

An Inventory of Twelve Paratransit Service Delivery Experiences

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The provision of any public transportation service is costly, but the costs associated with transporting the disabled are particularly high. These costs vary considerably from city to city, depending on the extent and quality of the service. An informal inventory of transportation for persons with disabilities in some of the urban areas of the United States and Canada is presented in this paper. Information was collected from 12 cities in an attempt to investigate alternative forms of service and observe the level of uniformity and equity in the delivery of this specialized transportation. These data are summarized in order to give readers a picture of the current state of paratransit service in selected urban areas. In addition, the authors include their suggestions for what would constitute "state-of-the-art" service.

The setting in which specialized transport for the disabled has developed is complicated. Various geographical, demographic, social, political, and economic factors all helped shape these systems and continue to influence the availability, accessibility, and affordability of specialized service. Working with limited funds, local units of government have developed their own individual guidelines for both quality and extent of service to variously defined user groups. In many cases this service has evolved largely as a by-product of other programs to help the elderly and disabled reach services.

From a national perspective, then, the current provision of specialized transit for disabled users is both variable and inequitable. Because this service has usually evolved "after the fact" of regular public transit service, and under pressure from different local political influences, it usually has not had the benefit of comprehensive long-term planning. Furthermore, since each system has been unique, adequate comparisons have been lacking. The advent of federal "504" regulations, however, marks a first step in standardization of service for disabled users nationwide. It is, therefore, an appropriate time to take a look at what a cross section of communities are currently doing to provide specialized transportation service.

The results of a survey of 12 specialized transit providers are presented in this paper. As expected, results showed great variability in all areas, including extent of service, hours of operation, fares, trip subsidies, administrative costs, and so on. The purpose of this paper is to

- Clarify the differences that obviously exist;
- Review "504" and its possible effect on existing services;

- Heighten awareness of good practices;
- Review "state-of-the-art" practices;
- Suggest areas and methodologies for further study; and
- Encourage public-private cooperation in service delivery.

One concern of the authors of this paper is that, in the incredibly complicated morass of regulations, escalating costs, and paper trails, the real goal of specialized transit is being lost, namely, providing safe, affordable, equitable public transportation to the disabled.

PROJECT OVERVIEW

Public transit operators offer two types of transportation service for the handicapped population. The first is their traditional fixed-route bus or rail service, which many disabled persons cannot use. In some localities these fixed-route services have been made more accessible through the use of vehicles modified for the semiambulatory and persons in wheelchairs.

In addition to regular transit services, public transit operators often provide, or purchase from private providers, paratransit services, including shared-ride taxi or van services on a demand-responsive or subscription basis. These services are offered to meet the specific needs of that portion of the elderly and disabled population who cannot use the fixed-route system because it is not accessible to them.

In most cases, service is purchased rather than provided directly. The providers being hired include private for-profit taxi or van carriers, human service agency providers, and nonprofit transportation operators (usually supplying wheelchair accessible services). Purchase of service contracts is done either directly with carriers or indirectly through a brokerage organization. The method of subsidy can be either a user-side subsidy issued in ticket form directly to potential riders or a reimbursement to carriers for units of service rendered, in hourly or trip unit measures.

In this project, most of the cities studied used private for-profit carriers and some nonprofits. Private for-profit carriers, such as taxis and van and bus companies, contract with public transit authorities to provide transportation for disabled persons. (In most cases, private carriers can only be direct recipients of public funding if sponsored by another local public agency. Often the continued availability of such carriers for providing privately requested services is only a result of their subsidy from other public sources.)

There are also a number of private nonprofit carriers that may receive some types of public funding directly, as do public

transit agencies, but they are incorporated by private individuals independent of the government. The mission of these carriers may range from general transportation for the elderly to accessible services for disabled persons.

The purpose of this project is to present an overview of the major findings from an informal survey in order to provide information for transit decision makers at all levels.

Methodology

This study was conducted in two stages. First the authors sent out an exploratory survey asking for information regarding city size, area served, and description of service. This written survey was followed by telephone interviews in which the written information was clarified and detailed.

The results of the survey are summarized and commented on in this paper. Also presented are discussions of "504" regulations and how current services match up to the new rules. The paper concludes with observations regarding efficiency, effectiveness, demand estimation, policy objectives, and several operational issues.

Provider Objectives

The transit agencies from the 12 cities studied were interested in sharing information and, therefore, cooperated in data collection. Their objectives for participating included

- Improving service;
- Gathering material to present to boards for comparisons;
- Boosting productivity;
- Preserving a "free-market system" for the user and provider;
- Complementing existing public transit; and
- Making program administration as simple and inexpensive as possible.

Comparing service from different cities creates an awareness of effective and innovative paratransit techniques. The authors hope that this information sharing among specialized transit providers from different cities will lead to further discussion and joint planning endeavors.

"504" Requirements

Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), states that no otherwise qualified individual shall, solely by reason of his or her disability, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance. Section 16 of the Urban Mass Transportation Act of 1964, as amended (49 U.S.C. 1612), and Section 105 of the Federal-Aid Highway Amendments of 1974 (23 U.S.C. 142 nt), also require that special efforts be made in the planning and design of facilities and services to ensure the availability of mass transportation which can be effectively used by the elderly and disabled population.

In April 1976, the Urban Mass Transportation Administration (UMTA) issued regulations requiring that transit operators receiving financial assistance make special efforts to provide transportation that disabled persons could use. In January 1978,

the Department of Health, Education, and Welfare issued guidelines on the responsibilities of each federal agency under Section 504. On May 31, 1978, the U.S. Department of Transportation (DOT) issued a regulation that required all recipients of financial assistance from DOT to make their facilities and programs accessible to disabled persons by specified deadlines. These regulations superseded the existing UMTA regulations.

For recipients of mass transportation funds, DOT's regulations meant that all buses purchased had to be equipped with wheelchair lifts until at least half of the peak-hour fleets were equipped with lifts; all new rapid rail facilities had to be accessible; key stations of existing rail systems had to be retrofitted to make them accessible; and, by July 1982, interim accessible transportation had to be provided for handicapped persons until transit service accessibility was achieved.

These regulations aroused considerably controversy in DOT, the transit system receiving federal mass transit assistance, and the various organizations for the elderly and disabled. The American Public Transit Association, among others, filed a suit challenging the rule. On May 26, 1981, a federal court decided that the rule exceeded the authority provided by Section 504 and returned the regulations to the Secretary of Transportation for a determination of whether the mass transit accessibility requirements might be authorized by other statutes.

Accordingly, DOT issued an interim rule on July 20, 1981, rescinding the accessible mass transit requirement by substituting a local option approach. It is now DOT's policy that ensuring the provision of transportation of disabled persons is an obligation of recipients of federal assistance for mass transit, but the responsibility for deciding how such transportation is to be provided should be returned to local communities. Under the interim rule, DOT requires that recipients of financial assistance certify that they are making special efforts to provide transportation to disabled persons through locally determined methods.

