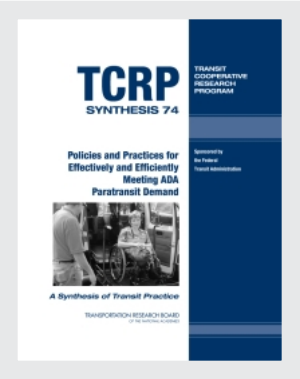

Policies and Practices for Effectively and Efficiently Meeting ADA Paratransit Demand

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TRANSIT COOPERATIVE RESEARCH PROGRAM

TCRP SYNTHESIS 74

Policies and Practices for Effectively and Efficiently Meeting ADA Paratransit Demand

A Synthesis of Transit Practice

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SUBJECT AREAS
Public Transit

Research Sponsored by the Federal Transit Administration in Cooperation with the Transit Development Corporation

TRANSPORTATION RESEARCH BOARD

WASHINGTON, D.C.
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TRANSIT COOPERATIVE RESEARCH PROGRAM

The nation's growth and the need to meet mobility, environmental, and energy objectives place demands on public transit systems. Current systems, some of which are old and in need of upgrading, must expand service area, increase service frequency, and improve efficiency to serve these demands. Research is necessary to solve operating problems, to adapt appropriate new technologies from other industries, and to introduce innovations into the transit industry. The Transit Cooperative Research Program (TCRP) serves as one of the principal means by which the transit industry can develop innovative near-term solutions to meet demands placed on it.

The need for TCRP was originally identified in *TRB Special Report 213—Research for Public Transit: New Directions,* published in 1987 and based on a study sponsored by the Federal Transit Administration (FTA). A report by the American Public Transportation Association (APTA), *Transportation 2000*, also recognized the need for local, problem-solving research. TCRP, modeled after the longstanding and successful National Cooperative Highway Research Program, undertakes research and other technical activities in response to the needs of transit service providers. The scope of TCRP includes a variety of transit research fields including planning, service configuration, equipment, facilities, operations, human resources, maintenance, policy, and administrative practices.

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The TCRP provides a forum where transit agencies can cooperatively address common operational problems. The TCRP results support and complement other ongoing transit research and training programs.

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FOREWORD

By Staff
Transportation
Research Board

Transit administrators, engineers, and researchers often face problems for which information already exists, either in documented form or as undocumented experience and practice. This information may be fragmented, scattered, and unevaluated. As a consequence, full knowledge of what has been learned about a problem may not be brought to bear on its solution. Costly research findings may go unused, valuable experience may be overlooked, and due consideration may not be given to recommended practices for solving or alleviating the problem.

There is information on nearly every subject of concern to the transit industry. Much of it derives from research or from the work of practitioners faced with problems in their day-to-day work. To provide a systematic means for assembling and evaluating such useful information and to make it available to the entire transit community, the Transit Cooperative Research Program Oversight and Project Selection (TOPS) Committee authorized the Transportation Research Board to undertake a continuing study. This study, TCRP Project J-7, "Synthesis of Information Related to Transit Problems," searches out and synthesizes useful knowledge from all available sources and prepares concise, documented reports on specific topics. Reports from this endeavor constitute a TCRP report series, *Synthesis of Transit Practice.*

This synthesis series reports on current knowledge and practice, in a compact format, without the detailed directions usually found in handbooks or design manuals. Each report in the series provides a compendium of the best knowledge available on those measures found to be the most successful in resolving specific problems.

PREFACE

This synthesis covers a wide range of policies and practices that transit agencies use to provide service to persons with disabilities more effectively and more efficiently. As demand for paratransit continues to increase in many communities, transit agencies are looking for innovative ways to serve the individuals who must use paratransit, while also operating more efficiently to contain costs and/or provide more service for the available resources. Information is presented here for transit agency managers and paratransit managers and their staffs, as well as other professionals involved in paratransit service delivery. This synthesis highlights policies and practices that transit agencies would be able to apply to their own services, often without the need to devote significant funds, personnel, or other resources. It also identifies certain practices and technologies that are still under development or have not undergone extensive testing. They merit discussion because they seem to offer great potential.

This synthesis includes a literature review that provides a baseline of information studies, of particular value in representing definitive studies in their respective areas and/or bringing together much information in a single source. It documents 124 transit agency responses to a selected survey effort and summarizes the findings from 17 transit agency telephone interviews where staff provided further details about certain policies and practices that they believed to be innovative and/or potentially useful to others.

David Chia, Planners Collaborative, Inc., Boston, Massachusetts, collected and synthesized the information and wrote the paper, under the guidance of a panel of experts in the subject area. The members of the Topic Panel are acknowledged on the preceding page. This synthesis is an immediately useful document that records the practices that were acceptable within the limitations of the knowledge available at the time of its preparation. As progress in research and practice continues, new knowledge will be added to that now at hand.

CONTENTS

POLICIES AND PRACTICES FOR EFFECTIVELY AND EFFICIENTLY MEETING ADA PARATRANSIT DEMAND

SUMMARY

This synthesis of transit practice covers a wide range of policies and practices that transit agencies use to more effectively and efficiently provide service to persons with disabilities. Although paratransit ridership is slightly more than 1% of the total transit ridership, paratransit costs comprised 9% of transit operating costs; therefore, efficiencies are needed to address the ever-increasing costs of meeting the civil rights requirements of the Americans with Disabilities Act (ADA) for paratransit service. From 1992—the first year of ADA-complementary paratransit service—to 2004, paratransit ridership in the United States increased by 58.3%, to more than 114 million trips, most of which were ADA-complementary paratransit trips. In addition, the operating cost per trip for paratransit service was $22.14, whereas for all other modes, the operating cost per trip was $2.75 (per trip costs calculated from APTA data). The increase in paratransit trips and the substantial difference in paratransit service trip costs when compared with the cost for other modes are prompting transit agencies to seek more effective and efficient ways to meet the growing demand for ADA-complementary paratransit service.

This synthesis identifies policies and practices both proven and promising, from their fellow paratransit operators. There were two main sources for the information in this synthesis. First, a survey of U.S. transit agencies was conducted that included questions about innovative practices and policies in eligibility determination, paratransit operations, use of technology, coordination with other agencies, paratransit management and administration, and fixed-route improvements and incentives to attract riders with disabilities. Using APTA and CTAA mailing lists, approximately 900 surveys were distributed. Responses were received from 124 transit agencies. Transit agencies also provided sample material, such as in-house reports, policy memos, agreements with other agencies, and consumer guides. Second, phone interviews took place with 17 of these transit agencies to gather further information on their innovative policies and practices.

The following is a sample of transit agency practices to improve the efficiency and effectiveness of service for ADA riders:

- To improve efficiency, King County (Washington) Metro has invested much effort into developing policies for making determinations of conditional eligibility. The agency also invests staff resources to collect the pathway data necessary to make determinations for trip-by-trip eligibility. The agency has used its paratransit software to make use of these determinations in its daily Metro Access paratransit operations.
- Technology has helped paratransit operations handle an increasing number of trips, clients, and vehicles. Dallas Area Rapid Transit has an automated system that allows its riders to request and confirm trips over the phone without the need of a call taker. This option makes trip requests more convenient for riders and less labor-intensive for the agency thereby improving effectiveness and efficiency.
- Beyond daily operations, examples of paratransit coordination to improve effectiveness and efficiency include joint travel training (Intercity Transit, Olympia, Washington), vehicle maintenance and vehicle lending (Transit Authority of River City, Louisville, Kentucky), and a regional call center for transit information (Santa Fe Trails, Santa Fe, New Mexico).

- Two transit systems have derived significant financial benefits from their travel training programs: RTC Washoe (Reno, Nevada) with a year's net savings of $233,000 and Intercity Transit (Olympia, Washington) with a "very conservative" annual savings of $260,000. At a small transit system such as Sandy (Oregon) Area Metro, travel training can have the added benefit of gaining fixed-route transit riders who had never ridden transit. Sandy's "Travel Adventures" program targets and trains not only persons with disabilities, but anyone who is uncomfortable or unfamiliar with riding a bus.

Despite the success stories, the transit industry could do more to serve its ADA paratransit riders more effectively and efficiently. There can be greater efforts to make the fixed route more accessible and inviting to current and future paratransit riders. Accessible fixed-route service can benefit transit agencies as well as their riders.

The review completed for this synthesis suggests some areas for further research and effort. Such a topic could be a more comprehensive study of transit agency policies and practices that have lead to increased fixed-route ridership by persons with disabilities. The research could gather information from transit agencies about how they attract persons with disabilities to their fixed-route service. It would evaluate policies and practices to determine their success and to judge their potential for transferability to other agencies and could focus on how transit agencies measure their fixed-route ridership of persons with disabilities. It would help transit agencies to have more widespread dissemination of standards for collecting data on service barriers. Many transit agencies are already making determinations of conditional and trip-by-trip eligibility, but are not enforcing the conditions because of inadequate data. Although transit agencies would still need to collect data and make judgments for each trip, a workbook would help them make comprehensive and consistent determinations.

Taxis could play are larger role in the provision of ADA-complementary paratransit service and other types of flexible transit for persons with disabilities. In rural areas, school buses could also provide flexible capacity. The survey showed that a small set of respondents used taxis for ADA-complementary paratransit service: 16% as regular contractors, 21% as overflow contractors, and 12% as same-day contractors. The development of more widely available accessible taxis and determination of the costs involved could spur a greater use of them by paratransit operators. For school buses, the barriers to greater use appear to be physical, institutional, and regulatory in nature. Although fleet size is not currently a capacity limitation for most paratransit operators, taxis and school buses can provide transit agencies with lower-cost capacity without the need for a long-term capital commitment.

CHAPTER ONE

INTRODUCTION

BACKGROUND

This synthesis of transit practice covers a wide range of policies and practices that transit agencies use to provide service more effectively and efficiently to persons with disabilities. Efficiencies are needed to address the ever-increasing cost of meeting the civil rights requirements of the Americans with Disabilities Act (ADA) for paratransit service. An underlying purpose of the ADA is to provide equal opportunity, full participation, and independence to persons with disabilities. Transit plays a key role for two reasons. First, it is the means for people to get to jobs, schools, shopping, or other destinations. Second, because transit is so visible, persons with disabilities often look to transit to take a leading role in carrying out the letter and the spirit of the ADA.

A goal of ADA and U.S. DOT regulations that implement the ADA is to provide equal access to public transit to persons with disabilities. For many riders and for many trips, the first option is accessible fixed-route service. However, the ADA requires public transit operators to provide complementary paratransit when persons with disabilities cannot use the fixed route. The resulting paratransit services developed in response to the ADA have played a large role in providing access, participation, and independence to persons with disabilities.

In fiscal year 2004, U.S. transit agencies provided more than 114 million paratransit trips (*Public Transportation Fact Book* 2006). Most of these trips were ADA-complementary paratransit trips. This represents a 58.3% increase since 1992, the first year of ADA-complementary paratransit service. The growth in paratransit ridership has slowed since the early 1990s: over a 5-year period (1999 to 2004), paratransit ridership rose by 14%. Nevertheless, this rate of increase far exceeds the growth rate for public transit as a whole for the same period (4.4%) and exceeds the growth of all other modes except light rail. Although paratransit ridership is still a small portion of the whole, slightly more than 1%, in 2004, paratransit comprised 9% of transit operating costs (*Public Transportation Fact Book* 2006). The operating cost per trip for paratransit service was $22.14; for all other modes, the operating cost per trip was $2.75 (per trip costs calculated from APTA data).

As demand for paratransit continues to increase in many communities, transit agencies are looking for innovative ways to continue to serve the individuals who must use paratransit, while also operating more efficiently to contain costs and/or provide more service for the available resources.

Some of the efficiency practices include changes in daily paratransit operations, office procedures such as changes in call taking and scheduling, and broader policy changes such as eligibility determination. Practices may also cover the wide range of ways to make the fixed-route service more useable and more attractive to persons with disabilities.

Policies and practices either successfully in place or being tested by transit agencies include:

- More precise eligibility determinations,
- Use of taxi contractors for flexible capacity,
- Coordination with social service agencies and other potential paratransit providers,
- Integrated paratransit services for use by the general public,
- Improvements to fixed-route service, and
- Incentives to use fixed-route services.

Each of these is discussed in detail as part of this synthesis.

OBJECTIVES

Paratransit managers face pressure in using their resources more efficiently while continuing to provide the service required by the ADA—and often beyond that—as determined by their locality. This synthesis highlights policies and practices that transit agencies could apply to their own services, often without the need to devote significant funds, personnel, or other resources.

This synthesis also identifies cases where transit agencies have quantified either increased efficiencies or cost savings through implementation of a policy or practice. For example, many transit agencies have developed a travel training program to encourage persons with disabilities to use the fixed route rather than paratransit for some of their trips. Although transit professionals, riders, and advocates would all agree that travel training is good, few agencies have documented—beyond simply the number of individuals trained—the benefits gained through a travel training program. This synthesis presents such data.

Third, this synthesis identifies certain practices and technologies that are still under development or have not undergone extensive testing. They merit discussion in this report because they have great potential to become common within the areas of paratransit or fixed-route accessibility. One example of a technology that is in the pilot stage at several agencies is on-line booking of paratransit trips.

STUDY APPROACH

This synthesis presents the state of the art in this area of study. Information on the topics cited in the scope of work was gathered in the following ways:

- Review of the literature;
- Survey of transit agencies;
- Collection of written documents, brochures, and viewing of websites; and
- Telephone interviews with transit agency staff.

The literature review provided baseline information. Even though some of the cited documents are more than 10 years old, they remain valuable because they represent the definitive studies in their respective areas and/or they brought together much information in a single source.

Survey of Transit Agencies

The survey of transit agencies was the primary data collection technique for gaining information from many transit systems on all the topics covered in this study. Although recent innovations in ADA paratransit and fixed-route accessibility have been identified at a number of well-known transit agencies, the survey was able to identify additional state-of-the-art policies and practices from some less known transit agencies, particularly small and medium operations.

A survey questionnaire consisting of 7 sections, with a total of 42 questions, was developed and administered by means of the Internet. Some of these questions had multiple parts:

1. Contact information (12 questions).
2. Characteristics of paratransit service (11).
3. Organization and management of paratransit service (1).
4. Paratransit policies and practices (12).
5. Inquiry concerning whether respondent will also answer questions about fixed-route services (1).
6. Contact information for fixed route (1).
7. Fixed-route policies and practices (4).

Appendix A presents the survey questionnaire. The questionnaire has been reformatted from how it appeared on-line; however, the wording and sequence of the questionnaire are identical.

APTA and CTAA provided e-mail addresses of their respective memberships. From these two lists, on December 1, 2006, more than 900 transit agencies received an introductory e-mail requesting participation and providing a link that directed them to the website that contained the questionnaire. A reminder e-mail was sent on December 14, 2006, to agencies that had not completed the survey.

Appendix B presents a list of the 124 transit agencies that responded to the survey. A summary and analysis of the data collected from the survey appear in chapter three.

Telephone Interviews and Collection of Sample Documents

The survey requested that the transit agencies provide additional information on their policies and practices. Some respondents submitted written material, which generally fell into one of the following categories:

- Sample fliers, brochures, or manuals for riders;
- Policy memos;
- Agreements with other agencies;
- Statistical reports; and
- Research reports or other internal documents that address the success of a practice.

In addition, 17 transit agencies participated in telephone interviews. During these interviews, which ranged in length from 15 min to 95 min, the agencies provided further details on certain policies and practices that they believed to be innovative and/or potentially useful for other transit agencies. They also sent additional material related to some of these polices and practices. Appendix C presents a list of the transit agencies that were interviewed. The telephone interviews provided the most detailed and current information on selected policies and practices and also allowed for the introduction of additional information not included in the survey. The telephone interviews are the key source of the information presented in chapter four.

REPORT ORGANIZATION

There are four additional chapters in this report. Chapter two reviews relevant literature in the research topics. There are summaries and analyses of the responses to the survey conducted for this study in chapter three. Highlighted in chapter four is a discussion of specific policies and practices used by transit agencies to meet ADA paratransit demand. Chapter five presents conclusions and suggestions for future research.

CHAPTER TWO

LITERATURE REVIEW

INTRODUCTION

To determine the state of the practice of effective and efficient paratransit service, the initial task was the literature review. The search included a comprehensive study of information published through the Transportation Research Information Service (TRIS), conference proceedings, and consultant and agency publications. Several relevant documents were identified. Of these, 12 publications were selected for review.

SELECTED PUBLICATIONS

Eligibility Policies

Thatcher, R.H., *Americans with Disabilities Act* (*ADA*) *Paratransit Eligibility Manual,* Federal Transit Administration, Washington, D.C., Sept. 1993.

