EASYRIDE

Management Information System

March 1, 1981

Introduction

EASYRIDE is a door-to-door demand-response paratransit service which has been in existence since 1976. Begun originally for elderly and handicapped residents of the Lower East Side of Manhattan, the service area was extended to the Lower West Side in September 1980. Sponsored by the Vera Institute of Justice in cooperation with neighborhood social service and health agencies, EASYRIDE was established to demonstrate the possibility of providing comprehensive yet cost-effective transportation to meet the special needs of the frail elderly and disabled. Stated differently, EASYRIDE was established to respond to a fragmented, inadequate and wasteful situation of lack of adequate transportation for the handicapped provided in a coordinated manner. Generally, transportation is restricted to recipients of certain transportation subsidies and then further restricted by trip purpose; or limited to clients of a particular agency.

The fragmented nature of transportation for the handicapped has resulted in substantial service gaps concurrent with substantial concentrations of service for specific purposes, usually medical related. Therefore, unless frail elderly and handicapped persons can afford the exorbitant cost of private transportation, most of their transportation needs are not fulfilled, further handicapping the individual. People who might be able to maintain relatively self-sufficient lives in the community if they had the modicum of mobility afforded by available accessible transportation, are reduced to lives of dependence and isolation, without it.

EASYRIDE was designed to demonstrate that comprehensive transportation for the disabled can be achieved through the integration of various sources of funds which, despite their restrictions, could be

combined to provide a revenue base which would finance transportation for all purposes. The service was begun as a pilot project by the Vera Institute of Justice, with three vehicles, a limited service population and a small staff; all internal operations were conducted manually and modified by experience.

At the end of the pilot period, six months after the project was begun, EASYRIDE acquired ten vehicles and increased the staff in order to provide the Lower East Side community with its only comprehensive transportation alternative for the "transportation disabled". The service population grew substantially in the first year and continued to increase steadily over the next three years. Productivity, measured by the number of trips delivered annually and the number of trips delivered per hour, also rose steadily.

In 1980, after two years of planning by the local community, EASYRIDE was extended to the Lower West Side of Manhattan; it is estimated that 2,500 people who live in the area need specialized transportation. With an additional seven vehicles acquired through the New York State Department of Transportation, EASYRIDE expects to serve between 1,500-2,000 Lower East Side residents already relying on EASYRIDE for their multi-purpose transportation needs. By increasing the service population by fifty percent and thereby increasing demand, EASYRIDE is attempting to achieve cost effective paratransit through economies of scale; added volume, increased productivity and the opportunity to spread costs over an extended base lowers the unit cost of the service. The extension also enables EASYRIDE to maximize the funding base of the service, through an expanded array of contractural arrangements with third party payors.

The acquisition of third party contracts are essential for a not-for-profit, multi-purpose paratransit service to be institutionalized. However, since each contracting agency has its own billing and reporting forms and requirements, adding contracts also means a substantial increase in paperwork which often prevents or discourages institutionalization. Recognizing this situation, EASYRIDE decided to automate internal operations through the development and installation of a computer software package capable of assisting registration, reservation, scheduling, billing, trip delivery and reporting.

Requirements

Specifically, the following conditions had to be accomodated by the EASYRIDE software:

1. A service population whose needs are constantly changing and in need of revision (i.e., needs an escort; requires a wheelchair accessible vehicle);
2. Various eligibility requirements for different kinds of trips;
3. An increase in third party contracts, each with their own procedures, requirements and forms;
4. An increase in service population: concommittant increases in the number of vehicles, registrations, reservations, scheduling and billing;
5. Greater need for reporting and data collection (which was unable to be met by the independent data processing company then relied on);
6. Immediate information retrieval;
7. Tremendous amount of duplicate writing each time a reservation is made, especially for standing orders and subscription trips;
8. The need for accurate recording and reporting of data about trips, especially for billing purposes.

In addition to addressing the specific needs of the EASYRIDE system, the development of appropriate software was also intended to demonstrate the potential replicability of this type of software for other multi-purpose transportation services. Therefore, a complementary research effort was

undertaken to raise and respond to a number of issues central to the delivery of paratransit:

1. Can an automated record-keeping, reservation, scheduling and billing system be developed which can be adapted to local conditions?

