from surveys that can no longer be considered reliable for today's situation (the most current data for Canada are in the Canadian Sickness Survey, conducted in 1950-51), the technique's averaging factor does not discriminate be-

tween the higher incidence of some disabilities (e.g., multiple sclerosis) at certain ages, and it does not take account of that portion of the population that is disabled, either temporarily or permanently, because of accidents.

It was difficult to corroborate all of the incidence figures with actual numbers of disabled people. In fact, the only actual check available was with membership in the Canadian National Institute for the Blind (CNIB). Our figure for people with visual impairment was 671, and the CNIB has a membership of just more than 600. However, it is interesting to note that the technique estimated 655 wheelchair-bound people, including children, but the current DATS registration file has 1438 wheelchair-bound people registered, excluding children. It is clear from this discrepancy that the incidence-level technique cannot be the only one used to plan a DRT system for the disabled.

Civic Census

The census defines a handicap or disability as a long-term (one year or longer) condition. The handicap or disability may be physical, mental, or both.

The census is a technique that is used at regular intervals to enumerate a population. A civic census is conducted annually by the city of Edmonton, since provincial funding is based on population.

Among the advantages of this technique are that, within a given boundary, the census collects information on the age, sex, marital status, family and household characteristics, education, income, and occupation of the total population and that the census material may be used to indicate trends over time as well as to serve as a base from which population projections may be made. Among its disadvantages are that the cost of the census could be prohibitive, especially if it is designed to enumerate only the disabled population; although it is a universal technique, it does not ensure complete enumeration of a population since there may be enumerator errors and there are individuals who, for whatever the reason, do not wish to be enumerated (illegal immigrants, certain of the disabled, and other people who do not wish to be identified as members of a minority); and there is often a time lag between enumeration and release of the results of the census.

The city, in its review of transportation for the disabled, used the incidence-level technique. Due to the limitations of the technique, it was decided to do a census of the disabled in conjunction with the annual Edmonton civic census. A mail-back form was left at households in which a disabled individual resided. The survey was designed to determine the number of the disabled, their disabilities, and their needs. Although confidentiality was guaranteed, there was no obligation on the part of the disabled to identify themselves.

The census identified 4770 disabled individuals, 1185 in institutions and nursing homes and 3585 in private residences. The institutions returned all of the mail-back forms, but the rate of return for private residences was 36 percent (1287).

Preliminary data analyses have been completed, but we feel the results are not indicative of the total population of the disabled because of the disadvantages of the census technique outlined earlier.

The incidence level and census techniques only give information on the profile of the disabled and inadequate information on their transportation requirements. Consequently, they can only serve as gross demand figures for a DRT system for the disabled.

Registration

An operational definition was required to identify eligible persons who wanted to use DATS. A disabled person was defined as one who is unable, for one reason or another, to use the existing Edmonton Transit System.

DATS registration ensures that only eligible people use the service. Registration forms are mailed out on request. The returned registration forms are numbered and entered on a master computer file. After a person is deemed eligible, a registration card and brochure outlining the available transportation services are mailed to him or her. The registration form provides the initial base information concerning each user, e.g., location, type of disability, whether an attendant is required for travel, and type of service and purpose of trip requested, by origin and destination and by the day of the week.

Among the advantages of this technique are that the registration system is designed to provide all of the user information required to plan the system and management elements (origin-destination information, loading times, disability, need for attendants, special equipment, and whether trip requests are regular or casual); it ensures that only eligible people use the service; it allows the monitors of the service to record the trip characteristics of the user; and the system, if computerized, will allow for continuous updating and other statistical analyses. Among its disadvantages are that the registration file provides a listing only of those who request special transportation services, so that it is not representative of the total disabled sector of the population, and there may be problems inherent in the organization of the registration file itself, e.g., information that is not detailed enough for planning the system and management elements.