This manual provides guidance to transit providers in the development and implementation of ADA paratransit eligibility determination processes. It starts with the basics of the regulatory definitions of the three categories of eligibility. It discusses all the elements of the determination process, including the application form, review of applications, making the determinations, appeal process, and relevant timelines for each step. The manual also provides sample application forms and discusses optional elements of the determination process.

Since the publication of this manual, the paratransit community has many more tools available to make eligibility determinations. However, the manual's clear explanation of the requirements and suggestions for good policies continue to make this document the single best source for understanding and carrying out the eligibility determination process for ADA paratransit.

Weiner, R., N. Poultney, and B. Perrone, "King County Keeps Moving: Evaluating Best Practices in ADA Paratransit Eligibility," *Proceedings of the American Public Transit Association Bus & Paratransit Conference,* Denver, Colo., May 2–6, 2004, 7 pp.

King County Metro in Seattle, Washington, has been seen as a leader in the evolution of paratransit practices and procedures. Faced with dramatic projected increases in paratransit demand and costs, the agency implemented significant refinements to their paratransit eligibility procedures in November 2000. Because of these changes, it was estimated that new applicants were being added to the registration rolls at half the rate they would have been under the previous process, and the agency is estimated to have saved $1.5 million in trip reductions in 2002. In 2003, Metro conducted a comprehensive evaluation of the effectiveness of all aspects of the program, which is the core of this paper.

Highlights of the eligibility program evaluation include: effectiveness of a unique pre-application process; phone interviews with 100% of the applicants; use of a team of eligibility analysts with varying degrees of expertise in the field; provision of a costly but very effective travel training program (and how referrals to the program occur); and effective collection of information to allow implementation of trip-by-trip eligibility screening.

Since this study took place, King County Metro has continued to refine its eligibility determination process. Chapter 5 discusses its current policies and procedures for applying conditional and trip-by-trip eligibility determinations to daily operations.

Operating Policies and Practices

Multisystems, Inc., *Innovative Practices in Paratransit Services,* Easter Seals Project ACTION, Washington, D.C., 2002, 50 pp.

This report is organized into four main sections representing elements deemed critical to the successful operation of paratransit systems including:

1. Paratransit Service Operations—techniques and strategies for achieving greater efficiency in day-to-day operations.
2. Paratransit Service Management—methods for determining quality and performance standards and measuring all aspects of daily operations.
3. Paratransit System Design—structures for organization and management, types of services provided by paratransit systems, procurement options and strategies and a quick-reference troubleshooting guide for maximizing service quality and productivity.
4. Supplementary and Associated Programs—programs that can be developed and implemented in existing

systems and community resources to provide transportation to entire communities.

Follow-on work, including the development of a national paratransit database, is described featuring the input of 28 survey participants representing the large urban, small urban, and rural transit systems.

This document offers many simple, practical tips for paratransit operations and management—whether ADA service or more general paratransit service. It would be very helpful for an operations manager as well as paratransit staff such as dispatchers, schedulers, and street supervisors.

"Solving ADA Paratransit Problems; How to Cope With Reality," *Proceedings of a Transportation Research Board Conference,* Committee on Paratransit and Committee on Specialized Transportation, Phoenix, Ariz., May 27–29, 1993, 162 pp.

This conference focused directly on the range of operational problems and opportunities created by the complementary paratransit requirements of the Americans with Disabilities Act (ADA). The conference was designed to identify the best practices and state-of-the-art solutions to some of the most pressing problems facing communities struggling to provide complementary paratransit services. In particular, the conference focused on the following themes:

- Establishing appropriate eligibility criteria—and sticking to them;
- Ensuring community participation and avoiding litigation;
- Organizing cost-effective and equitable certification methods;
- Developing practical ways to achieve the "no-refusal" standard;
- Dealing with client displacement;
- Establishing and monitoring service standards;
- Using the private sector to increase cost-effectiveness;
- Finding new and creative financing mechanisms;
- Achieving meaningful coordination—with the human service sector, other public agencies, and other jurisdictions; and
- Shifting demand from paratransit to fixed-route service.

The proceedings contain a conference overview, workshop reports, papers presented at the conference, the conference program, and a list of participants.

This conference took place during the early stage of the establishment of ADA-complementary paratransit service across the country. There was an emphasis in the presentations on attracting persons with disabilities to fixed-route service (eight papers) and "raising revenue and reducing costs" (five papers). Overall, the conference focused on policy and administrative issues over operations. One of the interesting paper topics was a study of the potential impact the ADA regulations on non-disabled seniors; the paper concluded that a portion of senior transportation services would be eliminated because of the need to fund ADA-complementary paratransit service.

Taxis and Other Flexible Capacity

Dalton, D. and K. Wolf-Branigan, *Moving Forward Together: A Workbook for Initiating and Increasing Accessible Taxi Services in Your Community,* Easter Seals Project ACTION, Washington, D.C., 2005.

In this document, Easter Seal Project ACTION acquired as much information as possible from practicing taxi systems about their real experiences and arrangements in a variety of communities. This workbook is "a compilation of the gathered information presented in a form useful to communities pursuing improving and/or expanding the provision of accessible taxi service to people with disabilities." The workbook is organized into nine sections as follows:

1. Public Policy provides information on the ADA sections that pertain to taxi services. Information on several local taxi industry regulations is also included.
2. Motivation and Market Demand offers ideas for assessing the potential of accessible taxis in your community and encouraging a common drive to improving services.
3. Vehicle Design and Costs discusses the various design options and financial implications that should be considered when determining vehicles for use in providing accessible taxi services.
4. Incentives provides assistance with developing strategies that can make accessible taxi services profitable and sustainable and therefore more appealing.
5. Contracts and Operating Agreements presents ideas for developing arrangements that may meet human service transportation needs more efficiently and provide the taxi industry with potential financial resources to expand accessible services.
6. Successful Partnerships provides ideas for identifying stakeholders, building relationships, and developing collaborative strategies to improve accessible taxi services.
7. Training offers guidance for identifying, developing, and implementing training programs to support implementation of accessible taxi services.
8. Information Sharing provides help with educating your community about the benefits of accessible taxi services, marketing services to the public, and informing other community leaders and organizations about your efforts to improve accessible taxi services.
9. Licensing, Voluntary Standards, Evaluation, and Recognition offers assistance regarding options that customers, taxi companies, drivers, and government personnel can consider.

The primary audience for this document is leaders who want to introduce accessible taxis in their communities. It provides examples of cities that have accessible taxi service (Chicago, Austin, Las Vegas, Raleigh, Phoenix, and Berkeley). It is formatted so that a reader could use it as a working notebook as he or she is following all the steps to establish accessible taxi service.

Koffman, D., *TCRP Synthesis of Transit Practice 53: Operational Experiences with Flexible Transit Services,* Transportation Research Board, National Research Council, Washington, D.C., 2003, 57 pp.

This synthesis was prepared for transit agency staff responsible for vehicle operations and planning and to those who work with them in this regard. It documents and summarizes transit agency experiences with "flexible transit services," including all types of hybrid services that are not pure demand-responsive (including dial-a-ride and ADA paratransit) or fixed-route services, but that fall somewhere in between those traditional service models. The report documents six types of flexible transit service: request stops, flexible route segments, route deviation, point deviation, zone routes, and demand-responsive connector service.

The first conclusion of the synthesis is "each flexible service is unique. There is as yet little standard practice that operators can turn to in designing flexible services." That is why this synthesis is useful, documenting the range of services and placing them into the six categories. The synthesis has three conclusions directly related to paratransit: coordination with paratransit is an important feature of most flexible services; flexible service as a complete substitute for fixed-route service removes the requirement for ADA-complementary paratransit service in that service area; and trip sharing between flexible service and paratransit has the potential to reduce dependence on paratransit.

Coordination

Burkhardt, J.E., D. Koffman, and G. Murray, *TCRP Report 91: Economic Benefits of Coordinating Human Service Transportation and Transit Service,* Transportation Research Board, National Research Council, Washington, D.C., 2003, 172 pp.

This report demonstrates that the potential economic benefits of coordination are substantial (estimated at more than $700 million annually in 2003). The most cited economic benefits include the availability of additional funding, increased productivity, and increased efficiency. Coordination improves mobility, which has both indirect and direct economic impacts. Other benefits include improved service quality, increased transportation options, larger service areas, centralized oversight and management, and better reporting opportunities.

The report cautions that for coordination to increase in usefulness as a management strategy for transportation services in local communities, more attention will need to be paid to how federal, state, and local governments can influence incentives for and hindrances to coordination, particularly in terms of how funds are distributed.

The difference in emphasis between this report and *TCRP Report 105* (the following reference), as implied by the title, is quantifying the economic benefits. One of the case studies in this report is the use of school buses for paratransit by the Mason County (Washington) Transit Authority. Chapter 5 provides an updated discussion of Mason Transit.

TranSystems Corporation, Center for Urban Transportation Research, Institute for Transportation Research and Education, and Planners Collaborative, *TCRP Report 105: Strategies to Increase Coordination for Transportation Services for the Transportation Disadvantaged,* Transportation Research Board, National Research Council, Washington, D.C., 2004, 76 pp.

The goal of this research was to identify strategies for initiating or improving coordination of publicly funded transportation services for transportation-disadvantaged individuals—older adults, people with disabilities, human services agency clients, and others—that could be implemented on the regional or local level. The Resource Guide is intended for public and private transportation and human services organizations that fund, operate, purchase, or use transportation services for the transportation disadvantaged and are interested in improving coordination with other providers. Based on case studies of public and private organizations that have recently undertaken coordination activities, the Resource Guide describes current trends in the coordination of transportation services for the transportation disadvantaged and identifies several ongoing challenges that coordination partners have faced.

One of the challenges in preparing this report was identifying recent innovative strategies and practices, and then determining the reasons for success and the potential for other organizations to adopt these strategies and policies. Most of the Resource Guide is contained on an accompanying CD, which allows for the presentation of much detailed material with numerous case studies covering political and administrative issues, funding, operations, and technology.

Multisystems, Inc., Transit Plus, K. Martin, T. Tull, and IBI Group, *TCRP Report 56: Integrating School Bus and Public Transportation Services in Non-Urban Communities,* Transportation Research Board, National Research Council, Washington, D.C., 1999.

This report explores the coordination of student transportation and public transportation services in non-urban areas. The study included a research component and a survey to determine the scope and breadth of this type of coordination

across the country. Case studies were also conducted to obtain information about communities that have successfully coordinated or integrated some aspect of student and public transportation. Although this phenomenon is not widespread, those communities that are coordinating services are doing so using a number of different strategies.

In some non-urban communities, school districts are transporting students—particularly in high school—by means of public transit. In other areas, the public is being transported on school buses when the buses are not in use for student transportation. In addition, in a few communities, students and the public are riding on school buses at the same time.

Although there are success stories in the United States, there are many barriers to accomplishing coordinated services. These include legislative and institutional barriers, restrictive funding requirements, turf battles, attitudes (especially with respect to safety concerns), and operational issues. TRB sponsored follow-up research to this study, which at this writing was still in progress [TCRP Project A-19A(2), "Vehicle Guide for Integrating Non-Urban School and Public Transportation Services"]. According to the TCRP website, the objectives of this new "research are to develop a selection guide for specifying requirements and features for vehicles for public and school transportation uses in non-urbanized areas, and to assess the effects of multiple-use vehicles on policies, operations, maintenance, and funding of participating riders and providers."

Improvements to Fixed-Route Service

Chia, D. and H.N. Ketola, *Assessment of ADA Research and Development Needs,* Federal Transit Administration, Washington, D.C., 1997.

FTA sponsored this study of technology and techniques used by fixed-route operators to comply with the ADA. It is full of ideas collected from 32 transit agencies (29 site visits and 3 telephone interviews) seeking to understand how transit agencies met the requirements, given the unique operating environments, ridership, and facilities. The ideas are organized by the activities a traveler would take to make a trip on transit (plan, find the vehicle, enter the vehicle, ride on the vehicle, alight the vehicle, leave the station/stop). In providing these practical ideas, the transit agencies answered these questions:

- What was working prior to the ADA?
- What are the sources for the new solutions?
- What determines the balance between the use of technology and labor in creating the solution?
- What are the costs to install and maintain the solution?
- Is the change taking place on a systemwide or as-needed basis?
- What problems have proved unexpectedly difficult to resolve?

There are many low-cost solutions included in the report, most continuing to be valuable. Perhaps the most cited idea in the report is from Miami–Dade Transit. Its Metrorail system has a number of stations with center platforms. "MDTA has a subtle yet clear way to let waiting passengers know the direction of the incoming train: MDTA uses a male voice to announce the southbound trains that are arriving at the station, and a female voice to announce the northbound train."

Incentives to Use Fixed-Route Service

Balog, J., *TCRP Report 24: Guidebook for Attracting Paratransit Patrons to Fixed-Route Services,* Transportation Research Board, National Research Council, Washington, D.C., 1997.

Research was undertaken to identify the characteristics of paratransit riders with and without disabilities who could be attracted to ride fixed-route service, the features they value in fixed-route services, and the physical and institutional barriers that hinder such efforts. The research is based on consumer surveys of people with disabilities who do not use fixed-route services, as well as those who do. Survey results indicate that the top four features that can make fixed-route transit attractive to paratransit users are (1) low fares, (2) easy access (i.e., no big roads to cross) to the bus stop, (3) drivers who announce all stops, and (4) no transfers.

To aid implementation, case studies were conducted of successful projects, thereby providing information on good operational practices. Route design, bus stop location, budgeting, advertising, partnerships, public involvement, and market research are all discussed in detail. A chapter of the Guidebook is devoted to driver training. Many transit riders—especially passengers with disabilities—rely on the driver. The third highest factor for making passengers with disabilities comfortable on fixed-route buses is announcing of stops. Another chapter is devoted to travel training for passengers. Knowledge is essential to making passengers with disabilities comfortable on fixed-route transit.

A demand forecasting methodology was developed using the survey data and peer systems. Systems with transit service were grouped by geographic location, population density, climate, and topography to create peer systems. Procedures to estimate the volume of riders who might switch from paratransit to fixed-route service are provided for the peer systems. This methodology has been supplanted by recent TRB research (TCRP Project B-28, "Improving ADA Complementary Paratransit Demand Estimation"). Although this report covers a wide range of important issues for attracting riders to fixed-route service, it includes only a small amount of documentation of success achieved from using the techniques.

Kachmar, B., "Travel Training in Indiana," *Proceedings of the American Public Transit Association Bus &*

Paratransit Conference, Columbus, Ohio, May 15–18, 2005, 3 pp.

This paper summarizes examples of customized travel training curriculum materials that were developed by Indiana transit agencies for various target audiences. An evaluation of the benefits and effectiveness of these efforts is described. The goal of travel training is to teach people to use public transportation safely and independently. Target populations include people with disabilities, older adults, youth, students, persons with low income, and those who do not drive automobiles. An Indiana Community Transportation Initiative is discussed, as are the programs of Bloomington, Muncie, Indianapolis, Johnson County, Lafayette, and Fort Wayne. The program, which includes a train-the-trainer element, leads to cost savings by reducing the demand for paratransit and reserving resources for those with the greatest need for paratransit assistance.

CHAPTER THREE

SURVEY OF PARATRANSIT PROVIDERS

The primary focus of this synthesis was to document effective and efficient practices and policies currently used by transit agencies in meeting ADA paratransit demand. A survey of ADA paratransit providers in the United States provided an overview of U.S. industry practices. The results of the questionnaire (presented in Appendix A) used in this survey are described in this chapter.

If a respondent considered a practice or policy particularly effective for meeting paratransit demand at their agency, several questions gave the option of being contacted for a follow-up telephone interview or sending material for review. The interviews given and materials provided by the transit agencies are discussed further in chapter four.

CHARACTERISTICS OF SURVEY RESPONDENTS

Introduction

From APTA and CTAA mailing lists, 900 contact names were compiled. In all, 135 completed surveys were returned. However, 11 were duplicate responses (multiple responses from a single agency), resulting in 124 unique survey responses; a return rate of 14%.

Table 1 lists the number of responses by state. Because California ranks first in population according to 2004 U.S. Census Bureau statistics, it is not surprising that nearly 15% of the responses (18 of 124) came from California transit agencies. Altogether, surveys came from 34 different states.

In the tables that follow, the percentages shown represent the percentage of respondents answering a question. Questions that were left blank were excluded when results were analyzed for each question.

Paratransit Agency Service Analysis

Questions 1 through 13 asked for contact information. The transit agency name, city, state, and zip code appear in the list of responding agencies provided in Appendix B.

Question 14—ADA Trips on an Average Weekday.

Question 15—Total Paratransit Trips on an Average Weekday (include ADA and all other).

Table 2 shows that the majority of agencies responding to the survey provide fewer than 250 ADA or paratransit trips on an average weekday. The breakdown of trip levels in this table was used as a way to categorize survey respondents in a number of subsequent tables:

- Under 250 average weekday trips — "Small"
- 250 to 499 average weekday trips — "Medium"
- 500 to 999 average weekday trips — "Large"
- 1,000+ average weekday trips — "Very Large."