This July 1981 interim rule was replaced on May 20, 1986, by a new rule. It allows each transit authority, after consulting with disabled persons and other interested members of the public, to choose the type of service it wants to provide. For example, a transit authority could provide service through scheduled or on-call accessible buses, paratransit vans, subsidies for taxi fares, or any combination of these services. The new rule contains six "service criteria" that apply to this special service:

- Anyone who, by reason of disability, is physically unable to use the bus system for the general public must be treated as eligible for the service.
- The service must operate during the same days and hours as the bus service for the general public.
- The service must operate throughout the same geographic area as the bus service for the general public.
- Fares for trips on the two services must be comparable.
- Service must be provided within 24 hr of a request for it.
- Transit providers may not impose restrictions or priorities based on trip purpose.

The amount of money transit authorities are required by the rule to spend on service for disabled persons is limited to 3 percent of their operating expenditures. If they cannot meet all six criteria without exceeding this figure, they will be permitted

to provide service that falls short of one or more of the criteria. Court decisions have said that the DOT's requirements for service to disabled persons may not impose undue financial burdens on transit authorities. This feature of the rule is designed to prevent such burdens.

Another feature requires that each transit authority give disabled and other interested persons the opportunity to participate in the service planning process. UMTA will monitor the performance of transit authorities to ensure that they carry out their responsibilities properly.

Between the writing of this paper and its publication there have been court cases relevant to "504" that readers should be aware of:

- In a January 1988 landmark case, Patricia Patton, chief administrative judge for the Illinois Human Rights Commission, ruled that the Chicago Transit Authority (CTA) violated the civil rights of four disabled plaintiffs. Patton ordered the CTA to offer its wheelchair riders both options: main-line bus access and dial-a-ride service, forcing the agency to spend millions of dollars to acquire and maintain lifts on hundreds of new buses.

- Also in January, Federal Judge Marvin Katz (Philadelphia) struck down the portion of the DOT regulations limiting the amount transit authorities have to spend to provide disabled transportation. Katz called 3 percent an arbitrary and capricious figure that was so low it denied the handicapped "the minimum quality of service mandated by the Congress."

In this paper the existing service delivery is reviewed with the six criteria established in "504." This review helps to emphasize those areas of concern in transport delivery for disabled users.

SURVEY RESULTS AND "504"

Transit systems that receive federal assistance have certified to UMTA that they are making special efforts to meet the transportation needs of the disabled users. These special efforts are not uniform nor are the service characteristics at all similar. However, some of the similar issues that are beginning to emerge include

- The financial impact of special services on the regular transit system and on private taxi operators;
- The ways to use available funds most effectively in providing special services through both public and private transportation facilities; and
- The relationship between paratransit services and regular transit systems and transit system employees.

It was with these conditions and issues in mind that a survey instrument was designed. Although this survey cannot provide a complete picture of the specialized services, it does identify the variety of options that are available to local officials and the need to fit solutions to local situations.

Service Summaries

The initial survey form used is shown in Figure 1. The first form gave the authors some idea of the type of information that

Urban Handicapped Specialized Transit

1. CITY _____
2. Special Services Coordinator _____ Date _____
3. Service Area _____
4. Number of Providers _____
5. Total population of service area _____
6. Days of service _____
7. Hours of service _____
8. Number of vehicles _____
9. Eligible Users: elderly _____ handicapped _____ other _____
10. Average User Fare _____
11. Annual Mileage _____
12. Annual ridership _____
13. Annual vehicle hours _____
14. Average weekday ridership _____
15. Total annual trips _____
16. Average trip cost _____
17. Trip time greater than 90 minutes (% of total trips) _____
18. Percent of trips picked up within \pm 10 minutes _____
19. Percent of trips picked up 10-30 minutes late _____
20. Percent of trips picked up 60 minutes late _____
21. Total annual cost of service delivery _____
22. Administrative cost (% of total cost) _____

FIGURE 1 Initial survey form.

was readily available. Some data, such as "lateness of pickup," were not recorded by most agencies and therefore are not available. Analysis of this information helped to develop a second survey to be used in a follow-up telephone interview.

The follow-up telephone survey is shown in Figure 2. The form collected three types of information. The information at the top provides a contact specifically designed for information-sharing and the development of helping networks. The middle of the form collected information relative to service type groupings. This part elicited information on types of providers, days of service, hours of service, operations budget, and fares, to mention a few. The bottom part of the form is the comment section. It was here that miscellaneous information was collected that helped describe the service but was not uniform enough for a general comparison.

The costs, efficiency, and effectiveness of services appear to vary widely. However, the variety of both local arrangements and reporting procedures makes it misleading to directly compare service performance measures. In the interest of examining specific information pertaining to each approach, however, a completed survey of key characteristics is provided in Figure 3. Following these completed surveys is a summary table (Table 1) that allows the reader to compare information more easily.

CITY: _____
 SYSTEM: _____
 CONTACT: _____
 TITLE: _____
 ADDRESS: _____
 PHONE: _____

DESCRIPTION OF SERVICE

SERVICE AREA (SQ. MILES): _____ TOTAL POPULATION: _____

OF PROVIDERS: TOTAL _____ PUBLIC: _____; FOR-PROF: _____; NON-PROF: _____

DAYS OF SERVICE CONVENTIONAL: _____ SPECIAL: _____

HOURS OF SERVICE CONVENTIONAL: _____
 SPECIAL: _____

OPERATING BUDGET CONVENTIONAL: _____ SPECIAL: _____

ELIGIBLE USERS DISABLED ONLY: _____ ELDERLY: _____

ANNUAL MILEAGE: _____

ANNUAL HOURS OF SERVICE: _____

ANNUAL ONE-WAY TRIPS: _____

AVERAGE USER FARES: AMBULATORY _____; NON-AMBULATORY _____

AVERAGE SUBSIDY PER TRIP: AMBULATORY _____; NON-AMBULATORY _____

CONVENTIONAL TRANSIT FARE: _____

COMMENTS:

FIGURE 2 Follow-up telephone survey form.

Possible Changes Under "504"

The data collection for this paper appears to be rather timely. In a way it established a "benchmark" for service characteristics just before the required "504" plan submittals of June 23, 1987. With the advent of revised service criteria under "504," there are likely to be some changes in such service areas as days of service, hours of service, operating budget, and fares.

Following is a review of the "504" criteria one by one, with a brief discussion of some problems, issues, and probable changes.

"504" Criteria

1. "Anyone who, by reason of disability, is physically unable to use the bus system for the general public must be treated as eligible for the service."

The term "disability" includes such a large range of conditions and situations that any analysis of what should be done to improve transport options available to persons with disabilities is greatly complicated. Mobility is a key concern both of disabled persons and of social workers who see the lack of adequate transport as a major block to the normalization process. The major goal of specialized transit service, therefore, should be to enable such people to move about as freely as possible. Because of the diversity of disabling conditions, the transport services must be flexible and responsive in order to be available to all.

Defining and certifying eligibility for special transit services have been a continuing problem in many cities. Some systems

address temporary versus permanent disability; still others attempt to address blindness, mental retardation, and deafness. There are systems that have set up a very narrow window of eligibility. Will the widening of that eligibility force the governmental entity to the brink of "bankruptcy"? Should there be standard eligibility requirements for all to follow? In certifying riders as eligible, some systems use a physician's statements; others require statements from two physicians; others remind the physician of how heavy a demand is on the system and remind the physician of his or her responsibilities. Other systems do a combination observation and physical statement.