2. Can that system enhance the utilization of vehicles, reduce administrative overhead and produce timely and accurate billings?

3. Can more trips be schedule per vehicle hour and can less staff time be devoted to scheduling functions?

4. Can a single billing form be developed for use by all transportation reimbursement sources?

These issues are addressed below in the context of a discussion of the components of the EASYRIDE system before and after automation.

Registration

The EASYRIDE registration procedure serves two general purposes: (1) to determine who is eligible for the service and, (2) to establish a file for each person deemed eligible for enrollment.

Registration for EASYRIDE is, typically, transacted by telephone. A person (or his/her agent, i.e. social worker, relative, friend) calling to register is directed to a reservation clerk who determines the applicant's eligibility status based on EASYRIDE's standards of disability and residence. To be eligible for EASYRIDE a person must be a Lower Manhattan resident who is (1) under 60 and in a wheelchair, or (2) over sixty and reliant on a mobility aid (i.e. walker, braces, heavy canes, escort, or visually impaired, etc.) Lower Manhattan is defined by the East River to the Hudson River (east to west); Battery Park to 34th Street on the West Side and Battery Park to 14th Street on the East Side. On certain occassions or to serve particular contracts, exceptions to the geographic restrictions are made. Recipients of certain third party transportation subsidies may be eligible for a limited range of service although they live outside the

catchment area. For example, an indigent, disabled crime victim may be taken to court at the request of the District Attorney if no other means of transportation is available.

If a person is eligible for EASYRIDE, he/she is assigned a registration number by the clerk, who also obtains certain information from the registrant for the registrant file. The file contains information such as emergency telephone contacts, the nature of the person's disability, ethnographic information, Medicaid and Medicare status and identification numbers. Since this information will later affect vehicle assignment, trip confirmation and delivery, billing, and reporting, it is essential that the registration information be complete, accurate and easily accessible.

Prior to the automation of registration functions, all registrations were recorded manually, on individual index cards, which were filed alphabetically by last name. Each time a registrant phoned in to book a ride the card was pulled from the file by the clerk. The opportunity for misplacing and misfiling the registration cards was great. At the time of registration each file was assigned a number from the "registration book" which was, simply, a sequential list of numbers to which each new registrant was assigned in order of registration. New registration cards were placed in the back of the book and collected once a week for coding, at which time the new file would become active.

Automation of the registration process increased its efficiency in four critical ways: the reduction of error; the collection of a wider, more useful array of information; the instantaneous retrieval of information; and the elimination of wasteful paper-handling and duplicate paperwork. The time it takes to register a caller has been cut in half, and the quality of the registration has been augmented considerably.

The introduction of a pre-registration process enables the registration clerk to "short-circuit" the registration process if the applicant is

ineligible for EASYRIDE.

If the applicant is eligible for service, other time-saving devices have been built into the system to facilitate the registration procedure. As soon as the computer determines eligibility, it automatically assigns a registration number to the file. Then the clerk solicits information from the caller, entering it directly into the computer file. At the end of the day the system prints out a registration profile of each person registered that day, at the same time activating the new files, and adding their data to the aggregate EASYRIDE file. If, at the outset, the applicant does not fulfill the basic eligibility requirements, the computer will automatically reject the application, prohibiting further work on the case.

In addition to entering the new registrant in the EASYRIDE service population, the registration process also entails the collection of information which expedites other aspects of the service. To aid drivers and insure accurate billing, the registration file includes detailed address information, including in addition to street address, the cross streets and residential zone/section; this information is entered by the clerk during the registration process. Drivers and reservation clerks are also helped by the inclusion of an optional "comments" section in each file, which allows the reservation clerk to enter useful information about the particular person, such as hearing loss, if he/she is in need of a wheelchair lift-equipped vehicle although not confined to a wheelchair, and so on. These comments are printed automatically each time the files is used. The registration form also establishes medical, as well as personal emergency contacts; payment mode and billing source for every type of trip the registrant may take; and, since Lower Manhattan is ethnically diverse, the primary language spoken. (See registration form and sample registration file.)