Question 16—Total Individuals Registered for ADA Paratransit Service.

Correspondingly, the majority of agencies responding to the survey have fewer than 500 individuals registered for ADA paratransit service, as shown in Table 3.

Question 17—Total "Active" ADA Riders (at least one trip in past year).

Table 4 presents the distribution of active ADA riders.

Question 18—Subscription Trips (% of all ADA trips).

Table 5 shows the breakdown of subscription trips as a percent of all ADA trips.

Question 19—ADA Service Area.

Question 20—ADA Service Hours.

Table 6 shows that most agencies responding to the survey provide service in a somewhat larger ADA area than required by the regulations. The majority of the survey respondents provide ADA service during days and hours to match the fixed-route service they provide.

Question 21—Check the Type of Vehicles That Are in Your Dedicated Paratransit Fleet.

Question 23—Other (non-dedicated) Vehicles Available for Paratransit Service.

Respondents generally use vans and small buses in their dedicated paratransit fleet, but there is no predominant type

TABLE 1
SURVEY RESPONSES BY STATE

State	No. of Responses
CA	18
MI, WI	9
TX	8
OH	7
WA	6
NC, OR	5
AZ, GA, OK, PA, TN	4
CO, IA, ME, MN	3
AL, FL. KY, MA, NM, NV, NY, SD	2
AR, CT, DE, ID, IL, IN, MT, UT, WY	1

of non-dedicated vehicle available for paratransit service, as shown in Table 7. About half of the respondents (46%) reported multiple types of vehicles in their dedicated paratransit fleets, and about a quarter (28%) reported multiple types of non-dedicated vehicles available for paratransit service.

Question 22—Peak Fleet.

Nearly all respondents (93%) reported having 99 or fewer vehicles in their peak paratransit fleets, with the majority having fewer than 25 vehicles, as shown in Table 8.

TABLE 2
WEEKDAY TRIP LEVELS AMONG RESPONDENTS

Trips	<250	250 to 499	500 to 999	1,000+
ADA Trips on an Average Weekday	66%	15%	7%	12%
Total Paratransit Trips on an Average Weekday (including ADA and other)	52%	19%	14%	15%

TABLE 3
LEVEL OF ADA REGISTRANTS AMONG RESPONDENTS

Total Individuals Registered for ADA Paratransit Service	<500	500 to 1,999	2,000 to 4,999	5,000+
% of Respondents	47%	17%	19%	17%

TABLE 4
LEVEL OF ADA RIDERS AMONG RESPONDENTS

Total Active ADA Riders (at least one trip in past year)	<200	200 to 499	500 to 999	1,000+
% of Respondents	39%	17%	12%	32%

TABLE 5
RANGE OF SUBSCRIPTION TRIPS AMONG RESPONDENTS

Subscription Trips as Percent of All ADA Trips	0 to 24	25 to 44	45 to 64	65 to 100
% of Respondents	38%	29%	26%	7%

TABLE 6
ADA SERVICE AREA AND HOURS AMONG RESPONDENTS

	Minimum Required	Somewhat More Than Minimum	Significantly More Than Minimum
ADA Service Area: % of Respondents	34%	43%	23%
ADA Hours of Service: % of Respondents	61%	31%	8%

TABLE 7
VEHICLE TYPES AMONG RESPONDENTS

Vehicle	Sedans/Taxis	Vans	Small Buses	Other	Multiple Answers
Type of Vehicles in Dedicated Paratransit Fleet: % of Respondents	17%	60%	70%	9%	46%
Type of Other (non-dedicated) Vehicles Available for Paratransit Service: % of Respondents	39%	42%	34%	22%	28%

TABLE 8
RANGE OF PEAK PARATRANSIT FLEETS AMONG RESPONDENTS

Peak Fleet Size	<25	25 to 99	100 to 199	200
% of Respondents	65%	27%	4%	4%

Question 24—Who Is Responsible for the Following?

Table 9 presents a distribution of responsibility among in-house, broker, other contractor, or a combination. Responsibility for eligibility determination, customer information, and vehicle ownership are overwhelmingly handled in-house. Only 2% to 7% of respondents reported broker responsibility for any paratransit function. On the other hand, 15% to 43% of respondents reported that paratransit functions are handled by other contractors, with the training, hiring, and supervision functions garnering the highest rate of response. Because questions about responsibilities allowed respondents to check more than one answer, the survey found that nearly 20% of respondents reported multiple responsibilities for customer information and for training of other paratransit staff.

PARATRANSIT POLICIES AND PRACTICES USED BY SURVEY RESPONDENTS

Introduction

Participants were asked a number of questions concerning the following six areas of ADA paratransit service:

1. Eligibility policies and practices,
2. Trip reservation policies and practices,
3. Daily operations,
4. Use of taxis,
5. Coordination with social service agencies, and
6. Management and administrative programs.

Of the 124 unique survey responses received, 21 respondents did not answer the questions on paratransit policies and practices used; therefore, the tables that follow cover the responses received from the remaining 103 agencies.

To seek out possible trends, each question on policies and practices was studied in two ways: (1) in summary form and (2) cross-tabulated by average weekday total paratransit trips, as reported by the respondents in Question 15. Average weekday total paratransit trips is a gauge of an operation's size, which can be viewed as having an important influence (more so than age or geography) over the decisions an agency makes.

Analysis of Policies and Practices for More Effective and/or Efficient Paratransit Service

Question 25—Does Your ADA Paratransit Service Make Use of Any of the Following Eligibility Policies or Practices?

Question 26—Please Include Any Comments on Your Eligibility Responses Here.

Table 10 shows that the majority of all respondents use conditional eligibility (68%), periodic recertification (69%), and travel training (56%) as eligibility policies and practices in their ADA paratransit services.

Table 10 also shows that the use of these three policies and practices is especially high among respondents of the second largest size (large weekday total paratransit trips): 87%, 93%, and 87%, respectively. Travel training is a highly used practice as well (88%) among the largest respondents (more than 1,000 total weekday paratransit trips).

On the other hand, the table shows a deviation from the summary majority response regarding travel training among the smallest respondents (fewer than 250 weekday total paratransit trips). The responses from this group indicate that a majority of these agencies (58%) do not have travel training programs. Also showing a reversal from the summary trends is

TABLE 9
PARATRANSIT RESPONSIBILITIES AMONG RESPONDENTS

Responsibility	In-House	Broker	Other Contractor	Multiple Answers
Eligibility Determination	88%	4%	19%	11%
Customer Information	89%	7%	25%	19%
Trip Reservations	69%	5%	32%	5%
Vehicle Scheduling	69%	4%	32%	6%
Vehicle Dispatching	67%	4%	35%	6%
Vehicle Ownership	93%	2%	15%	10%
Vehicle Maintenance	67%	4%	36%	7%
Driver Hiring and Supervision	65%	3%	39%	6%
Driver Training	68%	2%	43%	13%
Training for Other Paratransit Staff	76%	3%	39%	18%

TABLE 10
ELIGIBILITY POLICIES AND PRACTICES USED IN ADA PARATRANSIT SERVICE
(by weekday paratransit trips)

	Overall		Small		Medium		Large		Very Large	
Policy/Practice	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Conditional Eligibility	68%	32%	60%	40%	71%	29%	87%	13%	71%	29%
Trip-by-Trip Eligibility	39%	61%	38%	62%	33%	67%	60%	40%	29%	71%
Periodic Recertification	69%	31%	58%	42%	62%	38%	93%	7%	88%	12%
Feeder Service to/from Fixed Route	37%	63%	34%	66%	33%	67%	53%	47%	35%	65%
Travel Training	56%	44%	42%	58%	62%	38%	87%	13%	65%	35%
Other Eligibility Policies and Practices	33%	67%	28%	72%	29%	71%	47%	53%	41%	59%

the use of eligibility practices, trip-by-trip eligibility, and feeder service to/from a fixed route among the "Large" respondents (500 to 999 average weekday total paratransit trips). A majority of transit agencies in this group reported that they employ trip-by trip eligibility (60%) and feeder service (53%).

Question 27—Does Your ADA Paratransit Service Make Use of Any of the Following Policies or Practices for Trip Reservations?

Question 28—Please Include Any Comments on Your Trip Reservations Responses Here.

Table 11 shows that a slight majority of all respondents offer on-demand or same-day reservations (54%) and that the "Small" and "Medium" operations are more likely to do so than the "Large" and "Very Large" operations. Only 10% of all respondents use the Internet for trip reservations. Chapter four reviews some of the respondents that are testing this method of receiving trip requests.

Question 29—Does Your ADA Paratransit Service Use Special Policies or Practices in Any of the Following Elements of Daily Operations?

Question 30—Please Include Any Comments on Your Daily Operations Responses Here.

Table 12 shows that the most common type of innovative practices among the survey respondents was use of technology and flexible staffing (both 40%). The majority of the "Large" respondents use innovative practices in vehicle scheduling (53%); technology (67%); flexible staffing (53%); and allocation of drivers, vehicles, or other resources (60%). A majority of the "Very Large" operators responded that they have innovative practices in use of technology (65%).

Question 31—Does Your ADA Paratransit Service Make Use of Taxis in Any of the Following Ways?

Question 32—Please Include Any Comments on Your Taxi Responses Here.

Table 13 shows that a majority of all respondents do not use taxis in their ADA paratransit services. Although this is true for all respondent groups, the use of accessible taxis, taxis as regular contractors, taxis as overflow contractors, and taxis as

TABLE 11
TRIP RESERVATION POLICIES AND PRACTICES USED IN ADA PARATRANSIT SERVICE

	Overall		Small		Medium		Large		Very Large	
Policy/Practice	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
On-Demand or Same-Day Reservations	54%	46%	54%	46%	62%	38%	53%	47%	47%	53%
Internet Access for Trip Requests, Changes, Confirmations, Cancellations	10%	90%	4%	96%	14%	86%	20%	80%	12%	88%
TTDs	59%	41%	54%	46%	43%	57%	80%	20%	76%	24%
Multi-Lingual Call Takers	50%	50%	40%	60%	38%	62%	73%	27%	71%	29%
Other Trip Reservation Policies and Practices	41%	59%	48%	52%	24%	76%	40%	60%	41%	59%

TABLE 12
INNOVATIVE DAILY OPERATIONS POLICIES AND PRACTICES USED IN ADA PARATRANSIT SERVICE

	Overall		Small		Medium		Large		Very Large	
Policy/Practice	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Vehicle Scheduling	36%	64%	40%	60%	14%	86%	53%	47%	35%	65%
Dispatching	37%	63%	42%	58%	19%	81%	40%	60%	41%	59%
Feeder Service	16%	84%	16%	84%	14%	86%	27%	73%	6%	94%
Use of Technology	40%	60%	28%	72%	29%	71%	67%	33%	65%	35%
Flexible Staffing	40%	60%	46%	54%	24%	76%	53%	47%	29%	71%
Allocation of Drivers, Vehicles, or Other Resources	36%	64%	40%	60%	24%	76%	60%	40%	18%	82%
Other Daily Operations Policies and Practices	26%	74%	30%	70%	5%	95%	33%	67%	35%	65%

same-day contractors is significantly higher among the largest respondents (47%, 41%, 47%, and 29%, respectively). Only 6% of all respondents said that they used taxis as other premium service contractors.

Question 33—Does Your ADA Paratransit Service Coordinate with Social Service Agencies in Any of the Following Ways?

Question 34—Please Include Any Comments on Your Coordination Responses Here.

Table 14 shows that a majority of all respondents generally do not coordinate with social service agencies in running their ADA paratransit services. The exception to this rule is the practice of coordinating program schedules for more efficient schedules, for which half of all transit agencies responded in the affirmative. When broken down by size, the respondents who average fewer than 250 weekday total paratransit trips are slightly more likely to coordinate program schedules for more efficient schedules (54%), whereas the "Medium," "Large," and "Very Large" systems were somewhat less likely to do so. In addition, other coordination policies and practices received a particularly high positive response rate (59%) among the "Very Large" respondents.

Question 35—Does Your ADA Paratransit Service Have Any of the Following Special Management or Administrative Programs?

Question 36—Please Include Any Comments on Your Management/Administrative Program Responses Here.

Table 15 shows that service monitoring was the only type of management or administrative program in which a majority of the survey respondents (57%) reported that they were doing something innovative. In addition, a large portion of the "Very Large" operations (76%) reported that they had some innovative service monitoring policies or practices.

Although no other management or administrative program was reported to be in use by the majority of respondents overall or by the majority in any subcategory, a closer examination of this question reveals a few interesting variations. Respondents from the "Very Large" operators used incentive programs for riders somewhat more frequently than respondents in other groups, but used alternate sources of revenue far less frequently than respondents in the other groups. Respondents from the "Large" operations used creative budgeting (as defined by the respondents) significantly more than respondents in other groups.

TABLE 13
TAXI POLICIES AND PRACTICES USED IN ADA PARATRANSIT SERVICE

	Overall		Small		Medium		Large		Very Large	
Policy/Practice	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Accessible Taxis	17%	83%	6%	94%	10%	90%	27%	73%	47%	53%
Taxis as Regular Contractors	16%	84%	8%	92%	5%	95%	27%	73%	41%	59%
Taxis as Overflow Contractors	21%	79%	10%	90%	19%	81%	33%	67%	47%	53%
Taxis as Same-Day Contractors	12%	88%	6%	94%	5%	95%	20%	80%	29%	71%
Taxis as Other Premium Service Contractors	6%	94%	4%	96%	0%	100%	13%	87%	12%	88%
Other Uses of Taxis	15%	85%	16%	84%	5%	95%	20%	80%	18%	82%

TABLE 14
SOCIAL SERVICE AGENCY COORDINATION POLICIES AND PRACTICES USED IN ADA PARATRANSIT SERVICE

	Overall		Small		Medium		Large		Very Large	
Policy/Practice	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Social Service Agencies as Contracted Paratransit Providers	20%	80%	16%	84%	29%	71%	27%	73%	18%	82%
Social Service Agencies as Contractor for Non-ADA Paratransit Service	27%	73%	24%	76%	33%	67%	33%	67%	24%	76%
Lease Vehicles to Social Service Agencies	10%	90%	8%	92%	5%	95%	20%	80%	12%	88%
Coordinate Program Schedules for More Efficient Schedules	50%	50%	54%	46%	48%	52%	40%	60%	47%	53%
Dedicate Vehicles and/or Drivers to Particular Sites or Agencies	27%	73%	22%	78%	24%	76%	33%	67%	41%	59%
Leverage Funding from Other Sources (e.g., Medicaid)	33%	67%	32%	68%	33%	67%	40%	60%	29%	71%
Other Coordination Policies and Practices	20%	80%	34%	66%	38%	62%	33%	67%	59%	41%

FIXED-ROUTE POLICIES AND PRACTICES USED BY SURVEY RESPONDENTS

Introduction

The next set of tables shows respondents' answers to questions concerning the following two areas of fixed-route service:

1. Fixed-route improvements for riders with disabilities.
2. Fixed-route incentives for riders with disabilities.

Of the 124 unique survey responses received, 36 respondents did not answer the questions on fixed-route policies and practices used; the remaining 88 surveys were analyzed.

The responses in this section were analyzed in a similar fashion as the responses to the questions on paratransit policies and practices: (1) in summary form and (2) cross-tabulated by average weekday total paratransit trips, including ADA and all other, as reported by the respondents.

Analysis of Fixed-Route Questions

Question 39—Does Your Transit Agency Provide or Help with Any of the Following Fixed-Route Improvements for Your Riders with Disabilities?

Question 40—Please Include Any Comments on Your Fixed-Route Improvement Responses Here.