2. "The service must operate during the same days and hours as the bus service for the general public."

The results of the telephone interviews showed that comparing the number of days and hours of special versus conventional service is complicated by reporting technicalities. Some systems report 24-hr availability with taxis, but these may not serve wheelchair users; thus the service is restrictive. Some systems match conventional transit hours, but only on a space-available basis—another restriction. Still others limit availability past certain hours to trips that require extra late hours, such as dialysis or night shift jobs.

While sounding simple, this criterion is actually quite complex. As with the other criteria, there are large cost implications. In order to reduce spending, it may be necessary for some transit systems to cut back their conventional transit service hours to match those of the handicapped service.

3. "The service must operate throughout the same geographic area as the bus service for the general public."

The question of geographic area served is often complicated by political boundaries that force limited travel patterns; and the current low fare recovery problems may cause systems with previously overlapping boundaries to withdraw to even stricter service boundaries. The situation is further complicated by differing hours of service between city and suburban boundaries. Many systems have countywide special services, even though their conventional systems are more limited geographically.

4. "Fares for trips on the two services must be comparable."

There are widely varied interpretations of "comparable fares." Where half-fares are being charged, particularly in systems offering extensive service to the elderly, what is the basis for offering a lower fare to a few if there are still people not being served by the system? In addition, the systems that charge the same as conventional service, for what is effectively express route service, without need of transfers, may want to rethink their policies, particularly where transfers are a high percentage of all conventional trips. In addition, there are systems that provide service that does not live up to the intent of law because of one or more of the following:

- Highly restrictive service zones and areas;
- Narrow windows of eligibility; and
- Subsidy ceilings.

5. "Service must be provided within 24 hours of a request for it."

Service provision within 24 hr is only effective if a client can be guaranteed a trip within that time. In some systems, trip

CITY: Minneapolis, St. Paul, MN
 SYSTEM: Regional Transit Board
 CONTACT: Linda Ehlers
 TITLE: Special Services Coordinator
 ADDRESS: Suite 270 Metro Square Building, St. Paul, MN 55101
 PHONE: 612-292-8789

DESCRIPTION OF SERVICE

SERVICE AREA (SQ.MILES): 633 county TOTAL POPULATION: 1,754,000

OF PROVIDERS: TOTAL: 19 (PUBLIC: 0; FOR-PROF: 16; NON-PROF: 3)

DAYS OF SERVICE CONVENTIONAL: 365 days SPECIAL: 365 days

HOURS OF SERVICE CONVENTIONAL: 0500 - 0100

SPECIAL: 0600 - 2300 M-F/ 0800 - 2300 S-S

OPERATING BUDGET CONVENTIONAL: 92,881,000 SPECIAL: 6,635,200

ELIGIBLE USERS DISABLED ONLY: 9,300 ELDERLY:

ANNUAL MILEAGE: 4,457,700

ANNUAL HOURS OF SERVICE: N/A

ANNUAL ONE-WAY TRIPS: 658,800

AVERAGE USER FARES: AMBULATORY: 1.15 NON-AMBULATORY: 1.15

AVERAGE SUBSIDY PER TRIP: AMBULATORY: 5.50 NON-AMBULATORY: 11.50

CONVENTIONAL TRANSIT FARE: .75

COMMENTS: Fares are charged at \$1.00 base rate, plus increases per mile over 8 miles to a maximum of \$3.75. Conventional transit has a zone fare of about \$.75. The system has experienced substantial growth. A fixed trip rate, determined by RTB, may have inspired providers to increase the number of riders carried per trip. Riders are charged an annual registration fee (\$10 for subscription and \$5 per change). Trip requests are received between 0600-1430 Monday-Friday, and 0800-1430 Saturday-Sunday. Computers are being installed to assist program scheduling and statistics. Riders have a free choice of which providers to use; however, providers may turn down ridership requests. Insurance is limited to \$300,000 combined single limits, similar to that of the taxi cab industry. Service is actually being provided in 2 counties; hence the comparatively large service area.

CITY: Toronto, Ontario, Canada
 SYSTEM: Toronto Transit Commission
 CONTACT: Frank J. Ahlin
 TITLE: Coordinator, WheelTrans
 ADDRESS: Operations Branch, 1900 Yonge St., Toronto, Ontario M4S1Z2
 PHONE: 416-393-4000

DESCRIPTION OF SERVICE

SERVICE AREA (SQ.MILES): 244 TOTAL POPULATION: 2,150,000

OF PROVIDERS: TOTAL: 1 (PUBLIC: 0; FOR-PROF: 1; NON-PROF: 0)

DAYS OF SERVICE CONVENTIONAL: 365 days SPECIAL: 365 days

HOURS OF SERVICE CONVENTIONAL: 24 hours

SPECIAL: 18 M-F, 16 S-S

OPERATING BUDGET CONVENTIONAL: SPECIAL: 11,858,300

ELIGIBLE USERS DISABLED ONLY: 14,000 ELDERLY: 0

ANNUAL MILEAGE: 3,712,311

ANNUAL HOURS OF SERVICE: 278,122

ANNUAL ONE-WAY TRIPS: 526,324

AVERAGE USER FARES: AMBULATORY: 1.00 NON-AMBULATORY: 1.00

AVERAGE SUBSIDY PER TRIP: AMBULATORY: 21.60 NON-AMBULATORY: 21.60

CONVENTIONAL TRANSIT FARE: 1.00

COMMENTS: In Canada, public transportation is a provincial responsibility. In 1975, at the request of Toronto's Human Services agencies, WheelTrans was formed. WheelTrans does all call intake, scheduling, and dispatching to a fleet of station wagons and Orion buses, which carry approximately 50% ambulatory and 50% wheelchair passengers. WheelTrans requires 2 medical signatures to qualify applicants. Subscription riders must purchase monthly passes and pay an additional fare if destinations are changed. Pick-up times may be altered by WheelTrans staff and some trip reservations are confirmed less than 24 hours in advance. 9.9% of non-subscription trips are rejected; however, many of these reschedule at a later time. WheelTrans has a rule calling for people on three-wheelers (ex., Amiga) to transfer. In other words, they are not permitted to ride their personal vehicle inside the WheelTrans vehicle. It should be noted that costs are given in Canadian dollars; current exchange rates are \$1.37 U.S. Users who purchase vouchers for both conventional and specialized earn a .20 discount on trips.