Computerization also allows for the immediate revision of registration

information. This includes the alteration of specific registration items, such as a change in address or age or vehicle requirements, as well as a change in status, from eligible to ineligible, or the reverse. A log is printed daily, noting such changes.

Reservations

The reservation process, like the registration function, is a composite of small tasks which bear on the service in an essential way. Scheduling, trip delivery, billing, data collection and reporting are each dependent upon reservation functions.

A reservation is booked at least two days in advance, and taken over the telephone by an EASYRIDE reservation clerk. Certain trips, such as those for nutrition and employment purposes, are standing orders which are repeated regularly without the passenger having to phone in trip requests daily.

A manual reservation system, such as the one previously used by EASYRIDE, generated considerable office traffic, a concommitant degree of confusion and substantial room for error. A reservation clerk retrieved a caller's registration card from the alphabetical file where it was stored, and used the card to establish certain information about the caller (i.e., address, disability, Medicaid and Medicare numbers, etc.) The clerk then consulted a master calendar to see if the requested day/time/vehicle type was available. If availability was indicated, the clerk would write up a trip request slip with information supplied by the caller and the registration card. This slip was used later to schedule, deliver, bill and report the trip. Once recorded, the reservation was entered on the master calendar and the trip slip was placed in a pigeon hole slotted by date. The slips were consolidated into the trip schedule on the day before the trips were to be delivered, and the schedule was then used by the reservation clerks to confirm the ride and pick-up time (or note cancellations) with

the registrant, the night before the trip. The trip slips also contained information for the driver.

Trip slips continue to be an important, multi-functional aspect of EASYRIDE operations. Computerization, however, has augmented their efficacy, through the elimination of inaccuracies caused by illegible handwriting, erroneous assignment of payment mode, misfiling, mishandling, and duplication. The computerized reservation process has also reduced needless office activity, confusion and the time it takes to process a reservation.

Many of the trips which EASYRIDE deliveres are single, non-repeating trips. A person calling to book a trip is referred to a reservation clerk who enters the caller's name into the computer, locates the registration number and, with it, accesses the person's file. This registration file, with its particular array of information, then becomes an assumption which underlies the reservation procedure, saving time and insuring accuracy.* The computer will indicate at this time if a "block" has been placed on the registrant's file, prohibiting use of the service: If this is the case, the computer will also provide an explanation. (A block is placed on a file at the request of the program manager when a resident has abused the privilege of using the service — i.e., consistent no-shows; jeopardizing the safety of himself and/or other riders, etc.) If the file is clear, however, the computer will then determine if vehicle space is available in accordance with the particulars of the requested trip—day/hour/vehicle type. The computer will also determine if the registrant is eligible for the particular type of trip requested.** Once this has been ascertained and affirmed — within seconds — the ride can be reserved.

* For instance, home address, disabilities, etc.

** i.e. a person only eligible for Medicaid subsidization (i.e., lives outside the EASYRIDE catchment area) will be rejected for a recreation trip.

The reservation process, like the registration process, is conducted over the telephone with the clerk obtaining certain information from the caller and entering it into a screen. In the case of a reservation, the clerk will want to know the reservation source (for billing purposes), trip purpose, Medicaid approval if applicable, if the apartment is a walk-up, where the trip originates, where it terminates, and so on. (See EASYRIDE reservation specifications.) Some of this information, especially that which relates specifically to the trip, will have to be obtained each time a person calls to reserve a ride. But other details will, most likely, repeat each time the caller books a ride. Therefore, to save time and energy, the computer is programmed to make certain assumptions about the reservation, unless the clerk indicates otherwise: that the passenger will be picked up at the home address listed on the registration form; that the passenger will be picked up for the return trip at the same place he/she was deposited; that the passenger will be returned to his/her home; that certain trips (some or all kinds) can be taken; that a particular vehicle type is necessary. Without input from the clerk, the computer will observe and print this information on the trip slip.