As shown in Table 16, the majority of all respondents reported that they provide or help with improvements in vehicle accessibility (81%); design guidelines for improved accessibility for

TABLE 15
INNOVATIVE MANAGEMENT OR ADMINISTRATIVE PROGRAMS USED IN ADA PARATRANSIT SERVICE

	Overall		Small		Medium		Large		Very Large	
Policy/Practice	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Service Monitoring	57%	43%	46%	54%	67%	33%	60%	40%	76%	24%
Incentive Programs for Riders	20%	80%	20%	80%	10%	90%	20%	80%	35%	65%
Incentive Programs for Sponsors of Riders	9%	91%	10%	90%	0%	100%	20%	80%	6%	94%
Alternate Sources of Revenue	32%	68%	30%	70%	43%	57%	40%	60%	18%	82%
Creative Budgeting	30%	70%	24%	76%	33%	67%	47%	53%	29%	71%
Other Management and Administrative Programs	19%	81%	18%	82%	24%	76%	20%	80%	18%	82%

TABLE 16
INNOVATIVE IMPROVEMENTS IN FIXED-ROUTE POLICIES AND PRACTICES FOR RIDERS WITH DISABILITIES

	Overall		Small		Medium		Large		Very Large	
Policy/Practice	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Vehicle Accessibility	81%	19%	75%	25%	88%	12%	80%	20%	92%	8%
Design Guidelines for Improved Accessibility for Stations, Paths, Facilities	57%	43%	50%	50%	65%	35%	60%	40%	69%	31%
Stop Accessibility	58%	42%	50%	50%	59%	41%	60%	40%	85%	15%
Path Accessibility	41%	59%	42%	58%	35%	65%	50%	50%	38%	62%
Public Information	75%	25%	67%	33%	88%	12%	70%	30%	92%	8%
Station/Stop Visual and Audio Communications	50%	50%	42%	58%	47%	53%	60%	40%	77%	23%
Other Fixed-Route Improvements	36%	64%	35%	65%	29%	71%	50%	50%	38%	62%

stations, paths, and facilities (57%); stop accessibility (58%); and public information (75%) for riders with disabilities using their fixed-route services. In particular, an especially high percentage (92%) of the "Very Large" respondents reported providing improvements in public information for riders with disabilities using their fixed-route services. Providing improvements in stop accessibility also ranks very high (85%) among "Very Large" operators, whereas "Small" respondents (under 250 trips) were evenly split on whether they provided improved stop accessibility and design guidelines for improved accessibility for stations, paths, and facilities.

A minority of all respondents provides or helps with improvements in path accessibility (41%). "Large" operators were evenly split on providing such improvements for riders with disabilities using their fixed-route services.

Analysis of reported fixed-route improvements in station and stop visual and audio communications for riders with disabilities revealed a different response pattern. Here the overall response was split evenly among all respondents. However, the "Small" and "Medium" operations generally do not or have not provided fixed-route improvements in station and stop visual and audio communications for riders with disabilities, whereas the "Large" and "Very Large" operations reported that they generally have done so (60% of "Large," 77% of "Very Large").

Question 41—Does Your Transit Agency Provide Any of the Following Fixed-Route Incentives for Your Riders with Disabilities?

Question 42—Please Include Any Comments on Your Fixed-Route Incentive Responses Here.

Table 17 shows that a majority of all respondents reported providing reduced or no fare for ADA-certified riders and/or attendants as a fixed-route incentive for riders with disabilities (68%). The percentages were extremely high among the "Large" (90%) and "Very Large" (92%) operations.

The vast majority of respondents with "Large" operations (90%) conduct targeted marketing to persons with disabilities. This differs greatly from the other three groups, whose use of targeted marketing ranged from 31% to 35%.

TABLE 17
INNOVATIVE FIXED-ROUTE INCENTIVE POLICIES AND PRACTICES FOR RIDERS WITH DISABILITIES

	Overall		Small		Medium		Large		Very Large	
Policy/Practice	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Reduced or No Fare for ADA-Certified Rider and/or Attendant	68%	32%	56%	44%	71%	29%	90%	10%	92%	8%
Targeted Marketing to Persons with Disabilities	40%	60%	33%	67%	35%	65%	90%	10%	31%	69%
Other Fixed-Route Incentives	24%	76%	19%	81%	35%	65%	50%	50%	8%	92%

SUMMARY

The majority of all respondents, whether analyzed in total or grouped by average weekday total paratransit trips, reported that they use the following policies and practices in their paratransit services:

- Conditional eligibility and
- Periodic recertification.

Most survey respondents also noted that they provide or help with the following policies and practices for riders with disabilities using their fixed-route services:

- Vehicle accessibility improvements,
- Public information improvements, and
- Reduced or no fare incentives for ADA-certified rider and/or attendant.

There are several areas where analysis of survey results by average weekday total paratransit trips highlights distinct differences in paratransit policies and practices among the groups of respondents.

The majority of respondents with "Small" operations reported that they do not conduct travel training or have special service monitoring policies and practices in place for their paratransit services, unlike their larger counterparts. The "Small" systems are less likely to provide or help with fixed-route improvements in design guidelines for improved accessibility for stations, paths, facilities, or stop accessibility. However, they are somewhat more likely than "Medium," "Large," or "Very Large" agencies to coordinate program schedules with social service agencies for more efficient schedules.

Respondents with "Large" operations are different from operations both larger and smaller in the use of several policies and practices. They are the only size group with a majority using trip-by-trip eligibility and feeder service to/from a fixed route. They are also the only group with a majority providing targeted marketing to persons with disabilities as a fixed-route incentive.

Respondents with "Very Large" operations reported the highest use of innovative service monitoring programs, the highest use of incentive programs for riders, and the highest use of taxi services.

CHAPTER FOUR

CASE STUDY HIGHLIGHTS

INTRODUCTION

Chapter three reviewed the variety of policies and practices that transit agencies of different sizes and environments have used to serve the paratransit demands of riders with disabilities. This chapter highlights some of these policies and practices, providing details of how transit agencies have carried out programs in the topic areas covered in the survey.

Each of the following sections of this chapter provides an overview of the topic and the key issues facing transit agencies. Following this discussion are the specific policies and practices. Information has been gathered from open-ended responses provided in the on-line survey (Questions 26, 28, 30, 32, 34, 36, 40, and 42), telephone interviews with transit agency staff, and sample documents provided by staff or from their agency websites. Areas covered include:

- Eligibility policies,
- Operating policies and practices,
- Taxis and other flexible capacity,
- Coordination of ADA paratransit with other transit services,
- Improvements to fixed-route services, and
- Incentives to use the fixed-route system.

ELIGIBILITY POLICIES

A transit agency's process for determining eligibility is the gateway to its ADA-complementary paratransit service. The more accurately and precisely a transit agency designs and carries out its eligibility process, the more appropriately it can serve its riders—both on the fixed route and paratransit. An eligibility process that is too permissive may lead to providing paratransit service to individuals who could otherwise use the fixed-route system for some or all of their transit trips. This could impose financial burdens on the transit agency, perhaps leading to less service or a lower quality of service for both fixed-route and paratransit riders. If a transit agency improperly denies eligibility to an individual, it is denying a civil right to that person. Even if a transit agency is making proper determinations but has an eligibility process that is unwieldy or burdensome for applicants, that process can discourage people from applying for eligibility and thus indirectly deprive them of paratransit service.

Eligibility for ADA-complementary paratransit service is directly related to an individual with a disability not being able to use the fixed route. The ADA regulations set forth three categories of eligibility [49 CFR 37.123(e)]:

1. An individual with a disability (physical, sensory, or mental) who is unable, without the assistance of another individual, to board, ride, or disembark from a vehicle which is accessible to persons with a disability.
2. An individual with a disability who could use a fixed route if the vehicle were accessible, but accessible vehicles are not being used for the particular trip.
3. An individual with a disability who cannot get to or disembark from the fixed-route station or stop.

The first eligibility category; that is, "navigating the system," is the most common and well known. The second eligibility category is becoming less common and does not apply in many transit agencies as their fleets become fully compliant with the vehicle requirements of the ADA regulations. The third eligibility category is a function of the operating environment of a transit agency—the accessibility of the stops, stations, and paths of travel to and from them.

An eligibility process generally includes the following components:

- Public information and initial application,
- Tracking and initial review of application,
- Assessment of an applicant's capabilities,
- Eligibility determination,
- Appeal and service suspension processes, and
- Recertification.

The transit industry has refined the policies and processes used to determine ADA paratransit eligibility. To track applications, more agencies are now making use of automation to handle the great volume of data on its applicants. More transit agencies are conducting detailed and specialized applicant assessments. Easter Seals Project ACTION has developed reference materials to help transit agencies in this area (http://projectaction.easterseals.com/site/PageServer?pagename=ESPA_free_resources&s_esLocation=FR). The National Transit Institute provides a training course, Comprehensive ADA Paratransit Eligibility (http://www.ntionline.com/CourseInfo.asp?CourseNumber=FP011). More transit agencies now conduct in-person assessments with in-house or con-

tracted specialists. In addition, there have been changes in the appeal and suspension processes, in part owing to consumer input and FTA guidance on acceptable policies.

However, the changes in eligibility policies and practices that are most likely to have a long-term impact on paratransit riderships relate to the ways in which transit agencies are refining eligibility determinations. To encourage the use of fixed-route service, the regulations have always permitted transit agencies to give eligibility to paratransit riders on a conditional or trip-by-trip basis. 49 CFR 37.123(b) states that, "If an individual meets the eligibility criteria of this section with respect to some trips but not others, the individual shall be ADA paratransit eligible only for those trips for which he or she meets the criteria." This means that depending on the environmental conditions, the path of travel, or a rider's disability affecting the ability to use a fixed route, a transit agency is permitted to determine if a trip is feasible on a fixed route for that rider, or if that rider needs paratransit.

For most transit agencies, the barrier to enforcing conditional and trip-by-trip eligibility has been matching the impairment conditions of a rider to daily operations. One responding transit agency noted that, "Conditional eligibility is applied frequently, although applicants are on the honor system to schedule paratransit trips when the trips meet the conditions of their eligibility. We have found that many conditions of eligibility will be difficult to enforce, especially when passengers may reserve trips up to two days in advance."

Many transit agencies now certify applicants with conditional eligibility, but then provide service for any trip requested by that rider. Other agencies have enforced broad conditions, erring on the side of providing paratransit service if there is a question. For example, eligibility for paratransit service in hot (or cold) weather is a common condition, with a particular specific temperature threshold. But instead of using that temperature threshold on a day-to-day basis, an agency may substitute "the months of May to September" as the actual condition.

"Trip-by-trip eligibility" tends to refer to evaluating a rider's ability to use a fixed route or need to use paratransit for a specific origin and destination. Therefore, knowledge of the path of travel is essential. This means that a transit agency must investigate and document the path of travel to the stops and/or stations that a rider would follow to use a fixed route; every trip origin and destination would require that same effort. This very labor- and data-intensive process stymies most agencies from investing the effort. As a result, trip-by-trip eligibility is used even less frequently than conditional eligibility.

A way to increase the success of trip-by-trip eligibility is to have a travel training program. Travel training enables more ADA paratransit riders to use the fixed route for some of their trips. A discussion of travel training and some success stories appears in the Incentives to Use the Fixed Route System section later in this chapter.

The following two case studies focus on two aspects of eligibility determination. The first case describes the process used by Access Services, Inc. (ASI) to evaluate individuals applying for ADA-complementary paratransit service. The second case describes the efforts by the King County Metro (Seattle, Washington) to implement both conditional and trip-by-trip eligibility.

Access Services, Inc.—In-Person Functional Assessments

ASI is the contractor that provides ADA-complementary paratransit service for the Los Angeles County (California) Metropolitan Transportation Authority and all other fixed-route transit services in Los Angeles County. In fiscal year 2005, ASI switched from an in-person interview to an in-person functional assessment for all individuals applying for paratransit service. The assessment begins with an interview, followed by a simulated transit walk if the assessor needs further information to make a determination. The simulated transit walk includes the following tasks:

- Travel over five different sample terrains: gravel, smooth, cracked and potholed, soft turf, and unset paving blocks;
- Travel up an incline without rest stops;
- Travel up curb steps;
- Travel up and down curb cuts;
- Travel on left- and right-side sloped walks;
- Identification of route numbers;
- Use of a fare box;
- Following multiple-step directions; and
- Going from seated to standing position.

During these tasks, the ASI evaluator observes the applicant's short-term memory response, balance and endurance, and gait and speed.

ASI staff believes that conducting functional assessments for all applicants has led to more accurate eligibility determinations. The largest change in the eligibility determination outcomes was an increase in "restricted" (conditional or trip-by-trip) eligibility from 0.4% in the three previous years (fiscal years 2002 to 2004) to 10.1% in fiscal year 2007 (first 9 months). Another notable pattern was the change in applicants who were determined not to be eligible for ADA service. In fiscal year 2005, the first year of functional assessments, 20.8% of applicants were found not eligible, compared with 11.0% for the previous three years. However, by fiscal year 2007 (first 9 months), the proportion of applicants found not eligible had decreased to 12.5%. Staff concluded that more individuals were self-selecting to not apply for ADA service because they understood that they would not be eligible.

King County Metro—Conditional and Trip-by-Trip Eligibility

King County Metro (Washington State) provides public transportation in Seattle and surrounding King County. Its Metro Access service provides ADA-complementary paratransit service. As of the end of 2006, there were nearly 28,000 individuals certified to use Metro Access. Of this total, more than 80% are certified without any conditions. Metro has been making determinations of conditional eligibility since 1993, but did not begin to enforce the conditions until 2000.

During the eligibility determination process Metro considers the following:

- Conditions that occur while getting to and from a fixed-route bus
  - Seasonal conditions:
    - Extreme heat,
    - Extreme cold,
    - Extreme light,
    - Darkness, and
    - Snow and ice.
  - Variable conditions: "bad day" for riders with disabilities that cause temporary fatigue or temporary intensification of pain.
  - Pathway conditions:
    - Lack of curb cut,
    - Steep inclines,
    - Uneven surfaces,
    - Complex traffic, and
    - Distance.
  - Conditions that occur while boarding or alighting from a fixed-route bus:
    - Lack of boarding device (Metro has a 100% accessible fleet, but evaluates the need for a boarding device because the applicant may use the certification when traveling in other cities) and
    - Lack of accessible stop.
  - Conditions that occur while riding a fixed-route bus:
    - Bus-to-bus transfer and
    - Not travel trained.

For each condition, Metro has provided a definition (and how Metro determines if that condition exists) stating how far in advance a rider can book a demand-responsive trip as a result of the condition, and stating whether a rider can receive subscription service as a result of the condition. For example, Metro defines "extreme heat" as 85°F or greater. Metro also assumes that there is a high likelihood for extreme heat during July and August; therefore, all days during these two months are automatically categorized as extreme heat days. For the remainder of the year if any part of King County is forecast to have a daytime high temperature of 85°F or higher for the next day then a rider with an extreme heat condition may book a trip for that day. Because the extreme heat condition is defined only one day ahead (other than July and August), Metro does not allow subscription service for a rider whose only condition is extreme heat. Appendix D provides Metro's full explanation of each of these conditions.

The pathway conditions deal with architectural and environmental conditions that Metro does not control; the conditions are considered permanent until new information is available. Metro has been slowly compiling a detailed database of pathway barriers (public rights-of-way only). It has a complete database for downtown Seattle. The following are examples of pathway barriers:

- Uneven terrain,
- Slope in direction of travel greater than 8°,
- Busy road or any road with at least four lanes,
- Unmarked intersections, and
- Improper or lack of curb cuts.

Metro Access staff collects data in person for specific paths for frequent trips (defined as more than nine times over three months) made by riders certified since the beginning of 2006. Metro staff visits the origins and destinations, and review the paths to the bus stops for both inbound and outbound legs. They may identify paths that are accessible that are not necessarily the most direct paths between the origin and bus stop, but that are feasible and practical for the rider. They make measurements and take photographs of the sites. Metro has created a pathway review workbook (a set of spreadsheet templates) to collect all the needed data to determine whether the pathways to and from the two ends of a requested trip are accessible. Appendix D also includes a completed pathway review workbook for a sample origin–destination pair evaluated by Metro Access staff.

To implement the enforcement of these conditions, Metro enters each rider's travel limitations in the automated client database (part of the Trapeze software). These data are used by the Trapeze certification module when a rider with conditional eligibility calls to request a trip.

King County Metro estimated the savings from trips taken by conditionally eligible Metro Access riders on the fixed route rather than paratransit service (B. Sahm, personal communication, April 18, 2007). Metro staff reviewed the travel of 283 conditionally eligible riders from 2006 to early 2007 and found that 64 of these riders could use the fixed-route service instead of paratransit for particular round trips. This resulted in 7,528 passenger trips during this period taken on fixed route instead of Metro Access. In addition, 6 of the 64 riders determined that they could use the fixed-route service for all of their transit trips and stopped using Metro Access entirely. This led to another 2,090 passenger trips taken on fixed-route instead of Metro Access service.

The marginal cost of a Metro Access trip during this period was $22.70. The resulting cost savings resulting from trips taken by these 64 passengers on the fixed route rather than Metro Access service was $218,329. In the next phase of

analysis, Metro was planning to review the paratransit feeder trips of certain riders to determine if the riders could use fixed route instead of Metro Access on these feeder trips.

OPERATING PRACTICES

Included in this topic are all activities related to the daily operations of a paratransit service. Major components include:

- Accepting trip requests,
- Scheduling trip requests,
- Assigning trips to vehicle routes,
- Dispatching vehicles, and
- Monitoring operations.

A major evolution in paratransit operations since the years before ADA and its early years was the increasing use of automation. Specialized software packages and other technology are now available to help paratransit staff in all aspects of operations.

For trip requests, some transit agencies are developing ways to allow riders to make the requests on-line. A number of systems already allow riders to cancel or confirm trips through automated phone systems. Dallas Area Rapid Transit (DART) has an automated phone system that allows its paratransit riders to make trip requests and have them confirmed in a single phone call. More details on this "Express Paratransit Booking" system are presented later in this section.