CITY: Miami, FL
 SYSTEM: Metro-Dade Transportation Administration
 CONTACT: Cal Marsella
 TITLE: Chief, Paratransit Services
 ADDRESS: 300 N.W. 32nd Avenue, Miami, FL 33152
 PHONE: 305-638-6448

DESCRIPTION OF SERVICE

SERVICE AREA (SQ.MILES): 250 county TOTAL POPULATION: 1,800,000

OF PROVIDERS: TOTAL: 2 (PUBLIC: 0; FOR-PROF: 2; NON-PROF: 0)

DAYS OF SERVICE CONVENTIONAL: 365 days SPECIAL: 365 days

HOURS OF SERVICE CONVENTIONAL: 0500-0200

SPECIAL: 0600-1200

OPERATING BUDGET CONVENTIONAL: 134,634,000 SPECIAL: 2,100,000

ELIGIBLE USERS DISABLED ONLY: 5,500 ELDERLY: none

ANNUAL MILEAGE: 1,200,000

ANNUAL HOURS OF SERVICE: n/a

ANNUAL ONE-WAY TRIPS: 150,000

AVERAGE USER FARES: AMBULATORY: 1.77 NON-AMBULATORY: 1.77

AVERAGE SUBSIDY PER TRIP: AMBULATORY: 11.56 NON-AMBULATORY: 20.46

CONVENTIONAL TRANSIT FARE: .75

COMMENTS: The Metro-Dade system is administered by Dade County. The system uses a sliding scale of fares that were reduced this year by \$1.00. Metro Dade also eliminated the need for a waiting list. The new service implementation plan was endorsed unanimously by disabled groups. Before riders are registered for working trips, they are first referred to the availability of a car-pool. If appropriate, two private contractors form a single consortium that subcontracts to 4 other private providers. A pick-up window of 10 minutes before or 20 minutes after is considered on-time. Administrative costs are included in the special service budget.

CITY: Pittsburg, PA
 SYSTEM: Allegheny County Port Authority (PAT)
 CONTACT: Tom Letky
 TITLE: Manager of Consumer Services
 ADDRESS:
 PHONE: 412-237-7000

DESCRIPTION OF SERVICE

SERVICE AREA (SQ.MILES): 729 county TOTAL POPULATION: 1,500,000

OF PROVIDERS: TOTAL: 15 (PUBLIC: 0; FOR-PROF: 11; NON-PROF: 4)

DAYS OF SERVICE CONVENTIONAL: 365 days SPECIAL: 365 days

HOURS OF SERVICE CONVENTIONAL: 0500 - 0200

SPECIAL: 0600 - 2400

OPERATING BUDGET CONVENTIONAL: 170,000,000 SPECIAL: 3,500,000

ELIGIBLE USERS DISABLED ONLY: 5,800 ELDERLY: 16,000

ANNUAL MILEAGE: 8,600,000 includes all human service agencies

ANNUAL HOURS OF SERVICE: 610,000

ANNUAL ONE-WAY TRIPS: 1,400,000

AVERAGE USER FARES: AMBULATORY: .87 NON-AMBULATORY: 1.15

AVERAGE SUBSIDY PER TRIP: AMBULATORY: 8.50 NON-AMBULATORY: 8.50

CONVENTIONAL TRANSIT FARE: 1.00

COMMENTS: PAT serves both elderly and handicapped riders according to a Port Authority designed implementation plan. The system is managed by a private management company. The PAT brokerage system involves many different human services agencies and many of the cost savings come from coordinating these services by Access Transportation System, Inc. on behalf of PAT. The number of miles, hours, and trips designated on the services represent all human services combined. The system is countywide and operates under one budget. The average hourly rate for taxis and lift vehicles is \$17.25 per hour. Rides are also available to the general public at an approximate subsidy of \$9.48 per revenue passenger. There has not been a purge of registered riders since 1979.

FIGURE 3 A completed survey of key characteristics.

CITY: Cleveland, OH
 SYSTEM: Cleveland Regional Transit Authority (CRT)
 CONTACT: W. George Wiedefeld
 TITLE: Superintendent of Extra Life Program
 ADDRESS: 615 Superior Avenue, N.W., Cleveland, OH 44113
 PHONE: 216-431-1110

DESCRIPTION OF SERVICE

SERVICE AREA
 (SQ.MILES): 458 TOTAL POPULATION: 1,460,561

OF PROVIDERS: TOTAL: 2 (PUBLIC: 1; FOR-PROF: 1; NON-PROF: 0)

DAYS OF SERVICE CONVENTIONAL: 365 days SPECIAL: 313 days

HOURS OF SERVICE CONVENTIONAL: 24 hours
 SPECIAL: 0600 - 1930

OPERATING BUDGET CONVENTIONAL: 140,000,000 SPECIAL: 3,475,000

ELIGIBLE USERS DISABLED ONLY: 43,467 ELDERLY: 153,619

ANNUAL MILEAGE: 1,115,946

ANNUAL HOURS OF SERVICE: 110,959

ANNUAL ONE-WAY TRIPS: 388,088

AVERAGE USER FARES: AMBULATORY: .40 NON-AMBULATORY: .40

AVERAGE SUBSIDY PER TRIP: AMBULATORY: 6.00 NON-AMBULATORY: 14.00

CONVENTIONAL TRANSIT FARE: .85

COMMENTS: A new service implementation plan has been submitted. CRT personnel are getting their computers programmed to better analyze different categories of trips being handled. The system offers half fare to pass holders and offers dialysis medical trips additional hours of availability. The program is divided into 18 service areas, including centralized destinations, each with a rotation of days and hours of service. The system has waiting lists of qualified users. During off-peak hours both ambulatory and non-ambulatory fares are .25.

CITY: Chicago, IL
 SYSTEM: Chicago Transit Authority
 CONTACT: John Roth
 TITLE: Private Sector Plans and Programs/Special Services
 ADDRESS: Merchandise Mart, P.O. Box 3555, Chicago, IL 60654
 PHONE: 312-664-7200, ext 4577

DESCRIPTION OF SERVICE

SERVICE AREA
 (SQ.MILES): 242 TOTAL POPULATION: 3,300,000

OF PROVIDERS: TOTAL: 4 (PUBLIC: 0; FOR-PROF: 4; NON-PROF: 0)

DAYS OF SERVICE CONVENTIONAL: 365 days SPECIAL: 365 days

HOURS OF SERVICE CONVENTIONAL: 24 hours
 SPECIAL: 0500 - 0100

OPERATING BUDGET CONVENTIONAL: 661,000,000 SPECIAL: 10,800,000

ELIGIBLE USERS DISABLED ONLY: 14,000 ELDERLY:

ANNUAL MILEAGE: 3,444,162

ANNUAL HOURS OF SERVICE: n/a

ANNUAL ONE-WAY TRIPS: 737,300

AVERAGE USER FARES: AMBULATORY: .90 NON-AMBULATORY: .90

AVERAGE SUBSIDY PER TRIP: AMBULATORY: 12.19 NON-AMBULATORY: 14.09

CONVENTIONAL TRANSIT FARE: .90

COMMENTS: *504* service implementation plan calls for 24 hour service systemwide by October 1987. Reservation time is from 8 to 24 hours in advance. Riders can choose from any of 4 different providers to go when and where they choose. Computerized system prints tickets at provider satellite locations, where subsequent trip information is posted within 48 hours of transportation. CTA providers accept requests for service 7 days per week.