Although many trips are non-repeating, the destinations travelled to frequently are popular. Consequently, a feature to accomodate these familiar travel patterns has been built into the EASYRIDE system. Any destination which has been travelled to more than once is abbreviated into a code (i.e., Grand Street Medical Group would be GSM). By simply entering the code, the computer will know and print the full name and address (including cross streets) of the destination.

The EASYRIDE computer system also allows for standing order trips — trips which are taken by an individual to the same destination on a regular basis. Rather than treating these trips as if they were unrelated, requiring separate entry each time, the computer accepts a reservation

entered once, for a trip which is repeated at certain intervals within a year (i.e., once a week to the physical therapist). Without further intervention from the reservation clerk, the computer treats a standing order as if it was entered individually each time a trip is to be taken. It is also possible to cancel or alter a standing order.

Return trips present a problem for a system like EASYRIDE, for while outgoing trips are pre-scheduled on a demand-response basis, return trip time is often variable, depending on the nature and destination of the trip. Therefore, in those cases where the return trip time is not pre-arranged, return trips are scheduled on a "will call back" basis — the passenger has called the service to indicate that he is ready, the first available vehicle is dispatched to pick him up. In some of these cases, however, the return times can be estimated and the pick-up anticipated and planned for. There are now three categories of return trips: set time, expected times, and open times, enabling all but the least predictable returns to be accounted for in the reservation process.

The end result of the reservation process is the production of a trip request for each ride, containing information about the passenger and the trip. This information is stored in the computer until the day before the trip, when the individual trip requests are printed out on gummed paper by the printer. These requests are then used by the schedulers to make the master schedule. (See trip slip sample.)

Scheduling

Scheduling flows from the reservation process. The scheduler determines the most logical order of service delivery, using the day's trip requests to create individual driver trip logs. The scheduler's function is complicated, for it requires the allocation of trips to each driver such

that each series of pick-ups and drop-offs is geographically compatible.*

Prior to the development of the EASYRIDE computer system, scheduling trips was a manual procedure involving the exercise of considerable discretion. The scheduler grouped the reservations for a particular day according to the vehicle type required (lift equipped or not) and the time of the appointment, in hourly increments. These groups were then subdivided by location, clustering trips which shared a similar origin. This formed the rudiments of the trip log. The scheduler then established the order and time for the pick-ups and drop-offs to be made.

Attempting to automate the scheduling process completely is precluded by the arrangement of streets and the vagaries of New York City traffic; a computer cannot know, for example, how streets are related to each other, or where left turns are prohibited. However, EASYRIDE has developed computer assisted scheduling — a semi-automated system which relieves the scheduler of the mechanical aspects of the task, leaving him/her to complete the job.

The entry of certain trip information at the time of the reservation enables the computer to aggregate, then sort, the reservations according to the following order: appointment time, pick-up zone/sector, drop-off zone/sector, wheelchair or non-wheelchair lift vehicle, producing, finally, a sequential trip list. The scheduler uses this list to determine the order and time of pick-ups, making-up the driver trip logs, which are distributed to the drivers and posted for reference in the central office.

Billing

EASYRIDE was conceived, in part, to demonstrate the possibility of establishing a comprehensive paratransit service for the disabled

* The rides within a series (for example, pick-ups for appointments at noon) and rides between series (for example, the set of pick-ups following the last drop-off) must correspond with, or at least not preclude, each other.

by integrating multiple funding sources. Unlike most transportation services for the disabled, which are restricted to recipients of specific subsidies or clients of particular agencies or limited to trips of a certain kind, EASYRIDE offers disabled persons the same, unrestricted travel options as those available to riders of regular public mass transit. In providing a multi-purpose service, however, EASYRIDE has encountered some of the difficulties which discourage other transportation services for the disabled from following suite. These include (1) the requirement common to many funding sources that billing forms and reporting requirements unique to that source be used; (2) the specific nature of most grants and contracts, are applicable only to prescribed trips for certain persons. Moreover, EASYRIDE has a rate schedule which requires the collection of a fare for certain trips. In addition, some of these trips are billed to the appropriate source even though they require a fare from the passenger. Indeed, the complexities of third party billing impeded EASYRIDE from increasing its number of contracts, although such contracts are essential for the service to become institutionalized.