Many paratransit operations, even smaller ones that provide fewer than 250 trips per day, use paratransit software for vehicle scheduling. Transit agencies use the software in different ways; some rely on the software to make most of the choices in assigning trips to routes, whereas other transit agencies use the software as an aid to trip assignment. Most transit agencies realize that a skilled and experienced scheduler is still crucial to review any vehicle routes created by the automated system and then to make adjustments as needed.

There is also an increasing use of vehicles equipped with mobile data terminals (MDTs) and global positioning systems (GPS). Both of these technologies enable paratransit operations to dispatch vehicles and monitor operations in real time. Using MDTs, text messages can be sent and received between a paratransit dispatcher and a driver. MDTs on vehicles could eventually eliminate the need for drivers to carry paper schedules (manifests). However, even when paratransit systems have this option, they tend to continue to use paper—partly because drivers prefer to keep them and partly as a manual backup to MDTs. One practice in use at systems with MDTs is "performing" trips—sending a message to dispatch that a pickup or drop off has occurred using the MDTs rather than the radio. This has reduced the use of radios for such routine communication and kept the radio lines available for other messages between driver and dispatcher.

GPS allow dispatchers to track the location of vehicles in real time. Paratransit operations are making use of this technology in several ways. For example, if a driver is lost, a dispatcher can give the driver directions. A dispatcher can also view a map to decide which vehicle is best positioned to handle an additional trip.

Using taxis as part of a paratransit vehicle fleet is a practice more common for larger paratransit operations. For the transit agencies that carried fewer than 500 trips per day that responded to the survey, less than 20% used taxis. Of those carrying more than 500 trips per day, more than one-third used taxis, with nearly half of the largest operations (more than 1,000 daily trips) using them. A further discussion on taxis and other flexible capacity is presented later in this chapter.

Dallas Area Rapid Transit: Express Booking

DART offers Express Booking (XPB), an automated telephone system available at all times, to its paratransit riders to make trip reservations. It provides immediate confirmation of the trip request without making a confirmation call—or waiting for a confirmation call from DART—on the night before the trip.

There are two ways to use XPB. The first is to set up a personal trip list. This lets a rider identify a set of 10 destinations to which the rider frequently travels. Once this personal trip list is established, the rider can use XPB to book a trip to one of the destinations by specifying that destination, along with the date and time of travel. The second way to use XPB is for a rider to request a trip with the same origin and destination as he or she booked within the past three days. XPB offers a list of these potential trips.

When the rider calls, he or she selects the origin and destination, then provides the date and requested time; either a pickup or drop-off time can be requested. XPB will then provide confirmation of the requested date and time or it will provide a negotiated time within the allowed ±60 min negotiation window. XPB provides a pickup time (subject to a pickup window of 0/+20 min) and an estimated drop-off time for all confirmed trips.

Riders can also use XPB to cancel up to two days' worth of trips in one phone call. Riders can book only one round trip per call with XPB. The deadline for booking a trip using XPB is the same as booking a trip with a call taker (5:00 p.m. of the day before service). Another benefit DART offers XPB users is the ability to request a trip three days in advance; however, individuals who request a trip through a live call taker from Monday to Wednesday can only request a trip up to two days in advance.

DART has been offering XPB since February 2000 as an additional feature to its existing interactive voice response

telephone system. As of early 2007, 28% of weekday trips for DART paratransit (approximately 700 of 2,500 total trips) were being booked through XPB. DART does not track the number of its riders who have used XPB.

Regional Transportation Commission Washoe—Shopper Routes

In addition to ADA-complementary paratransit service (Access), the Regional Transportation Commission (RTC) Washoe (Reno, Nevada) provides a set of four shopper routes for ADA riders. These four routes run on weekdays from 8:45 a.m. to 3:00 p.m. (fixed route and Access operate seven days per week). Each route acts as a service route, with pick-ups and drop offs provided anywhere within each route's geographic area. Most of Reno is covered among the four routes, as well as the northern suburbs and the city of Sparks (to the immediate east). Although there is overlap in the service areas of the four routes, riders do not transfer from one route to another because of the difficulty in coordinating the routes and the resulting concern of potential long wait times for riders.

These shopper routes do not accept advance reservations; they take only same-day requests. The vehicles assigned to the routes (one per route) travel past certain senior housing complexes approximately every 2 h. The housing complexes may place signs in their front windows to indicate that a resident wants a ride on the shopper route. If a rider boards at senior housing without a reservation, the rider tells the driver where he or she wants to go. The rider also arranges the return trip with the driver.

The fare for a rider on a shopper route is the same as other ADA paratransit ($1.70 per trip). The drivers offer as much or more personal assistance as on Access paratransit service, as many riders will have packages from shopping.

This type of service offers a combination of the benefits of fixed route (no need to reserve a trip and somewhat regular schedules) and paratransit (door-to-door, driver assistance available). The vehicle productivity for these routes is 3.6 passenger trips per vehicle-hour (based on 1,900 passenger trips and 525 vehicle-hours per month). This compares with a productivity of 2.6 passenger trips per vehicle-hour for Access service. RTC estimated its resulting annual savings from the shopper routes at $170,000.

TAXIS AND OTHER FLEXIBLE CAPACITY

This discussion focuses on the role of taxicabs in paratransit both to support ADA-complementary paratransit service as well as to meet the needs of those with impaired mobility. Although most taxicabs are sedans, changes in the automobile industry have helped to address some of the limitations of using sedans as a paratransit resource. The minivan, first manufactured domestically in 1983, led to the development of taller vehicles that drive like sedans. By having car-like vehicles available for conversion to accessible vehicles, their use as taxicabs is possible. Furthermore, as described later in this section, manufacturers are developing specialized taxicab sedans that can accommodate wheelchairs.

Taxicabs as Paratransit Vehicles

The vehicles used to supply paratransit include low-floor buses, minibuses, vans, and sedans. Newly manufactured vans and buses are usually equipped with ramps or lifts. Most taxicabs are sedans and usually feature cargo areas sufficient to carry a folding wheelchair.

For paratransit passengers who can travel in sedans, taxicabs have been used as paratransit vehicles for some time. The extent of their effectiveness and the ways in which taxicabs are used varies considerably from city to city. There are a number of variables at play, such as the regulatory environment, marketplace conditions, enforcement, and training.

In some systems where ADA-complementary paratransit is offered through a mixed fleet of vehicles that includes vans and sedans, the sedan service is often provided by taxicab companies that operate under contract. Sometimes these vehicles are equipped with meters and can be used for any paying customer. Other times, the taxis are dedicated to paratransit service. The drivers of these vehicles are often better trained, providing a better quality of service to paratransit passengers.

Accessible Minivans

First manufactured domestically in 1983, the minivan led to the development of taller vehicles that drive like sedans. By having car-like vehicles available for conversion to accessible vehicles, their use as taxicabs is possible. With the advent of wheelchair-accessible minivans, it has become more practical for regulatory authorities to require that a certain percentage of the taxi fleet be wheelchair accessible. In some cities, regulators have required operators to convert a portion of their fleets. In other cities, regulators have issued additional licenses exclusively for accessible taxis. This has been particularly effective in systems with taxi medallions where demand exceeds supply. Although not universally true, those operating minivans that are wheelchair accessible have been able to carry more passengers or people with large quantities of luggage than would otherwise be able to travel together in a sedan.

Accessible Sedans

Sedans are another vehicle alternative for some paratransit services. Pioneered in England, the accessible taxi sedan is one of the latest trends in vehicles (see Figure 1). The London Taxi is distributed in the United States through London Taxis of North America (www.londontaxisna.com). These

FIGURE 1 Accessible taxi sedan.

vehicles were priced at $49,000 in a 2005 *New York Times* article (Motavalli 2005). A new sedan-based taxi called the Standard Taxicab is being marketed and developed by the Vehicle Production Group, LLC. This vehicle is designed and engineered specifically for taxicab and paratransit fleets and is expected to cost approximately $25,000 according to a 2006 article in the *Seattle Post-Intelligencer* (Harrell 2006). Information on its use for wheelchairs is available at www.standardtaxi.com/disabled.html. Figure 2 shows a Standard Taxicab.

Because the London Taxi has a long record of effectiveness as a taxicab in England, it is most likely suitable as an accessible taxicab in the United States. Its major impediment is its relatively high initial purchase price, approximately double the cost of a typical domestic taxicab. It is possible that, over time, the cost to own such a vehicle will prove comparable to the ownership costs of a typical taxicab sedan.

FIGURE 2 Standard taxicab.

In terms of its proposed cost of approximately $25,000, the Standard Taxicab shows promise. Once it is deployed as a revenue-generating taxicab, more will be known about its potential for addressing the need for accessible taxicabs.

King County Metro Case Study (Accessible Minivans)

An ongoing partnership among King County Metro (Washington State), King County's Licensing Division, and the city of Seattle is coordinating a demonstration project to provide accessible taxi service for people who use wheelchairs in King County. The program was intended to determine the potential effects of introducing low-floor accessible taxis into the 800-vehicle fleet of city and county taxis. Metro provided eight of its supervisor vehicles, which had approximately 30,000 miles of use, for these accessible taxis. The operators of these 8 vehicles are 16 cab drivers who formed a driver group and affiliated with one of the major taxi companies for automated dispatching services. The driver group was required to obtain $1 million in liability coverage, the same level as other taxi companies participating in the Metro Access overflow program.

By providing the vehicles from its own paratransit fleet, King County Metro addressed one of the key financial issues of using accessible minivans as taxicabs. As a result, taxi drivers did not have to invest in a more costly vehicle to provide service. Fares charged and other services are the same as taxi sedans.

The program has worked reasonably well from an operational perspective. Monthly, they have received approximately 50 dispatch calls for Metro Access trips, 30 calls for overflow Metro Access trips, and hundreds of general public trips. Early in the project, each accessible cab provided only seven to nine trips per month for wheelchair customers.

There are a few ongoing challenges. First, the size of the fleet is small and cannot adequately cover a large geographic area. If a rider who uses a wheelchair calls for an accessible taxi, the response time, although same day, is usually much longer than for calling a nonaccessible taxi. Obtaining affordable insurance also proved to be a problem, as the association could not get onto a larger group insurance program and required extra time (four months) to obtain insurance. Their annual insurance costs amount to $10,000 per vehicle—more than three times as expensive as for other taxis. The minivans get better gas mileage than the vehicles typically used as cabs (Crown Victorias); however, the cost savings are not

enough to offset the higher insurance costs. Finally, the supplied vehicles will eventually need rehabilitation or replacement, which will require a significant financial outlay to keep the service in operation. Appendix E provides other findings from this demonstration project.

Opportunities for Improved Efficiency

Taxicabs are a more efficient vehicle for system operators because they can be used for other revenue purposes. As fleets continue to include converted minivans or purpose-built vehicles such as the Standard Taxi, the efficiencies can be realized in the other direction. In other words, when general taxi business is slow, the accessible taxis can be used to further supplement paratransit operations. In addition, companies with the vehicles are finding that there is demand for accessible taxicabs from people in the disabled community not eligible for subsidized paratransit (Lave and Mathias 1998).

Taxi companies are changing by adopting sophisticated dispatching capabilities and by entering into contracts to provide other transportation services. Companies are actively competing with private paratransit contractors for health maintenance organizations and Medicaid transportation contracts and for ADA service (Lave and Mathias 1998). Having vehicles that can operate either as paratransit vehicles or as taxis for the general public provides maximum flexibility for taxicab companies that also serve as contractors for paratransit services.

COORDINATION OF ADA PARATRANSIT WITH OTHER TRANSPORTATION SERVICES

Coordination of transportation services for the transportation disadvantaged has been an ongoing activity and goal since the 1970s. In 1980, the U.S. Department of Health, Education, and Welfare published two documents: *Planning Guidelines for Coordinated Transportation Services* (Applied Resource Integration Ltd. 1980a) and *Implementation Guidelines for Coordinated Agency Transportation Services* (Applied Resource Integration Ltd. 1980b). Although the technology certainly has evolved (and the department no longer exists), much of the guidance in these two documents remains valid.

More recently at the federal level, 2004 Presidential Executive Order 13330 created an interdepartmental Federal Council on Access and Mobility to undertake collective and individual departmental actions to reduce duplication among federally funded human service transportation services; increase the efficient delivery of such services; and expand transportation access for older individuals, persons with disabilities, persons with low income, children, and other disadvantaged populations within their own communities.

In 2005, SAFETEA-LU created a requirement that a locally developed, coordinated public transit/human service planning process and an initial plan be developed by 2007 as a condition of receiving funding for certain programs directed at meeting the needs of older individuals, persons with disabilities, and low-income persons. The plan must be developed through a process that includes representatives of public, private, and non-profit transportation providers and public, private, and non-profit human service providers and participation by the public. Complete plans, including coordination with the full range of existing human service transportation providers, are required by fiscal year 2008.

The current public face of coordination at the federal level is the United We Ride program (www.unitedweride.gov). It is intended to gather all the information and technical assistance at one location. It also provides links to all of the state action plans for coordination.

A number of states have mandated some level of coordination. According to a recent TCRP report, at least 12 states fund local public transportation for older adults and persons with disabilities: Florida, Indiana, Kansas, Michigan, Missouri, North Carolina, Ohio, Oregon, Pennsylvania, Rhode Island, Washington, and Wisconsin (TranSystems et al. 2004).

More coordination at the local and regional level is taking place—a requirement of receiving transportation funding from the nine federal departments that, along with the Social Security Administration and the National Council on Disabilities, comprise the Federal Interagency Coordinating Council on Access and Mobility.

The references cited in chapter two, along with the website for United We Ride, provide extensive information on current coordination activities. However, as cited in chapter three, the respondents to the survey overall did not see themselves as carrying out many innovative policies or practices in coordination. The following paragraphs present some of the transit agency responses to the open-ended question on coordination (Question 34).

Transit agencies in several states, including California, Florida, and Pennsylvania, indicated that they are the county or regional transportation coordinator or broker. Other transit agencies contract for their ADA paratransit service with an agency that is doing the county coordination or with a private operator that also has transportation contracts with social service agencies.

For some of the agencies, ADA rides are a small portion of their total paratransit operation. For example, the Red Rose Transit Authority (Lancaster, Pennsylvania) wrote that "ADA comprises about 10% of the total trips."

Here are some examples of coordination activities by respondents to the survey:

- Santa Fe Trails (Santa Fe, New Mexico) indicated that it has "a coordinated call center which gives transportation

information including a commuter service provided by New Mexico DOT, rural transportation information, fixed-route Santa Fe Trails, and Santa Fe Ride paratransit service."
- Intercity Transit (Olympia, Washington) responded that, in addition to coordinating service with the two other transit operators in its county, it also provides travel training to the clients of those transit operators.
- The Transit Authority of River City (Louisville, Kentucky), as part of a new local mobility council, is offering other agencies free vehicle maintenance and a new vehicle lending program.

Mason County (Washington State)—School Buses

Mason County (Washington State) Transit operates a combination of eight fixed routes, route deviation, zone service, and general public dial-a-ride service. Five of the routes make connections with transit service to adjacent counties. It has a fleet of 35 vans and small buses.

Since 1999, Mason County has been supplementing its fleet with four school buses from Shelton and North Mason, two school districts in the county. The four buses operate weekdays from 5:00 p.m. to 6:30 p.m. Each vehicle averages 435 rides per month in portions of the county that otherwise would not have service. The riders consist primarily of students going home after attending after-school activities and residents coming home from work, shopping, or other events.

The economics of the arrangement work well for Mason Transit and the school district. In 2006, the cost to Mason Transit was $1.85 per vehicle-mile, plus $22.50 per vehicle-hour. The average daily mileage per bus was 30 miles and there was a minimum of two hours per bus per day. This yields a cost per passenger trip of approximately $4.80. A portion of the service is funded through Washington State's Agency Council on Coordinated Transportation, which encourages this type of partnership. The general manager says that he has not heard any opinions about the ride quality of the school buses from his passengers. Mason Transit plans to continue this arrangement. It is also working with the school district to apply for grant funds to acquire "dual use vehicles," which will have seatbelts and may offer better seating.

The general manager believes that a key to this arrangement is that Mason Transit contracts for the school bus drivers along with the school buses, which was an important factor for the school district's comfort in using the school buses for other purposes. This arrangement also provided additional work for the school bus drivers. Although the general manger is getting Mason Transit drivers trained and certified to operate the school buses, there is no plan to replace the school bus drivers with Mason Transit drivers. There was some initial opposition from the state superintendent of public instruction because of concerns about having the general public and students riding together. However, Mason Transit and the school districts were able to overcome this hurdle—in part, because these school buses were assuming the role of general public transit vehicles.