CITY: Houston, TX
 SYSTEM: Metropolitan Transit Authority (Metro)
 CONTACT: James Laughlin
 TITLE: Manager, Metro Lift Services
 ADDRESS: 500 Jefferson, P.O. Box 61429, Houston, TX 77208-1429
 PHONE: 713-739-4986

DESCRIPTION OF SERVICE

SERVICE AREA
 (SQ.MILES): 375 TOTAL POPULATION: 2,600,000

OF PROVIDERS: TOTAL: 4 (PUBLIC: 0; FOR-PROF: 4; NON-PROF: 0)

DAYS OF SERVICE CONVENTIONAL: 365 days SPECIAL: 365 days

HOURS OF SERVICE CONVENTIONAL: 0530 - 2400
 SPECIAL: 0600 - 2300

OPERATING BUDGET CONVENTIONAL: 137,000,000 SPECIAL: 4,800,000

ELIGIBLE USERS DISABLED ONLY: 14,500 ELDERLY: 0

ANNUAL MILEAGE: 4,190,947

ANNUAL HOURS OF SERVICE: 246,962

ANNUAL ONE-WAY TRIPS: 411,837

AVERAGE USER FARES: AMBULATORY: 1.00 NON-AMBULATORY: 1.00

AVERAGE SUBSIDY PER TRIP: AMBULATORY: 4.95 NON-AMBULATORY: 9.91

CONVENTIONAL TRANSIT FARE: .60

COMMENTS: *504* service implementation plans calls for meeting full requirements in next fiscal year. Trip subsidies are restricted to 8 miles. Taxi service is available 24 hours. Advanced reservations of 24 hours to 6 days are required. Metro does routing and scheduling on Metrolift service. Metrolift drivers accept only passes or tickets. Taxis accept cash fares and maximum subsidy of \$8.00.

CITY: San Diego, CA
 SYSTEM: City of San Diego, Paratransit Administration
 CONTACT: Bijan Zayer
 TITLE: Manager, Dial-A-Ride
 ADDRESS: City Admin Bldg, 202 C. Street M.S. 8-A, San Diego, CA 92101
 PHONE: 619-533-4671

DESCRIPTION OF SERVICE

SERVICE AREA
 (SQ.MILES): 403 county TOTAL POPULATION: 1,000,000

OF PROVIDERS: TOTAL: 26 (PUBLIC: 0; FOR-PROF: 25; NON-PROF: 1)

DAYS OF SERVICE CONVENTIONAL: 365 days SPECIAL: 313 days

HOURS OF SERVICE CONVENTIONAL: 0500 - 2400
 SPECIAL: 24 hrs ambulatory, 11 hrs non-ambulatory

OPERATING BUDGET CONVENTIONAL: 40,451,000 SPECIAL: 1,596,750

ELIGIBLE USERS DISABLED ONLY: 11,000 ELDERLY: 0

ANNUAL MILEAGE: 760,689

ANNUAL HOURS OF SERVICE: 45,002

ANNUAL ONE-WAY TRIPS: 222,260

AVERAGE USER FARES: AMBULATORY: 1.69 NON-AMBULATORY: 1.69

AVERAGE SUBSIDY PER TRIP: AMBULATORY: 7.18 NON-AMBULATORY: 7.18

CONVENTIONAL TRANSIT FARE: .75

COMMENTS: This system is administered by the City of San Diego. Twenty-five taxi firms provide all ambulatory and semi-ambulatory trips, while Red Cross provides non-ambulatory transit at reduced hours and days of service. Riders pay for trips with coupons purchased at 75%-85% discounts. Taxi users pay distance based fares and zone based fares if non-ambulatory. 50% of San Diego Transit is conventional buses. Buses are accessible, providing approximately 20 lift uses daily. Taxis operate 24 hours for ambulatory passengers.

FIGURE 3 continued

CITY: Milwaukee, WI
SYSTEM: Milwaukee County Department of Public Works
CONTACT: Christopher Gran
TITLE: Paratransit Services Coordinator, Special Transit Services
ADDRESS: Courthouse Annex, 907 North 10th Street, Milwaukee, WI 53233
PHONE: 414-278-4896

DESCRIPTION OF SERVICE

SERVICE AREA (SQ.MILES): 251 county TOTAL POPULATION: 964,998

OF PROVIDERS: TOTAL: 13 (PUBLIC: 0; FOR-PROF: 12; NON-PROF: 1)

DAYS OF SERVICE CONVENTIONAL: 365 days SPECIAL: 365 days

HOURS OF SERVICE CONVENTIONAL: 0400 - 0100

SPECIAL: 0600 - 2400

OPERATING BUDGET CONVENTIONAL: 68,600,000 SPECIAL: 3,786,559

ELIGIBLE USERS DISABLED ONLY: 9,000 ELDERLY: 0

ANNUAL MILEAGE: 4,264,000

ANNUAL HOURS OF SERVICE: 319,000

ANNUAL ONE-WAY TRIPS: 462,006

AVERAGE USER FARES: AMBULATORY: 2.00 NON-AMBULATORY: 2.00

AVERAGE SUBSIDY PER TRIP: AMBULATORY: 6.00 NON-AMBULATORY: 9.00

CONVENTIONAL TRANSIT FARE: 1.00

COMMENTS: "504" service implementation has been submitted. The system assigns cost at which service is delivered. Subsidies are limited to 8 miles per trip. Taxi contractors provide 24 hour service. Service eligibility restricted to users of wheelchairs, walkers, 2 crutches, or the legally blind.

CITY: Dallas, TX
SYSTEM: Dallas Area Rapid Transit (DART)
CONTACT: David Naiditch
TITLE: Manager, Special Services
ADDRESS: 601 Pacific Ave., Dallas, TX 75202
PHONE: 214-748-3278

DESCRIPTION OF SERVICE

SERVICE AREA (SQ.MILES): 285 TOTAL POPULATION: 1,620,000

OF PROVIDERS: TOTAL: 8 (PUBLIC: 0; FOR-PROF: 8; NON-PROF: 1)

DAYS OF SERVICE CONVENTIONAL: 365 days SPECIAL: 313 days

HOURS OF SERVICE CONVENTIONAL: 0500 - 2200

SPECIAL: 0700 - 1800

OPERATING BUDGET CONVENTIONAL: 115,000,000 SPECIAL: 6,581,415

ELIGIBLE USERS DISABLED ONLY: 6,200 ELDERLY:

ANNUAL MILEAGE: 3,000,000

ANNUAL HOURS OF SERVICE: N/A

ANNUAL ONE-WAY TRIPS: 550,000

AVERAGE USER FARES: AMBULATORY: 1.00 NON-AMBULATORY: 1.00

AVERAGE SUBSIDY PER TRIP: AMBULATORY: 9.25 NON-AMBULATORY: 12.25

CONVENTIONAL TRANSIT FARE: .75

COMMENTS: DART'S "504" service implementation plan calls for increasing service to the disabled to 6% of the conventional budget. Of the 950 sq. mi., the city of Dallas, with a population of just under 1,000,000, represents approximately 30%. DART accepts blind and mentally retarded as transit disadvantaged. DART employs credit card imprints as proof of riders' qualifications. Riders receive monthly allocation of 44 trips. Taxis are available 0500-2400.