Automation of the EASYRIDE billing system has expanded the system's capacity for taking on diverse contracts, enabling EASYRIDE to extend service to the Lower West Side of Manhattan. Computerization has given EASYRIDE the flexibility of conforming to the various requirements of different billing sources, including the option of billing trips on a geographic, zone/sector rate or on an average cost per trip basis. Moreover, automation insures the accuracy of billing despite its complex nature.

The EASYRIDE billing system is automaticaly activated when a trip is reserved and "residential zone/sector" and "reservation source" are

entered.* It is at this time, too, that the computer determines if the proposed trip conforms to the parameters imposed by the funding source — for instance, if age or geographic specifications are met, etc. Those trips which do not meet the eligibility requirements for the "reservation source" are rejected.

Once a reservation has been accepted and the computer has identified the proper payment source, the charge for the ride is determined according to a programmed, pre-established rates schedule. EASYRIDE now bills trips on an average cost per trip basis, adjusted quarterly.

Trips are billed on the basis of the trip log. Using the trip log as a receipt, the driver notes the time which the passenger was picked-up and dropped-off (or if the passenger did not show up for the trip).** The trip logs are given to a coder at the end of the day, and their information is entered into the computer. Since all billing sources require signed receipts, the computer will automatically print duplicate trip slips for these trips. The duplicate slips are similar to the regular trip slips, but include the passenger's prior authorization number and a signature line. The driver is responsible for obtaining the passenger's signature and turning over the signed receipts to the EASYRIDE office manager at the end of each day.

Reporting

Automation has a systematic method of data collection and, concommittantly, a capability for versatile reporting, far greater than that available through a private data processing vendor at a comparable cost.

* There are currently two categories of "reservation source":
1. PRIMARY RESERVATIONS: those booked by one of three third party payors: Medicaid, Project Outward Bound - Federation of the Handicapped and the Office of Vocational Rehabilitation; and
2. SECONDARY RESERVATIONS: those booked by individuals and charged to a second level of contractors, depending on the nature of the ride or registrant.

** Cancelled trips are automatically excised from the records. No shows, however, are billed as one way trips for the first two consecutive times. After that it is assumed that the trip is permanently cancelled.

With all trip functions on-line, the EASYRIDE computer system is able to produce trip and passenger reports for internal purposes, as well as reports which can be used to satisfy the requirements of various funding sources. Thus, on a monthly basis EASYRIDE produces separate reports of: 1) operations and registration statistics; 2) registrants, by alphabet; 3) a roster of unsubsidized trips; 4) a roster of registrants by billing source; 5) a roster of subsidized trips; 6) registrants who have cancelled trips, and how often; on a weekly basis EASYRIDE reports on: 1) agencies which have funded trips and 2) a summary of trips; on a daily basis, a report is issued noting registration changes.

These reports can be modified, or others can be designed and produced as needed. (See sample reports.)

System Management

Ultimate authority for the EASYRIDE system is vested in the project manager and the Vera Institute MIS director, through certain "systems management" options available only to him. The manager may put a block on certain files, change the daily passenger capacity, change user identification, numbers, check the registration summary, including those people registered that day, and update the working day calendar. Moreover, because all computer transactions require entry of the operator's identification number, the system has an additional control built into it: worker accountability.

Conclusion

The benefits of the EASYRIDE computer system have been immediate. EASYRIDE has been able to extend the service throughout Lower Manhattan, adding seven vehicles to the fleet and absorbing a great increase in the service population. Automation has augmented office efficiency, reducing the amount of time it takes to perform various operations; the scheduler, for instance is now able to do the work required to schedule sixteen buses

in the time it took to schedule ten. Increased efficiency has also meant that information is easily stored and readily available, that bills are produced promptly and accurately despite their complexity and that, in a systemic way, mistakes have been reduced. In cases where mistakes have been made, the system insures accountability. Ultimately, the major beneficiaries of the EASYRIDE computer system are the passengers whom EASYRIDE now serves more responsively.