IMPROVEMENTS TO FIXED-ROUTE SERVICE

Since the enactment of the ADA, one of the greatest changes in public transportation accessibility is the proportion of accessible vehicles in transit agencies' fixed-route fleets. According to the 2006 APTA *Public Transportation Fact Book* (2006), 96.9% of its members' buses are accessible for mobility devices, but not necessarily fully compliant for other accessibility requirements. These numbers will continue to increase as transit agencies replace the older vehicles with new, accessible vehicles.

The big remaining challenge facing transit agencies in increasing the accessibility of fixed-route service is improving the environment in which they operate. Rail operators often control some of the components of the paths used to reach their platforms and trains, such as station facilities, parking lots, and paths between the facility and the drop off or pickup locations. In these cases, they can control the design of accessible paths and sometimes the maintenance as well. Bus operators, in contrast, often have limited control of their environment. Some bus operators have transfer centers, commuter parking lots, intermodal transit centers, or other dedicated transit facilities for which they may oversee the design and maintenance. Most locations where riders board or alight from buses, however, are bus stops on sidewalks along public streets. When there are shelters, the transit agency often designs the shelter and bus stop pad. However, beyond that (literally), the transit agency usually relies on another entity to provide an accessible path.

In jurisdictions where the transit agency is a municipal agency, the municipality may set forth uniform design and construction standards that lead to coordinated accessibility planning for sidewalks, curb cuts, crosswalks, and other elements of public pedestrian ways. This may simplify the administrative process and the allocation of financial burden for the accessibility improvements. The task is much more challenging, however, when the transit agency is separate from the municipality and/or operates in more than one municipality.

Some transit agencies have been proactive in developing design guidelines for transit facilities and paths of travel. These guidelines are useful for their own staff and contractors. In addition, they can share these guidelines with the municipalities to promote the proper design for accessibility. In the best case, the transit agency can have its design standards incorporated directly in the standards of its city or county. The following section provides an example of this.

Transit Authority of River City Design Manual

The Transit Authority of River City (TARC) in Louisville, Kentucky, has prepared the *Transit Standards Manual: A Reference Guide* (2006). TARC's website states that:

> TARC works with planners and developers throughout the community to ensure that new developments can accommodate transit riders. When a new development is constructed, or when a property is redeveloped, there are requirements in Louisville Metro's Land Development Code for transit amenities.

The *Transit Standards Manual* is a companion document to the Land Development Code. Although this document is not prepared solely for issues of accessibility, it incorporates the accessibility requirements for accessible paths, stops, and bus shelters. Appendix F presents excerpts from the *Standards Manual* that includes design guidance related to accessibility. The entire *Standards Manual* is available at http://www.ridetarc.org/inside-tarc/transit-standards.asp.

INCENTIVES TO USE THE FIXED-ROUTE SYSTEM

Under the ADA, the primary goal for public transportation is to make fixed-route service accessible to the greatest number of potential riders. ADA-complementary paratransit service comes into play only when a transit agency and a rider determine that, as a result of the rider's disability, it is not possible for the rider to use fixed-route service. In general, fixed-route service offers riders two incentives over paratransit:

1. Greater flexibility in scheduling and traveling. Although some transit agencies are providing paratransit trips on a same-day basis, most agencies require reservations at least one day ahead, as permitted in the regulations. Using fixed-route service requires no such planning. Flexibility in planning a trip is limited to service frequency on the fixed route.
2. Lower fares. The fare on an ADA-complementary paratransit trip may be as much as twice the fare on a comparable fixed-route trip.

Fare Incentives

The FTA requires grantees to charge no more than half fare to persons with disabilities (as well as senior citizens) during off-peak times on the fixed route. Many transit agencies have instituted fare incentives for ADA riders that go beyond this. They are allowed to ride for free on the fixed route. Furthermore, an increasing number of transit agencies also permit the ADA rider's personal care attendant to ride for free. This is an important addition, because some ADA riders would not be able to (or would not feel comfortable) riding the fixed route unaccompanied. This double fare incentive removes this barrier.

RTC Washoe has a fare incentive for ADA riders who use its Citilift paratransit to or from a Citifare fixed-route bus. The regular ADA-complementary paratransit service fare is $1.70, which is the same as the fixed-route bus fare. Half fare on the bus is 85 cents. However, if a paratransit rider takes a feeder trip to or from a fixed route, then RTC charges only 55 cents for the entire trip.

Travel Training

Travel training is not a new idea. Among the survey respondents, 56% stated that they had a travel training program. Excluding the group of the smallest operations (those providing fewer than 250 daily paratransit trips), the proportion increases to 73%. The primary benefit of travel training is giving riders the chance to take advantage of the flexibility of fixed-route service. Some travel training programs are directed toward ADA riders with cognitive disabilities. The travel training they receive is often for a specific round trip; for example, between home and work or home and another common destination.

Other travel training programs are broader in scope. Many older individuals who apply for ADA-complementary paratransit service have rarely used public transportation; they have traveled by private automobile all their lives. If transit agencies are referring potential paratransit riders to fixed-route service, they must realize that riding a bus (or train) is a new experience for many of these individuals; therefore, travel training should include teaching these individuals the basics of public transportation.

- How to read a map and bus schedule,
- Where to wait for a bus,
- How to board and pay the fare, and
- How to signal for the desired stop.

The Sandy (Oregon) Area Metro (SAM) has developed a travel training program, Transit Adventures, directed to these new users of public transportation. Sandy's fixed-route service began in 2000. Located 35 miles southeast of downtown Portland, Sandy had previously been part of the TriMet (Portland) transit district. Later in 2000, Sandy began general public dial-a-ride, which served several purposes: ADA-complementary paratransit service; feeder to fixed route, both for general public and ADA riders; and local door-to-door service. To help introduce all of its residents to the fixed route, staff began offering Transit Adventures each month. The city's trainer (guide) leads a group of between 4 and 15 participants on a day-long trip using several transit modes. The training is open to everyone, although most participants are 55 or older. The guide selects a "fun" destination in or near Portland; for example, a museum, historical site, marketplace, or tourist destination.

By traveling into Portland, the participants also use the light rail and streetcar. Sandy's transit manager estimates a monthly

cost for Transit Adventures of $200 to $300. This includes time to research and plan the trip, eight hours to guide the trip, and expenses to market the program and pay for non-SAM fares. There is no cost to SAM operations, because the participants ride on regularly scheduled fixed-route service.

The participants enjoy the training, with as many as 50 individuals taking part multiple times. Several participants have become comfortable with using transit on their own for longer trips to medical appointments. Several participants have since become trainers themselves. According to the transit manager, "seniors take ownership of SAM and become transit users."

Although a majority of transit agencies provide travel training, there are few quantitative analyses of the benefits of travel training to a transit agency. There were two transit agencies that provided estimates of their savings. The first, RTC Washoe, analyzed its travel training program in 2004. The Northern Nevada Center for Independent Living had travel instructors who worked with 71 individuals with disabilities. They evaluated the individuals' abilities to use public transportation and taught those with the ability to use RTC Ride fixed route (previously called Citifare) or a combination of fixed route and RTC Access (previously called CitiLift). The mobility training program worked to identify which form of public transportation best met the ability and needs of the person with a disability. If someone was unable to use RTC Ride, he or she was eligible for the more costly paratransit service.

The age range of the trainees varied, with 20% between the ages of 18 to 22, 54% between 23 and 59, and 27% age 60 and over.

After completing training, of the 71 trainees, 44% (31) used RTC Ride only, 34% (24) used RTC Access only, and 7% (5) used a combination of Ride and Access. The remaining 15% (11) did not complete the travel training. The 31 trainees who only rode RTC Ride took an average of 264 rides weekly, or 13,728 rides yearly.

During calendar year 2004, a total of 921 training hours were used, with an average of 13 h per person. The cost to RTC was $31,287 and the average training cost per trainee was approximately $441. The cost of providing those 13,728 trips on RTC Ride was estimated at approximately $36,000. The comparable cost of Access rides would have been more than $300,000. Thus, the net savings of this program to RTC was approximately $233,000 annually.

The second reporting agency, Intercity Transit (Olympia, Washington), conducts its travel training in-house. They concentrate on regular riders; for example, people with jobs or who regularly go to the senior center or community center. In 2006, its trainer trained 97 individuals who used its Dial-A-Lift paratransit program. According to the Dial-A-Lift manager, the cost savings per trip diverted from paratransit to fixed route is $27 to $30 versus $3. A very conservative estimate of trips per rider is 10 per month. This yields a savings of $314,280 annually (97 riders × 10 trips/rider/month × 12 months/year × $27 savings/trip).

The cost for travel training, which includes a full-time trainer, travel, materials, and supplies, is approximately $55,000 per year. That yields a net annual savings to Intercity Transit of $260,000.

CHAPTER FIVE

CONCLUSIONS

From 1992, the first year of the Americans with Disabilities Act (ADA)-complementary paratransit service, to 2004, paratransit ridership in the United States increased by 58.3%, to more than 114 million trips, most of which were ADA-complementary paratransit trips. Although growth in paratransit ridership has slowed since the early 1990s, over a 5-year period (1999 to 2004), paratransit ridership rose by 14%. Nevertheless, this rate of increase far exceeds public transit as a whole for the same period (4.4%). Paratransit ridership is slightly more than 1% of the total transit ridership. However, as stated earlier, an agency's costs to provide paratransit trips are disproportionate to the ridership share. In 2004, paratransit comprised 9% of transit operating costs. The operating cost per trip for paratransit service was $22.14. For all other modes, the operating cost per trip was $2.75.

These figures and trends are prompting transit agencies to seek ways to meet the growing demand for ADA-complementary paratransit service more effectively and efficiently. This synthesis identifies policies and practices, both proven and promising, from fellow paratransit operators.

Transit agencies of different sizes are improving the efficiency of ADA paratransit service. They are providing better and more flexible service to individuals who rely on paratransit service to travel to work, to school, to medical appointments, to shopping, and to anywhere else that fixed-route service can take them.

- For eligibility determination, King County Metro (Washington State) has invested much effort in developing policies for making determinations of conditional eligibility. The agency also invests staff resources to collect the pathway data necessary to make determinations for trip-by-trip eligibility. The agency has used its paratransit software to make use of these determinations in its daily Metro Access operations. Access Services, Inc. (paratransit contractor in Los Angeles) conducts in-person functional assessments of all applicants for ADA paratransit. Although the portion of applicants determined not eligible has increased only slightly (11% to 12.5%) since switching to in-person functional assessments, the portion of conditional or trip-by-trip determinations has increased from 0.4% to 10.1%.
- Technology has helped paratransit operations handle an increasing number of trips, clients, and vehicles. Trip scheduling software is much more sophisticated, although a person skilled in scheduling is still crucial to make the best use of the software. Mobile data terminals in vehicles and global positioning systems for tracking vehicle movement have aided drivers and dispatchers, especially in the ad hoc world of paratransit. Dallas Area Rapid Transit (Dallas, Texas) has an automated system that allows its riders to request and confirm trips over the phone without the need of a call taker. This option makes trip requests more convenient for riders and less labor-intensive for the agency.
- Paratransit coordination can involve much more than daily service delivery. In states where coordination has been mandated for a long period, transit agencies have served as the county or regional service coordinator or broker. Beyond daily operations, examples of coordination reported in the survey include joint travel training (Intercity Transit, Olympia, Washington), vehicle maintenance and vehicle lending (Transit Authority of River City, Louisville, Kentucky), and a regional call center for transit information (Santa Fe Trails, New Mexico).
- Two transit systems that have demonstrated significant benefits from their travel training programs are: Regional Transportation Commission (RTC) Washoe (Reno, Nevada), which found a net savings of $233,000 for one year; and Intercity Transit (Olympia, Washington), which had a "very conservative" annual savings of $260,000. As demonstrated in a small transit system such as Sandy (Oregon) Area Metro (SAM), travel training can have the added benefit of gaining fixed-route transit riders who had never ridden transit before. SAM's Travel Adventures program targets and trains not only persons with disabilities, but anyone who is uncomfortable or unfamiliar with riding a bus.

Despite the success stories, the transit industry could do more to serve its ADA paratransit riders more effectively and efficiently. There can be greater efforts to make the fixed route more accessible and inviting to current and future paratransit riders. Transit agencies must realize the idea that an accessible fixed route benefits them as well as their riders. The intent of the ADA and the department of transportation regulations is for riders to use fixed-route service whenever possible. ADA paratransit is meant to be the safety net, a costlier transit mode provided for riders unable to use fixed-route service.

The responses to the survey indicated that the most common practice of transit agencies for improving fixed-route accessibility has been increasing the accessibility of their vehicles. This is not surprising, because the ADA regulations

have mandated the acquisition of accessible vehicles. It is surprising, however, that among the survey respondents only 56% reported that they had a travel training program. Based on the findings summarized earlier (and presented in more detail in chapter four), a good investment for transit agencies to promote use of the fixed route for persons with disabilities would be to develop or expand travel training programs.

The survey also showed that a smaller portion of transit agencies make improvements to stops and paths, as these elements are often out of a transit agency's control. But a transit agency's interests are well served when it works with agencies responsible for pathways and private partners to design and create an environment that makes it easier for all riders, whether disabled or not, to use fixed-route transit.

Topics for further study would include a more comprehensive study of transit agency policies and practices that have lead to increased fixed-route ridership by persons with disabilities. The research would gather information from transit agencies about what they have done to attract persons with disabilities to their fixed-route service. This would encompass changes in areas such as policies, operations, vehicles, facilities, and operating environment. The research would evaluate policies and practices to determine their success and to judge their potential for transferability to other agencies. An interesting portion of this research would be to learn how transit agencies measure their fixed-route ridership of persons with disabilities.

It would be helpful to transit agencies to have a more widespread dissemination of a workbook or software application for collecting data on pathway barriers, along with instructions for its use, similar to the workbook described in the case study on King County Metro's conditional and trip-by-trip eligibility process. As noted, many transit agencies are already making determinations of conditional and trip-by-trip eligibility, but are not enforcing the conditions because of the lack of data. Transit agencies would still need to collect the data and make the judgments for each trip; however, the workbook would help them to make comprehensive and consistent determinations.

Taxis could play a larger role in the provision of ADA-complementary paratransit service and other types of flexible transit for persons with disabilities. In rural areas, school buses could also provide flexible capacity. The survey shows that a small set of respondents used taxis for ADA-complementary paratransit service: 16% as regular contractors, 21% as overflow contractors, and 12% as same-day contractors. The development of more widely available accessible taxis could spur a greater use of them by paratransit operators. For school buses, the barriers to greater use appear to be physical, institutional, and regulatory in nature. The Mason Transit case study shows how one transit agency has made good use of school buses. The ongoing TCRP research, Vehicle Guide for Integrating Non-Urban School and Public Transportation Services [Project A-19A(2)] should provide useful findings and recommendations in this area. Although fleet size is not currently a capacity limitation for most paratransit operators, taxis and school buses can provide transit agencies with lower-cost capacity without the need for a long-term capital commitment. There should be continued efforts to integrate these vehicles into paratransit operations.

REFERENCES

Applied Resource Integration Ltd., *Implementation Guidelines for Coordinated Agency Transportation Services,* Transportation Initiative Report, Office of Human Development Services, U.S. Department of Health, Education, and Welfare, Washington, D.C., Apr. 1980a, 83 pp.

Applied Resource Integration Ltd., *Planning Guidelines for Coordinated Agency Transportation Services,* Transportation Initiative Report, Office of Human Development Services, U.S. Department of Health, Education, and Welfare, Washington, D.C., Apr. 1980b, 51 pp.

Balog, J.N., *TCRP Report 24: Guidebook for Attracting Paratransit Patrons to Fixed-Route Services,* Transportation Research Board, National Research Council, Washington, D.C., 1997, 400 pp.

Burkhardt, J.E., D. Koffman, and G. Murray, *TCRP Report 91: Economic Benefits of Coordinating Human Service Transportation and Transit Service,* Transportation Research Board, National Research Council, Washington, D.C., 2003, 172 pp.

Chia, D. and H.N. Ketola, *Assessment of ADA Research and Development Needs,* Federal Transit Administration, Washington, D.C., 1997, 196 pp.

Dalton, D. and K. Wolf-Branigan, *Moving Forward Together: A Workbook for Initiating and Increasing Accessible Taxi Services in Your Community,* Easter Seals Project ACTION, Washington, D.C., 2005.

Harrell, D.C., "Prototype Taxi Gets Rave Reviews," *Seattle Post-Intelligencer,* Sep. 20, 2006.

Kachmar, B., "Travel Training in Indiana," *Proceedings of the American Public Transit Association Bus & Paratransit Conference,* Columbus, Ohio, May 15–18, 2005, 3 pp.

Koffman, D., *TCRP Synthesis 53: Operational Experiences with Flexible Transit Services,* Transportation Research Board, National Research Council, Washington, D.C., 2003, 57 pp.