CITY: Boston, MA
SYSTEM: Massachusetts Bay Transportation Authority MBTA
CONTACT: Joseph Curtain
TITLE: Manager, Office of Special Needs
ADDRESS: MBTA, 10 Park Plaza, Boston, MA 02116
PHONE: 617-722-5123

DESCRIPTION OF SERVICE

SERVICE AREA (SQ.MILES): 253 TOTAL POPULATION: 1,218,880

OF PROVIDERS: TOTAL: 3 (PUBLIC: 0; FOR-PROF: 1; NON-PROF: 2)

DAYS OF SERVICE CONVENTIONAL: 365 days SPECIAL: 365 days

HOURS OF SERVICE CONVENTIONAL: 0500 - 0100

SPECIAL: 0700 - 2300 M-T, 0700 - 0100 F-S

OPERATING BUDGET CONVENTIONAL: 543,000,000 SPECIAL: 3,356,937

ELIGIBLE USERS DISABLED ONLY: 5,600 ELDERLY: 4,400

ANNUAL MILEAGE: 1,489,654

ANNUAL HOURS OF SERVICE: n/a

ANNUAL ONE-WAY TRIPS: 202,800

AVERAGE USER FARES: AMBULATORY: .75 NON-AMBULATORY: .75

AVERAGE SUBSIDY PER TRIP: AMBULATORY: 25.00 NON-AMBULATORY: 25.00

CONVENTIONAL TRANSIT FARE: .60

COMMENTS: MBTA has submitted a service plan which calls for an additional contractor to serve four more cities and towns. This will increase the service area by 60 sq. mi. and population by 202,000. MBTA provides capital equipment and purchases services on a trip rate from 2 non-profit providers who subcontract with a taxi firm. MBTA services are prescheduled with variable weekend hours. MBTA serves elderly and handicapped riders on a 40%/30% ratio, as well as other human service groups. An average trip subsidy of \$25.00 per trip includes cost of taxicabs.

CITY: Philadelphia, PA
SYSTEM: Southeastern Pennsylvania Transportation Authority (SEPTA)
CONTACT: Robert Corressel
TITLE: Manager, Special Services
ADDRESS: 25 South 9th Street, Philadelphia, PA 19107
PHONE: 215-574-2780

DESCRIPTION OF SERVICE

SERVICE AREA (SQ.MILES): 138 TOTAL POPULATION: 1,688,210

OF PROVIDERS: TOTAL: 4 (PUBLIC: 0; FOR-PROF: 4; NON-PROF: 0)

DAYS OF SERVICE CONVENTIONAL: 365 days SPECIAL: 365 days

HOURS OF SERVICE CONVENTIONAL: 24 hours

SPECIAL: 16 hours

OPERATING BUDGET CONVENTIONAL: 507,822,000 SPECIAL: 3,784,000

ELIGIBLE USERS DISABLED ONLY: 8,293 ELDERLY: 256

ANNUAL MILEAGE: 1,872,302

ANNUAL HOURS OF SERVICE: 159,043

ANNUAL ONE-WAY TRIPS: 235,170

AVERAGE USER FARES: AMBULATORY: 1.25 NON-AMBULATORY: 1.25

AVERAGE SUBSIDY PER TRIP: AMBULATORY: 13.45 NON-AMBULATORY: 12.45

CONVENTIONAL TRANSIT FARE: 1.25

COMMENTS: SEPTA has submitted a service implementation plan. Some coordination of services. Includes 3% funding from human services. Service includes weekend schedule. SEPTA accepts reservations up to 1 week in advance, between the hours of 0800-1700 on weekdays. SEPTA asks wheelchair users to have seat belts on their wheelchairs.

FIGURE 3 continued

TABLE 1 SELECTED CHARACTERISTICS OF SPECIALIZED AND CONVENTIONAL SERVICES

Service and Location	Type of Service	SPECIAL												CONVENTIONAL					Fare			
		Service Area (sq. mi.)	No. of Providers			Days of Service	Hours of Service	Operating Budget (million)	Eligible Users		Annual Mileage	Annual Hours	Annual Trips	Average Fare		Average Subsidy		Public Transit Service		Days of Service	Hours of Service	Operating Budget (million)
			Pub.	F/P	M/P				Dis.	El.				Amb	n/Amb	Amb	n/Amb					
Boston, MA Office of Special Need	<ul style="list-style-type: none"> Authority owns capital equipment Supplemental taxi service Pre-scheduled services 	253		1	2	365	16	3,357	6,600	4,400	1,489,654	129,189	202,800	.75	.75	25.00	25.00	Massachusetts Bay Transportation Authority	365	20	543,000	.60
Chicago, IL Special Services	<ul style="list-style-type: none"> Same day service is available Trip information provided CTA within 48 hrs. Fines for poor service 	242		4		365	24	10,800	14,000	None	3,444,162	N/A	737,300	.90	.90	12.19	14.09	Chicago Transit Authority	365	24	661,000	.90
Dallas, TX Handi Rides	<ul style="list-style-type: none"> Credit card imprints are used to verify ride Monthly allocation of trips 	950		8		313	19	6,581	6,200	None	3,000,000	N/A	550,000	1.00	1.00	9.25	12.25	Dallas Area Rapid Transit	365	17	115,000	.75
Cleveland, OH Community Responsive Transit	<ul style="list-style-type: none"> Operated in part by CRT CRT provides capital equipment 	458	1	1		313	13.5	3,475	43,467	153,619	1,115,946	110,959	388,088	.85	.85	6.00	14.00	Cleveland Regional Transit Authority	365	24	140,000	.85
Houston, TX Metro-Lift	<ul style="list-style-type: none"> Mileage based fare Taxi participation Metro does scheduling and dispatching 	375		4		365	24	4,800	14,500	None	4,190,947	246,962	411,837	1.00	1.00	4.95	9.91	Metropolitan Transit Authority	365	18.5	137,000	.60
Miami, FL Metro-Dade	<ul style="list-style-type: none"> Taxi participation County owns part of capital equipment 	250		2		365	18	2,100	5,500	None	1,200,000	N/A	150,000	1.77	1.77	11.56	20.46	Metro-Dade Transportation Administration	365	21	134,634	.75
Milwaukee, WI Milwaukee County User-Side Subsidy	<ul style="list-style-type: none"> User side subsidy Taxi participation Limited subsidy Restrict Eligibility 	241		12	1	365	24	3,786	9,000	None	4,264,000	319,000	462,002	2.00	2.00	6.00	9.00	Milwaukee County Department of Public Works	365	24	68,600	1.00
Minneapolis/St. Paul, MN Metro-Mobility	<ul style="list-style-type: none"> Mileage based fare Riders pay registration fee Taxi participation 	633		16	3	365	17	6,635	9,300	None	4,457,700	N/A	685,800	1.15	1.15	5.50	11.50	Metropolitan Transit Commission	365	20	92,881	.75 + zone
Philadelphia, PA Paratransit	<ul style="list-style-type: none"> Some coordination Pre-scheduled service Taxi participation 	138		4		365	16	3,784	8,293	256	1,872,302	159,043	235,170 includes attendants	1.25	1.25	13.45	13.45	South Eastern Pennsylvania Transportation Authority	365	24	507,822	1.25
Pittsburg, PA Access	<ul style="list-style-type: none"> Operated by a private management co. Coordinated with human service providers Taxi participation 	729		11	4	365	18	11,600	5,800	16,000	8,600,000	610,000	1,400,000	.87	1.15	8.50	8.50	Allegheny County Port Authority	365	21	170,000	1.00
San Diego, CA Dial-A-Ride Service	<ul style="list-style-type: none"> Emphasis on medical & nutrition trips Taxi participation Distance based fares 	403		25	1	313	24	1,586	11,000	None	760,689	45,002	222,260	1.69	1.69	7.18	7.18	City of San Diego Paratransit Administration	365	19	40,451	.75
Toronto, Ontario Canada Wheel Trans	<ul style="list-style-type: none"> Commission owns part of capital equipment Coordinate with Human Services 	244		1		365	18	11,858	14,000	None	3,712,311	278,122	536,324	1.00	1.00	15.77 U.S.	15.77 U.S.	Toronto Transit Commission	365	24	460,000	1.00