The registration system was set up by the city of Edmonton in order to plan the system and management elements. The format is detailed enough to plot the actual trip request by day, arrival or departure time, origin and destination, disability, requirement for an attendant, estimated loading time, and registration number. In short, the trip information provided by the user allowed the planners of the system to plot the demand by trip purpose (work, medical, so forth), type of service (subscription, reservation, so forth), and time of day. To date, 2660 disabled persons have registered with DATS, excluding children.

In summary, if a DRT system is being planned for the handicapped, it is highly recommended that a computerized registration system be instituted. In addition, it is recommended that this registration system be instituted before the system and management elements are planned, since it forms the basis for them.

MARKETING

The underlying philosophy of the development of DATS was to involve disabled persons wherever possible. Marketing of the DATS service included several components at every stage in its development.

Public Participation

Three techniques were used to involve the disabled in the original work—information meetings, public meetings, and the Advisory Council.

The original research on transportation for the disabled was conducted during August 1974. Numerous meetings were organized between the planners and agencies for the disabled (Ability Fund Drive, United Way Committee on Transportation for the Disabled, Action Group of the Disabled, Edmonton Interagency Council for the Handicapped, Handicapped Housing Society) and

providers of existing transportation service. The results of these information meetings provided much of the basis for the report.

Two public meetings were held in September 1974, one for information purposes and one for discussing the results of the report and its recommendations in detail. More than 250 disabled persons were in attendance at each meeting. Based on the feedback received from these meetings, the report recommendations were revised and subsequently approved by the City Council on November 12, 1974.

One of the recommendations of the report was to institute a council to assist in the detailed planning and implementation of the DATS project. The Advisory Council is made up of seven disabled persons who represent various agencies, two representatives from the United Way Committee on Transportation for the Disabled, and two representatives from the city of Edmonton's Engineering and Transportation Department.

Since its inception in December 1974, the Advisory Council met on 17 occasions in 1975. The council was divided into committees delegated to review components of the system and management elements, e.g., registration, eligibility, vehicle safety, and bid review. The various committees have met approximately 40 times.

Through the council and its committees, the following aspects of DATS were reviewed: tender specifications, fare structure, registration system, accessibility to rapid transit and the pedway system, review of bids, eligibility criteria, types of and level of service, vehicles and safety equipment, terms of reference and objectives of DATS, development of logo, census of the disabled, complaint system, brochure and registration card content, service comments, DATS evaluation, and DATS study design. The Advisory Council is the hub of activity from which the marketing and development of the system grew.

Newspaper Advertising

The Registration Subcommittee produced a newspaper advertisement that invited people unable to use the Edmonton Transit System (ETS) to register for the transportation system for the disabled. The ad was run 10 times between December 1974 and the end of January 1975. A copy of the ad was also placed in the Alberta Handicapped Forum and ethnic newspapers. As mentioned earlier, 2660 disabled individuals have registered with DATS.

DATS Graphic Package

A graphic package including a logo, color schemes, brochure, registration card, and letterhead was developed for DATS. A graphic artist, himself disabled, was hired to prepare the package. It has been used to identify DATS as a parallel paratransit system of the ETS.

Mass Media

At various stages in the development and during the operation of DATS, various news releases were issued to the media. The inauguration of the DATS service took place on April 28, 1975. A plaque was presented to the mayor of Edmonton to commemorate the occasion. Members of the media were present and the service received excellent coverage on television and radio and in the newspapers.

Newsletter

Due to the large number of registrants and to modifica-

tions in the service provided, it was necessary to find an outlet for information. It was decided to use two local monthly papers to provide this information, the Alberta Handicapped Forum and the Transit News. These papers are used to provide information concerning the DATS operation to the users and the public at large.

Open House

Two open houses are planned in April 1976, one for the elected officials and representatives of the media and one for the agencies that provide various services to the disabled. The purpose of the open houses is to give these groups an opportunity to see how the DATS service operates.

SUMMARY

This paper has identified three key elements of DRT systems: management, system, and the user. The paper has dealt with the research and marketing of the user element. If anything is to be learned from the development of Edmonton's Disabled Adult Transportation System, it is the importance of the user, in particular, the development of a computerized registration system and the involvement of the handicapped in the detailed planning, implementation, and review of the system.