Lave, R. and R. Mathias, *State of the Art of Paratransit,* Millennium Paper, Committee on Paratransit, Transportation Research Board, National Research Council, Washington, D.C., 1998, 7 pp.

Motavalli, J., "Live From London, Civilized Cabs," *New York Times,* Feb. 22, 2005.

Multisystems, Inc., *Innovative Practices in Paratransit Services,* Easter Seals Project ACTION, Washington, D.C., 2002, 50 pp.

Multisystems, Inc., Transit Plus, K. Martin, T. Tull, and IBI Group, *TCRP Report 56: Integrating School Bus and Public Transportation Services in Non-Urban Communities,* Transportation Research Board, National Research Council, Washington, D.C., 1999, 383 pp.

Public Transportation Fact Book, 57th ed., APTA, American Public Transportation Association, Washington, D.C., Apr. 2006.

"Solving ADA Paratransit Problems; How to Cope with Reality," *Proceedings of a Transportation Research Board Conference,* Committee on Paratransit and Committee on Specialized Transportation, Phoenix, Ariz., May 27–29, 1993, 162 pp.

Thatcher, R.H., *Americans with Disabilities Act* (*ADA*) *Paratransit Eligibility Manual,* Federal Transit Administration, Washington, D.C., Sep. 1993, 335 pp.

Transit Authority of River City, *Transit Standards Manual: A Reference Guide,* First Draft, Louisville, Ky., June 2006.

TranSystems Corporation, Center for Urban Transportation Research, Institute for Transportation Research and Education, and Planners Collaborative, *TCRP Report 105: Strategies to Increase Coordination for Transportation Services for the Transportation Disadvantaged,* Transportation Research Board, National Research Council, Washington, D.C., 2004, 76 pp.

Weiner, R., N. Poultney, and B. Perrone, "King County Keeps Moving: Evaluating Best Practices in ADA Paratransit Eligibility," *Proceedings of the American Public Transit Association Bus & Paratransit Conference,* Denver, Colo., May 2–6, 2004, 7 pp.

APPENDIX A

Survey Questionnaire

TCRP SB-15: Practices for Effectively and Efficiently Meeting ADA Paratransit Demand

You should be able to complete this survey in about 20 minutes.

Section 1 asks you for contact information (name, address, phone no., e-mail).

Section 2 asks you for characteristics of your paratransit service.

Section 3 asks you about how you organize and manage your paratransit service.

Section 4 asks you to tell us about innovative policies and practices in your paratransit service.

Section 5 asks whether you or someone else will answer questions about innovative policies and practices on your agency's fixed-route service.

Section 6 asks for contact information for the person who will complete Section 7 (if not yourself).

Section 7 asks you to tell us about innovative policies and practices on your fixed-route service.

CONTACT INFORMATION

1. Who You Are and How We Can Get in Touch?

1. Transit Agency

2. FTA National Transit Database (NTD) ID

3. Street Address

4. City	5. State	6. Zip

7. Your Name (first and last)	8. Title

9. Phone No. (999-999-9999) + extension (if you have)	10. Cell No. (If better to contact) (999-999-9999)

11. Fax No. (999-999-9999)	12. E-mail Address

2. YOUR PARATRANSIT SERVICE

Basic Characteristics and Numbers

13. Name of Paratransit Service

14. ADA Trips on an Average Weekday
    - Under 250 ☐
    - 250 to 499 ☐
    - 500 to 999 ☐
    - 1,000 + ☐

15. Total Paratransit Trips on an Average Weekday (include ADA and all other)
    - Under 250 ☐
    - 250 to 499 ☐
    - 500 to 999 ☐
    - 1,000 + ☐

16. Total Individuals Registered for ADA Paratransit Service
    - Under 500 ☐
    - 500 to 1,999 ☐
    - 2,000 to 4,999 ☐
    - 5000 + ☐

17. Total "Active" ADA riders (at least one trip in past year)
    - Under 200 ☐
    - 200 to 499 ☐
    - 500 to 999 ☐
    - 1000 + ☐

18. Subscription Trips (% of all ADA trips)

19. ADA Service Area
    - Minimum Required ☐
    - Somewhat Larger ☐
    - Significantly Larger ☐

20. ADA Service Hours
    - Minimum Required ☐
    - Somewhat Extended Hours ☐
    - Significantly Extended Hours ☐

21. Check the Type of Vehicles That Are in Your Dedicated Paratransit Fleet
    - Sedans/Taxis ☐
    - Vans ☐
    - Small Buses ☐
    - Other (please specify):

22. Peak Fleet
    - Under 25 Vehicles ☐
    - 25 to 99 ☐
    - 100 to 199 ☐
    - 200 + ☐

23. Other (Non-Dedicated) Vehicles Available for Paratransit Service

Sedans/Taxis	☐
Vans	☐
Small Buses	☐

Other (please specify):

3. SERVICE ORGANIZATION

24. Who Is Responsible for the Following? (Check all that apply.) You Must Check at Least One Box in Each Row.

	In-House	Broker	Other Contractors
Eligibility Determination	☐	☐	☐
Customer Information	☐	☐	☐
Trip Reservations	☐	☐	☐
Vehicle Scheduling	☐	☐	☐
Vehicle Dispatching	☐	☐	☐
Vehicle Ownership	☐	☐	☐
Vehicle Maintenance	☐	☐	☐
Driver Hiring and Supervision	☐	☐	☐
Driver Training	☐	☐	☐
Training for Other Paratransit Staff	☐	☐	☐

4. POLICIES AND PRACTICES FOR MORE EFFECTIVE AND/OR EFFICIENT PARATRANSIT SERVICE

Is your agency doing something innovative? When answering the questions on this page, please check the second or third column if you think that other transit providers would want to learn about it.

For the questions in this section, please note that you must check one box (and only one box) in each row.

Mailing and contact information appears at the end of this survey.

25. Does Your ADA Paratransit Service Make Use of Any of the Following Eligibility Policies or Practices?

	No	Yes	Yes *and* I am sending you material on this policy/practice	Yes *and* please contact me for more information
Conditional eligibility	☐	☐	☐	☐
Trip-by-trip eligibility	☐	☐	☐	☐
Periodic recertification	☐	☐	☐	☐
Feeder service to/ from fixed route	☐	☐	☐	☐
Travel training	☐	☐	☐	☐

Other eligibility policies and practices	☐	☐	☐	☐

26. Please Include Any Comments on Your Eligibility Responses Here.

27. Does Your ADA Paratransit Service Make Use of Any of the Following Policies or Practices for Trip Reservations?

	No	Yes	Yes *and* I am sending you material on this policy/practice	Yes *and* please contact me for more information
On-demand or same-day reservation	☐	☐	☐	☐
Internet access for trip requests, changes, confirmations, cancellations	☐	☐	☐	☐
TTDs	☐	☐	☐	☐
Multi-lingual call-takers	☐	☐	☐	☐
Other trip reservation policies and practices	☐	☐	☐	☐

28. Please Include Any Comments on Your Trip Reservations Responses Here.

29. Does Your ADA Paratransit Service Use Special Policies or Practices in Any of the Following Elements of Daily Operations?

	No	Yes	Yes *and* I am sending you material on this policy/practice	Yes *and* please contact me for more information
Vehicle scheduling	☐	☐	☐	☐
Dispatching	☐	☐	☐	☐
Feeder service	☐	☐	☐	☐
Use of technology	☐	☐	☐	☐
Flexible staffing	☐	☐	☐	☐
Allocation of drivers, vehicles, or other resources	☐	☐	☐	☐
Other daily operations policies and practices	☐	☐	☐	☐

30. Please Include Any Comments on Your Daily Operations Responses Here.

31. Does Your ADA Paratransit Service Make Use of Taxis in Any of the Following Ways?

	No	Yes	Yes *and* I am sending you material on this policy/practice	Yes *and* please contact me for more information
Accessible taxis	☐	☐	☐	☐
Taxis as regular contractors	☐	☐	☐	☐
Taxis as overflow contractors	☐	☐	☐	☐
Taxis as same-day contractors	☐	☐	☐	☐
Taxis as other premium service contractors	☐	☐	☐	☐
Other uses of taxis	☐	☐	☐	☐

32. Please Include Any Comments on Your Taxi Responses Here.

32. Does Your ADA Paratransit Service Coordinate with Social Service Agencies in Any of the Following Ways?

	No	Yes	Yes *and* I am sending you material on this policy/practice	Yes *and* please contact me for more information
Social service agencies as contracted paratransit providers	☐	☐	☐	☐
Social service agencies as contractor for non-ADA paratransit service	☐	☐	☐	☐
Lease vehicles to social service agencies	☐	☐	☐	☐
Coordinate program schedules for more efficient schedules	☐	☐	☐	☐
Dedicate vehicles and/or drivers to particular sites or agencies	☐	☐	☐	☐
Leverage funding from other sources (e.g., Medicaid)	☐	☐	☐	☐
Other coordination policies and practices	☐	☐	☐	☐

34. Please Include Any Comments on Your Coordination Responses Here.

35. Does Your ADA Paratransit Service Have Any of the Following Special Management or Administrative Programs?

	No	Yes	Yes *and* I am sending you material on this policy/practice	Yes *and* please contact me for more information
Service monitoring	☐	☐	☐	☐
Incentive programs for riders	☐	☐	☐	☐
Incentive programs for sponsors of riders	☐	☐	☐	☐
Alternate sources of revenue	☐	☐	☐	☐
Creative budgeting	☐	☐	☐	☐
Other management and administrative programs	☐	☐	☐	☐

36. Please Include Any Comments on Your Management/Administrative Program Responses Here.

5. FIXED-ROUTE POLICIES AND PRACTICES

37. The Final Set of Questions Deals with Your Transit Agency's Fixed-Route Service. Can You Also Answer These Questions?

☐ YES, I will answer the questions on fixed-route policies and practices (you will proceed to these questions).

☐ NO, someone else at my agency (or another agency) will answer the questions on fixed-route policies and practices (a final question will ask you for contact information).

6. CONTACT FOR FIXED-ROUTE POLICIES AND PRACTICES

38. Please Provide the Contact Information for the Person at Your Transit Agency Who Is More Knowledgeable About Fixed-Route Policies and Practices:

Name:	
Telephone:	
E-mail Address:	

7. FIXED-ROUTE QUESTIONS

Is your agency doing something innovative in your fixed-route service? When answering the questions on this page, please check the second or third column if you think that other transit providers would want to learn about it.

For the questions in this section, please note that you must check one box (and only one box) in each row.

39. Does Your Transit Agency Provide or Help with Any of the Following Fixed-Route Improvements for Your Riders with Disabilities?

	No	Yes	Yes *and* I am sending you material on this policy/practice	Yes *and* please contact me for more information
Vehicle accessibility	☐	☐	☐	☐

Design guidelines for improved accessibility for stations, paths, facilities	☐	☐	☐	☐
Stop accessibility	☐	☐	☐	☐
Path accessibility	☐	☐	☐	☐
Public information	☐	☐	☐	☐
Station/stop visual and audio communications	☐	☐	☐	☐
Other fixed-route improvements	☐	☐	☐	☐

40. Please Include Any Comments on Your Fixed-Route Improvement Responses Here.

41. Does Your Transit Agency Provide Any of the Following Fixed-Route Incentives for Your Riders with Disabilities?

	No	Yes	Yes *and* I am sending you material on this policy/practice	Yes *and* please contact me for more information
Reduced or no fare for ADA-certified rider and/or attendant	☐	☐	☐	☐
Targeted marketing to persons with disabilities	☐	☐	☐	☐
Other fixed-route incentives	☐	☐	☐	☐

42. Please Include Any Comments on Your Fixed-Route Incentive Responses Here.

Thanks.

On behalf of TRB, thank you for contributing to this research.

For any information that you can mail or e-mail me, here's where you can reach me. Also, if you have any questions, please contact me:

David Chia
Principal Investigator
Planners Collaborative, Inc.
273 Summer Street, 7th Floor
Boston, MA 02210

617-338-0018, ext. 117
617-338-4228 fax
dc@thecollaborative.com

APPENDIX B

Survey Respondents

Transit Agencies Responding to Survey

Transit Agency	City	State	Size
Chilton County Transit	Clanton	AL	M
DeKalb County Rural Public Transportation	Fort Payne	AL	S
Ozark Regional Transit	Springdale	AR	S
Coolidge Cotton Express	Coolidge	AZ	S
Havasu Area Transit	Lake Havasu City	AZ	S
Coyote Run (Town of Oro Valley)	Oro Valley	AZ	S
Van Tran	Tucson	AZ	L
Eastern Contra Costa Transit Authority	Antioch	CA	M
City of Benicia	Benicia	CA	S
Colusa County Transit Agency	Colusa	CA	S
City of Elk Grove	Elk Grove	CA	S
Fairfield/Suisun Transit	Fairfield	CA	S
LACMTA/Access Services Inc.	Los Angeles	CA	LL
Monterey–Salinas Transit	Monterey	CA	S
North County Transit District	Oceanside	CA	M
Sacramento Regional Transit District (RT)	Sacramento	CA	L
SamTrans	San Carlos	CA	LL
San Diego Metropolitan Transit System	San Diego	CA	L
Golden Gate Bridge, Highway and Transportation District	San Rafael	CA	M
Santa Barbara Metropolitan Transit District	Santa Barbara	CA	S
Santa Clarita Transit	Santa Clarita	CA	S
City of Turlock	Turlock	CA	S
Santa Clara Valley Transportation Authority	San Jose	CA	LL
San Joaquin Regional Transit District	Stockton	CA	M
Merced County Transit	Merced	CA	L
Special Transit	Boulder	CO	
Mountain Metropolitan Transit	Colorado Springs	CO	M
Village Shuttle, Town of Snowmass Village	Snowmass Village	CO	S
Greater Bridgeport Transit Authority	Bridgeport	CT	M
Delaware Transit Corporation	Dover	DE	L
Space Coast Area Transit	Cocoa	FL	L
Regional Transit System	Gainesville	FL	L
Pierce Transit	Blackshear	GA	S
Paulding County Transit	Dallas	GA	S
Hall Area Transit	Gainesville	GA	S
Dooly Crisp Unified Transportation System Inc.	Vienna	GA	S
Davenport Public Transit	Davenport	IA	S
Ottumwa Transit Authority	Ottumwa	IA	S
Siouxland Regional Transit System	Sioux City	IA	M
Valley Regional Transit	Meridian	ID	S
Champaign–Urbana Mass Transit District	Urbana	IL	S
Terre Haute Transit Utility	Terre Haute	IN	L
GO BG transit	Bowling Green	KY	S
Transit Authority of River City	Louisville	KY	LL
Nantucket Regional Transit Authority	Nantucket	MA	S
Southeastern Regional Transit Authority	New Bedford	MA	LL

Transit Agency	City	State	Size
Penquis Community Action Program/The Lynx	Bangor	ME	S
Aroostook Regional Transportation System	Presque Isle	ME	S
York County Community Action	Sanford	ME	L
Allegan County Transportation	Allegan	MI	
Ann Arbor Transportation Authority	Ann Arbor	MI	L
Big Rapids Dial-A-Ride Public Transportation	Big Rapids	MI	S
SMART—Suburban Mobility Authority for Regional Transportation	Detroit	MI	LL
Mass Transportation Authority	Flint	MI	LL
Kalamazoo Metro Transit	Kalamazoo	MI	M
Schoolcraft County	Manistique	MI	S
Isabella County Transportation Commission	Mt. Pleasant	MI	
Ontonagon County Public Transit	Ontonagon	MI	
Chisago—Isanti County Heartland Express	Cambridge	MN	S
Duluth Transit Authority	Duluth	MN	S
Metropolitan Council—Metro Mobility	Saint Paul	MN	LL
MET Transit	Billings	MT	M
SCUSA Transportation	Albemarle	NC	
Transylvania County	Brevard	NC	S
Charlotte Area Transit System	Charlotte	NC	L
Scotland County Area Transit System	Laurinburg	NC	S
Graham County Transit	Robbinsville	NC	S
Town of Red River	Red River	NM	S
City of Santa Fe—Santa Fe Ride	Santa Fe	NM	S
Churchill Area Regional Transportation	Fallon	NV	S
Regional Transportation Commission, Washoe County	Reno	NV	L
MTA Long Island Bus	Garden City	NY	LL
Chautauqua Area Regional Transit System	Jamestown	NY	S
Southwest Ohio Regional Transit Authority	Cincinnati	OH	L
Greater Cleveland Regional Transit Authority	Cleveland	OH	LL
Community Action Rural Transit System	Lisbon	OH	S
Richland County Transit	Mansfield	OH	M
Toledo Area Regional Transit Authority	Toledo	OH	M
Fayette County Transportation	Washington Court House	OH	
Greene County Transit Board	Xenia	OH	
Southwest	Altus	OK	S
Southern Oklahoma Rural Transit System	Coal, Bryan, Carter, Love Counties	OK	M
Lawton Area Transit System	Lawton	OK	S
Muskogee County Public Transit Authority	Muskogee	OK	
Lane Transit District	Eugene	OR	L
Lincoln County Transportation Service District	Newport	OR	S
City of Sandy, Transit Department	Sandy	OR	S
South Metro Area Regional Transit	Wilsonville	OR	S
City of Woodburn	Woodburn	OR	S
Lehigh and Northampton Transportation Authority	Allentown	PA	LL
Westmoreland County Transit Authority	Greensburg	PA	M
Cambria County Transit Authority	Johnstown	PA	S
Red Rose Transit Authority	Lancaster	PA	LL
Rapid Transit System	Rapid City	SD	M
West River Transit Authority, Inc.	Spearfish	SD	M
Clarksville Transit System	Clarksville	TN	S