requests are required 24 hr in advance; however, the rider is not assured of a ride until the schedule for the day is completed. Sometimes this confirmation does not come through until a few hours before actual trip time, causing great inconvenience for the rider. These problems often result from the practice of trip scheduling into vehicle tours, that is, the grouping of riders who travel at similar times and in similar geographic areas. Systems that require trip scheduling in advance of 24 hr are practicing "deficit scheduling." In other words, they have the luxury of spreading demand over a greater than 24-hr period. This practice is convenient for the scheduler, but highly restrictive for the user. A true 24-hr reservation system allows the special rider more comparable flexibility in trip planning.

6. *"Transit providers may not impose restrictions or priorities based on trip purpose."*

None of the properties contacted report restrictions on actual trip purpose as long as trips are available and can be scheduled. Many systems are already spending 3 percent of their conventional operating budget on special services. However, some of these do extensive transportation of the elderly and it is difficult to break out, in each case, the amount that applies to transportation of disabled alone. Systems that have met the 3 percent spending ceiling may want to consider possible cost controls or service redesign. The authors hope that by providing the results of this study, they can give these systems a basis for service reassessment.

SURVEY OBSERVATIONS

One purpose of this paper is to provide information on a wide range of service areas in order to highlight good practices and stimulate communication among providers. Following are some comments that may be helpful.

System Efficiency and Effectiveness

Efficiency and effectiveness are two often confused and competing service measures. Efficiency is a productivity measure that examines vehicle use, labor productivity, and so on. System effectiveness is a service quality measure that examines the level or quality of service in terms of population served, area covered, on-time performance, vehicle cleanliness, and so on.

Balancing the demands of efficiency versus effectiveness is often the greatest challenge of paratransit service. One example of how efficiency and effectiveness can run counter to each other is the practice of a provider trying to group rides to increase vehicle use. Adding more passengers to a trip adds waiting time for riders. For some frail elderly and disabled, such increased riding and waiting time can be intolerable.

Reported administrative costs among the 12 cities vary from 5 percent to 21 percent of gross expenditures. Contract clauses requiring insurance liability vary from \$100,000 to \$5,000,000 per incident, with some systems permitting self-insurance. It is critical that each system recognize what these "cost driving practices" are and how to manipulate them to avoid the need for increased subsidy.

Demand Estimation

The advent of "504" has focused renewed attention on transportation for the disabled, a service that is generally more

expensive than regular service. As the problems of financing low-cost transit to the general public increase, planners will have to focus increasingly on travel demand.

Special services are very sensitive to a number of different features of demand:

- Eligibility criteria for users;
- Types of service subsidized;
- Procedures for certifying eligible users;
- Trip restrictions; and
- Fares charged.

Given such diversity, it appears that the best approach for demand estimation is to review existing programs with desired design features. The revealed travel behavior can be used as a basis for prediction.

Appropriate Costing

Reaching an agreement with service providers on the value of handicapped services can be a very simple or a very complex process. Ideally, providers should have a chance to give their input during program design so that a mutually agreeable set of procedures and services can be adopted.

Some concerns of service providers include

- How many new trips will the program produce? What is the size of the contract?
- How often will reimbursement occur—could there be cash-flow problems?
- What will be required of the dispatcher and general administration?
- How much will this cost?
- What will be expected of the drivers in terms of paperwork?
- Will there be any labor negotiations required?
- What will be the reimbursement per trip—a fixed rate or a variable one based on actual trip costs?
- Will drivers be expected to provide special assistance to passengers?
- Can extra fees be charged for wheelchair-bound passengers?
- Can extra fees be charged for luggage, packages, and so on?
- Will regular fares be charged to escorts of program users?
- What fares and trip-recording procedures are to be used for shared-ride trips?

Even though these items are discussed before the service starts, they are generally questions that develop in the course of implementation. The key to successful coordination between funders and providers is open and honest communication.

Some concerns of the subsidizing agency include

- Will providers abide by all of the program rules—enforcing use limits, accurately collecting fares, completing records, and so on?
- Will the desired level and quality of service be made available to program participants?

- Will the providers be liable for personal injury or property damage occurring on trips?
- What means of recourse or penalties can be used on discovery of program fraud on the part of providers?
- Under what conditions can the provider be refused reimbursement; for example, incorrectly completed vouchers, trips by riders who have exceeded their subsidy limits, and so on?

Every effort should be made by the subsidizing agency to see that providers' concerns are met. A minimum "intrusion" into their service and operational policies should be the goal. Reimbursement should be as expeditious as possible. However, the subsidizing agency should ensure that providers meet certain minimum requirements (adequate insurance coverage, safety of vehicles, good business practices, dispatching equipment, etc.).

The 12 systems reviewed have substantial operating differences that arise from their unique origins, funding sources, planning participants, and interests served. In spite of these differences, a review of the costing figures gathered could provide valuable insights into pricing.

Policy Development

The information gathered through this and subsequent surveys can be used to help transit properties share information and develop ideal sample policies. A consortium approach could be better than a single property approach, especially in such a complex and emotionally charged area as specialized transport. Such a consortium effort could also save a substantial amount of time and effort over individual transit properties working in isolation.

Some of the policy issues that need to be addressed include

- What are the best guidelines for balancing the cost savings of grouping rides with acceptable levels of passenger comfort and convenience?
 - How many vehicles should be available for a given population density or geographic area?
 - Should vehicles be dedicated or, through coordination, provide transportation for all human services?
 - How should contractors be monitored and performance measured?
 - How should eligibility be determined?
 - How should eligibility be certified and rider lists be kept up-to-date?
 - How can insurance costs be controlled through a consistent safety rating system for drivers?

Ride Policy

There are many issues related to ride policy that also need to be addressed, for instance, the amount of time in advance that trip reservations must be made and whether or not return trips must be prescheduled. (Often providers assume that scheduling vehicles in tours is the only effective way to maximize vehicle use; however, this assumption is usually a result of lack of control at the operator's level and a fear that demand-based dispatching cannot be controlled.)

When measuring one service against another, some important considerations greatly affect the ride policy and subsequent cost comparisons. These include

- Whether the system pays the full subsidy or applies limits by mileage or area served;
- Whether users can call for trips during all hours of availability or only during business hours; and
- Whether weekend hours are the same as weekday hours or proportionate to conventional weekend schedules.

Attendant policy and visitor policies are also measures of the usability of a system. Since many users are first-time or seldom users, it is often very important that attendants be allowed to go; however, this does not necessarily mean that attendants should not pay a fare or that visitors should not be expected to pay fares as well.

OPERATIONAL ISSUES AND FUTURE STUDY

Through the surveys of the 12 providers, the team was able to isolate six issues that need further discussion. The final part of this paper, then, consists of further observations on some important areas of specialized transportation.

Management Structure

When transportation for riders with disabilities is provided through contracts between public and private providers, there are roles for each to play, in order to minimize subsidies and maximize trips. In short, the public provider must establish a system based on cost-effectiveness and high service standards, whereas the private provider must respond with a low-cost operation that is flexible to user needs. In both cases, there is a need to employ incentives, use current technology, and follow safe, efficient policies. Both systems must be accountable to the public they serve.

Of the 12 systems reviewed, some use computer technology to speed up call intake, document trip reservations, improve audits, and record accurate trip information. The ready access to this information makes monitoring service standards easier. Additional tasks, such as complaint monitoring, loss information collection on accidents, and updated eligibility lists and trip verifications, give credibility to those systems.

Control and Dispatch

Computerized scheduling and dispatching for demand-responsive trips will eventually allow riders to make last-minute trip decisions and to alter destinations and pick-up points. The immense "paper trail" required to follow demand-responsive transportation and the effect of radio communication on productivity and costs will ultimately demand that computer systems play a greater transportation role than just recordkeeping. With sophisticated technology and dispatching methods, a rider may be able to call for service as little as 1 hr in advance, with the request instantly integrated into a master list of trip requests. This information could be relayed to the appropriate vehicle on a visual screen in time for a timely pickup. When the rider enters the vehicle, a signal from the driver notifies the computer of load status. At that time additional rides that complement the trip could be received or the driver could be instructed to proceed directly to the user's

destination. A system of automatic vehicle locators alerts the computer when the vehicle becomes available at the rider's destination.

There are obvious efficiencies to such a system. No driver logs will be required because the trip information will already be a matter of permanent information at the contracting agency and the driver's base of operations. In fact, the trip can be automatically credited to the driver's payroll record, where incentives are a part of that pay.

The technology has already been developed for this sophisticated dispatching and recordkeeping. What remains is for these systems to be implemented.

Labor

In a labor-intensive industry, the major benefits will not come from technology or capital savings alone, but from the commitment of labor to achieve system goals. Both private for-profit and nonprofit companies need to pursue flexible employment practices. Many of the 12 systems interviewed employ taxi companies to take advantage of cost savings and extend operating hours. Today most taxis are owner-operated. In order to foster their cooperation, the contracting agency must give them reasonable incentive for services. This may take the form of a guaranteed amount of contracted business. Centralized, sophisticated dispatching could result in more trips per cab than individual cab drivers could find on their own. In addition, having blocks of business during peak periods could assure individual drivers of enough daily business to guarantee operating costs in a short time.

Another popular incentive plan consists of dedicated vehicles operated solely by independent owner-operators. The advantages of such an incentive program are multiple. If drivers are paid based on productivity and save money based on lower maintenance costs and fewer accidents, their productivity is more dependable and consistent. However, they must have access to some kind of ancillary support from the contracting agency.

Vehicle Selection

Past technology called for making body-on-chassis buses or raising tops on vans and adding wheelchair lifts. These vehicles generally provided up to 4 wheelchair positions and up to 16 seats for ambulatory passengers. Never really transit quality, these vehicles were often foisted on agencies that did not need them and had no way of handling their maintenance and repair. Many service providers learned that by using cars they could add flexibility to their bus fleets. Semiambulatory persons, who made up the majority of people transported, could enter and exit cars more easily. With the low ridership factors during most service hours, the empty seats on buses were just extra baggage. The recent advent of Chrysler Corporation's front-wheel-drive mini-van has opened the door to a new concept in paratransit services. Although more sophisticated versions of the body-on-chassis buses continue to be introduced, providers of transportation for the disabled, particularly those in high-density urban areas, have found many advantages to the smaller vehicles. Among these are

- Higher fuel mileage;
- Lower maintenance cost than rear-wheel-drive vehicles;
- Low purchase and replacement costs;
- Low center of gravity for increased safety; and
- Low-angle ramp for safer wheelchair loading.

Passengers have likewise found advantages to these vehicles:

- Greater creature comforts, including lower noise levels and automobile-like ride;
- Factory-installed seat belts for use on wheelchairs;
- Seating on an eye level with the driver; and
- Automobile-like vehicles for greater anonymity.

A single type of fleet vehicle, offering ready access to semi-ambulatory riders and fast loading by a low-angle ramp for wheelchairs, automatically assists demand-responsive dispatching and reduces boarding times associated with larger vehicles used for prescheduled tours, thus reducing ride time in the vehicle. This vehicle is preferred in owner-operator incentive programs. Some taxi companies are currently testing the potential benefit of replacing standard sedans with mini-vans, in order to participate in increased paratransit business. The potential benefit to riders would be the excess capacity of nondedicated vehicles, and transit properties could benefit from sharing the cost of paratransit with taxi-type operations.

Marketing and Promotion

In contrast to conventional transit service, specialized transit use is growing rapidly. In fact, this demand is growing in excess of 10 percent annually in cities that have had services available for over 10 yr.

As far as marketing and promotion go, the real need in these areas is educational. The riding public needs to know more about

- Ride policies and the reasons behind them;
- The cost component versus service component involved in decisions;
- How to make the best use of the system; and
- How to promote the rights of other passengers.

Client or rider education is not all that is needed. Many human service agencies have transportation budgets from other than transit sources. They should be encouraged to coordinate with transit personnel in order to provide transportation to a larger client group at lower costs.

Another reason for close coordination is that human service agencies often schedule events involving the transportation of large numbers of clients, many of whom use the paratransit system. Good communication and coordination can help avoid travel demand by these clients during peak system periods.

Cost of Operations

Of the 12 systems reviewed, each demonstrated significant operating differences that arose out of their local situations.

These include original funding sources, politically influential planning participants, or service features considered locally important. These systems have developed their operations around user-subsidy, special reservations systems, zone systems, computer scheduling, variable or limited fares, trip limitations, coupon purchases, brokerage, and so on. A formal sharing of ideas among these experienced and influential providers could go a long way toward helping standardize the specialized and disabled transportation service.

Future Study Summary

The informal written survey followed by telephone interviews was a first step in establishing an awareness of what 12 different systems are doing to provide transportation to persons with disabilities. At the present time there is no single organization that serves as a center or clearinghouse for an exchange of methods and ideas. Those providers contacted for this survey were very interested in establishing a group where problems could be discussed and practical information shared.

The next step in this information collection and sharing effort is to review industry service practices in greater depth; this will mean that standardized, quantifiable data must be established so performance can be compared.

Even though it may be difficult to develop the same standard for all providers, it is probably reasonable to expect the development of similar standards nationwide. Continuing to collect and compare information will help establish standards and identify best practices. Ideally, some kind of provider group can be formed to address the issues raised in this paper. These provider participants could rethink service objectives and develop quality standards. Such a forum could also serve as an opportunity for group problem solving and peer-to-peer transfer of technical information and assistance. Some of the areas the group could investigate include safety, driver training, costs, service reliability, maintenance, service changes, and system awareness and image.

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