Transit Agency	City	State	Size
Southeast Tennessee Human Resource Agency	Dunlap	TN	M
Southwest Human Resource Agency Public Transportation	Henderson	TN	S
Nashville Metropolitan Transportation Authority	Nashville	TN	LL
Amarillo City Transit	Amarillo	TX	L
Capital Metropolitan Transportation Authority	Austin	TX	LL
Corpus Christi Regional Transportation Authority	Corpus Christi	TX	L
Dallas Area Rapid Transit (DART)	Dallas	TX	LL
Island Transit	Galveston	TX	S
City of Grand Prairie/The Grand Connection	Grand Prairie	TX	S
Citibus	Lubbock	TX	M
Tyler Transit System	Tyler	TX	S
Logan/Cache Valley Transit District	Logan	UT	S
Everett Transit	Everett	WA	M
Intercity Transit	Olympia	WA	M
Garfield County Transportation	Pomeroy	WA	S
Ben Franklin Transit	Richland	WA	LL
King County Metro Transit	Seattle	WA	LL
Mason County Transit	Shelton	WA	M
Classic Cab—City of Berlin	Berlin	WI	S
Hartford City Taxi Service	Hartford	WI	S
City of Lake Mills	Lake Mills	WI	
Maritime Metro Transit	Manitowoc	WI	S
Milwaukee County Transit System	Milwaukee	WI	LL
City of Rice Lake	Rice Lake	WI	S
Ripon Taxi Service	Ripon	WI	
Waukesha Metro Transit	Waukesha	WI	S
Metro Ride (Wausau Area Transit System)	Wausau	WI	S
WRTA Bus Lines	Riverton	WY	S

Size Categories

S	Small	Under 250 average weekday paratransit trips
M	Medium	250 to 499 average weekday paratransit trips
L	Large	500 to 999 average weekday paratransit trips
LL	Very Large	1,000+ average weekday paratransit trips
blank	Information not provided by agency.	

APPENDIX C

Telephone Interview Participants

Transit Agencies Participating in Telephone Interview

Transit Agency, City, and State	Title	Interview Date
Ann Arbor Transportation Authority Ann Arbor, MI	Manager of Service Development	03/15/2007
City of Sandy, Transit Department Sandy, OR	Transit Manager	03/15/2007
City of Santa Fe—Santa Fe Ride Santa Fe, NM	Operations Manager	03/16/2007
Corpus Christi Regional Transportation Authority, Corpus Christi, TX	Manager, Purchased Transportation	03/23/2007
DeKalb County Rural Public Transportation Fort Payne, AL	Director	03/22/2007
Hall Area Transit Gainesville, GA	General Manager	03/21/2007
Intercity Transit Olympia, WA	Dial-A-Lift Manager	03/15/2007
King County Metro Transit Seattle, WA	Transportation Planner III	03/16/2007
Logan/Cache Valley Transit District Logan, UT	Transit Specialist	03/22/2007
Mason County Transit Shelton, WA	General Manager	03/22/2007
Mass Transportation Authority Flint, MI	Assistant General Manager—Operations	03/15/2007
Merced County Transit Merced, CA	Transportation Manager	03/15/2007
Metropolitan Council—Metro Mobility Minneapolis, MN	Manager, Provider Operations	03/14/2007
North County Transit District Oceanside, CA	Accessible Services Administrator	03/21/2007
Regional Transportation Commission, Washoe County, Reno, NV	Paratransit Administrator	03/22/2007
San Diego Metropolitan Transit System San Diego, CA	Senior Transit Operations Specialist (ADA Project Manager)	03/16/2007
Transit Authority of River City Louisville, KY	Executive Director	03/23/2007

APPENDIX D

King County Metro Conditional Eligibility Workbook

Client ID #: 93762

Day(s) of Week: Weekday

Date: 8/22/2006

Last Name: Public **First Name:** Ron **MI:**

Origin Address: 1660 S Columbian Way, Seattle **Origin Name:** VA Hospital

Destination Address: XXXXX Ballinger Way NE, Lake Forest Park **Destination Name:** Residence

Pathway to Bus Stop from Origin Address: **Approx. Distance (ft):** 0

• Exit the VA and you are at the bus stop

Bus Route:

	Bus Stop Locations	Times			Bus Number	Bus Header Designation
		Weekday	Sunday	Saturday		
Depart from:	VA Hospital @ VA Hospital Entrance Loop	2:11PM	NA	NA	39 Downtown Seattle continues as #28 Broadview	
Arrive at:	Dexter Ave N @ Denny Way	2:43PM	NA	NA		

Pathway to Transfer Bus Stop:	Approx. Distance (ft):	0

• Exit the bus and remain there for your next connection

Bus Route:

	Bus Stop Locations	Times			Bus Number	Bus Header Designation
		Weekday	Sunday	Saturday		
Depart from:	Dexter Ave N @ Denny Way	2:50PM	NA	NA	258 Aurora Village Express	
Arrive at:	Aurora Village Transit Ctr @ Bay 4	3:35PM	NA	NA		

Pathway to Transfer Bus Stop:	Approx. Distance (ft):	220

• Exit the bus at Bay for and turn left heading east and continue to Bay 6

Bus Route:

	Bus Stop Locations	Times			Bus Number	Bus Header Designation
		Weekday	Sunday	Saturday		
Depart from:	Aurora Village Transit Ctr @ Bay 6	3:42PM	NA	NA	331 Kenmore Park and Ride	
Arrive at:	Ballinger Way NE @ 37th Ave NE	3:52PM	NA	NA		

Pathway from Bus Stop to Destination Address:	Approx. Distance (ft):	236

• Exit the bus and turn right heading east, cross Ballinger Way NE at your residence

Client ID #: 93762 **Date:** 8/22/2006

Last Name: Public **First Name:** Ron **MI:** 0

Origin Address: 1660 S Columbian Way, Seattle **Origin Name:** VA Hospital

DATE:	Client ID:	Last	Origin Address: Destination Address:		Destination Address:	
8/22/2006	93762	Ferris	1660 S Columbian Way		XXXXX Ballinger Way NE	
OZ ID 30453 L1	TZ START ID 6240 L3	TZ END ID 6240 L3	TZ START ID 16104 L5	TZ END ID 16106 L5	DZ ZONE ID 82104 L7	DEST ADDRESS
Barriers N	Barriers N	Barriers N	Barriers N	Barriers N	Barriers Y UN	Barriers Y/N
Leg Dist 0	Leg DIST 0	Leg Dist 0	Leg Dist 0	Leg DIST 0	Leg Dist	Leg Dist 220
Stop ID Hyperlink	Stop ID Hyperlink	Stop ID Hyperlink	Stop ID Hyperlink	Stop ID Hyperlink	Stop ID Hyperlink	
http://servdev.metrokc.gov/other/busstops/Strt003.cfm?Z=30453	http://servdev.metrokc.gov/other/busstops/Strt003.cfm?Z=6240	http://servdev.metrokc.gov/other/busstops/Strt003.cfm?Z=6240	http://servdev.metrokc.gov/other/busstops/Strt003.cfm?Z=16104	http://servdev.metrokc.gov/other/busstops/Strt003.cfm?Z=16106	http://servdev.metrokc.gov/other/busstops/Strt003.cfm?Z=82104	
Zone Loc/City VA Hospital AcRd @ VA Hospital Ent Loop, Seattle	Zone Loc/City Dexter Ave N @ Denny Way, Seattle	Zone Loc/City Dexter Ave N @ Denny Way, Seattle	Zone Loc/City Aurora Village TC Ac @ AVTC Bay 4, Shoreline	Zone Loc/City Aurora Village TC Ac @ AVTC Bay 6, Shoreline	Zone Loc/City Ballinger Way NE @ 37th Ave NE, Lake Forest Park	City Lake Forest Park
Route/Heading 39 Downtown Seattle	Route/Heading 39 Downtown Seattle-28 Broadview	Route/Heading 358 Aurora Village Express	Route/Heading 358 Aurora Village TC	Route/Heading 331 Kenmore Park and Ride	Route/Heading 331 Kenmore Park and Ride	

Direction/Intersectional Zone	Direction/Intersectional Zone	Direction/Intersectional Zone	Direction/Intersectional Zone	Direction/Intersectional Zone	Direction/Intersectional Zone	
EB FS	NB FS	NB FS	EB NS	EB NS	EB FS	
Routes serving Zone	**Routes serving Zone**	**Routes serving Zone**	**Routes serving Zone**	**Routes serving Zone**	**Routes serving Zone**	
36N 39 60	5 5E 26 28 358E	5 5E 26 28 358E	358E	331 342	308 331 342	
Bench/Shelter/Lts/Ph/LBZ	**Bench/Shelter/Lts/Ph/LBZ**	**Bench/Shelter/Lts/Ph/LBZ**	**Bench/Shelter/Lts/Ph/LBZ**	**Bench/Shelter/Lts/Ph/LBZ**	**Bench/Shelter/Lts/Ph/LBZ**	
B, S, L, LBZ	L, LBZ	L, LBZ	B, S, L, LBZ	B, S, L, LBZ	L, LBZ	
PIC	**PIC**	**PIC**	**PIC**	**PIC**	**PIC**	**PIC**

CC/TR INTERSECTION BARRIER DESCRIPTION (complete all fields below)

LOCATION: **@**

DESCRIPTION:

No. of Traffic Lanes to Cross:

Audible Pedestrian Signal (Y/N):

Curbcuts: **NW (Y/N):** **SW (Y/N):** **NE (Y/N):** **SE (Y/N):**

OTHER:

Heavy Peak Traffic (Y/N):

Non-Peak Traffic (Y/N):

Traffic Lights (none, timed, blinking):

No. Of Stop Signs (0, 1, 2,etc.):

No. of Streets Intersecting (0, 1, 2, 3, etc.):

APPENDIX E

King County Metro Wheelchair Accessible Taxi Demonstration Project

Procedure Manual **Conditional Eligibility**

Goal	*Program*
Customer Responsive Cost Effective	ADA Paratransit Program

Policy

During the ADA Paratransit Eligibility process, King County Metro will specify under which conditions a person's disability prevents them from taking regular fixed-route bus service if they are found to be conditionally eligible. The following conditions may be specified

Conditions that occur while getting to and from a regular fixed-route bus:

Seasonal conditions prevent a person from getting to and from a bus stop. They are caused by the change in seasons and can fluctuate day to day. There are several subcategories:

1. Extreme Heat

Extreme heat conditions shall only apply when the daytime high is greater than 85°F.

To assist our customers in planning their trips, Access has determined that between July 1 and August 31, when higher temperatures are most likely, Demand Response Trips may be booked up to the full Advanced Reservation Period.

September 1 through June 30 trips may be booked the day before if the daytime high forecast for any area of King County is greater than 85°F for that day.

No subscription service is available.

2. Extreme cold

Extreme cold conditions shall only apply when the daytime high is lower than 40°F.

To assist our customers in planning their trips, Access Transportation has determined that between November 1 and February 28, when lower temperatures are most likely, Demand Response Trips may be booked up to the full Advanced Reservation period.

March 1 through September 30 trips may be booked the day before if the daytime high forecast for any area of King County is below 40°F for that day.

No subscription service is available.

3. Extreme light

Extreme light conditions shall apply when there is bright sunlight.

Persons may book Demand Response Trips during daylight hours one day in advance when the forecast calls for sun.

No subscription service is available.

4. Darkness

Dark conditions shall apply between sunset and sunrise. Sunrise and sunset times are posted in local papers and the Internet.

To assist our customers in planning their trips, Access Transportation will only change the hours of darkness monthly, using the longest period of darkness in each month. The sunset time will be rounded down to the nearest 5 minutes and the sunrise time will be rounded up to the nearest 5 minutes. Demand Response Trips may be booked up to the full Advanced Reservation period.

Subscription Service will be available when any portion of a trip is within the hours of darkness all year round. The hours between 9 p.m. and 5 a.m. are always in darkness. Each leg of the trip will be treated separately.

5. Snow and ice

Snow and ice conditions shall apply if snow or ice is on the ground, or when Metro declares a Stage 1 level of response or higher.

Demand Response Trips may be booked one day in advance under these conditions, subject to Access Transportation's **Adverse Weather Policy**.

No subscription service is available.

Variable Conditions prevent a person from getting to and from a bus stop. This condition varies from day to day.

1. Bad day

This condition is present when a person's disability causes temporary fatigue.

Persons may book a trip one day in advance when they know their disability will prevent them from taking the regular fixed-route bus the next day.

Subscription Service is available if the trip is for a life sustaining medical appointment.

Pathway Conditions prevent a person from getting to and from a bus stop. They are caused by architectural and environmental conditions not under the control of King County Metro and do not vary day to day. The pathway for requested trips will be reviewed to determine if any of the certified barriers exist. There are several subcategories:

1. **Lack of curb cuts**
2. **Steep inclines**
3. **Uneven surfaces**
4. **Complex traffic**
5. **Distance.**

Subscription Service is available for all the Pathway Conditions once a determination has been made that a barrier exists.

Conditions that occur while boarding or deboarding a regular fixed-route bus:

Boarding Conditions prevent a person from boarding a fixed-route bus.

1. Lack of a boarding device

This condition will apply when there is not a bus available with a lift or ramp. All Metro and regional buses have a lift or ramp so this condition would not apply for a person traveling regionally.

2. Lack of an accessible stop

This condition will apply when no accessible bus stop is available.

Conditions that occur while riding a regular fixed-route bus:

Navigational Conditions prevent a person from navigating the regular fixed-route system. There are several categories:

1. Bus Transfer

Demand Response Trips may be booked when the same trip on regular fixed-route would include a transfer.
Subscription Service is available.

2. Not Travel Trained

Free bus travel training will be provided. Demand Response Trips may be booked until travel training is completed for a specific trip.
Subscription Service is available.

King County (WA) Metro
Wheelchair Accessible Taxicab (WAT) Demonstration Project Highlights

Vehicles

Eight American-made, side-loading, low-floor mini-vans that have been previously used by Metro, with these features:

- Seats three passengers.
- Holds one standard or power wheelchair.
- Passengers who are ambulatory enter the vehicle through the front passenger-side door.
- Passengers who use a wheelchair enter the vehicle through the rear passenger-side door (a manual ramp adjacent to the rear door folds down).
- King County Metro is responsible for the cost of major engine or transmission repair not related to operator negligence. In the event that a vehicle is totaled, the driver is responsible for replacement. King County is unable to replace the vehicle.
- The cost of general maintenance and repairs will be the responsibility of the Driver Group that operates the vehicles.

Driver Incentives

- The acquisition of an accessible taxicab license (WAT) valid for one year with one-year extensions possible during demonstration project.
- The $300 licensing fee is waived during demonstration project.
- The use of accessible vehicles purchased and owned by King County.
- The opportunity to operate as a taxicab providing service to both ambulatory passengers and people who use wheelchairs or other mobility devices that require an accessible vehicle.

WAT Ridership: Mid-October to December 2006

Category	Oct	Nov	Dec	Totals
Yellow Cab Dispatch WAT Trips	18	59	88	**165**
Hailed WAT Trips	3	10	8	**21**
Metro Access overflow WAT Trips*	35	83	58	**176**
Sub Total	**56**	**152**	**154**	**362**
Metro Access overflow Ambulatory Trips*	220	494	511	**1,225**
Total	**276**	**646**	**665**	**1,587**

*Inclement weather resulted in service cancellations and lower ridership.

Changes Made to the Service

- To reduce customer no-shows and cancellations from customers who call Yellow Cab (automated dispatching company) to schedule a trip, customer phone numbers are now being provided to drivers so they can call customers to verify pickup times and discuss service needs (some people with disabilities requested WAT vehicles although they do not use a mobility aid).
- To speed up service delivery, the dispatching software used by Yellow Cab will be modified so that ride requests sent to suburban zones (where there are no drivers waiting and therefore no one to accept the ride) do not sit in the cue for 15 minutes and instead will be re-sent to all WAT drivers after 2 minutes (drivers waiting in urban zones will then claim the ride).

Complaints and Commendations Received

- Five commendations were received regarding courteous service and proper securement procedures.
- Two complaints were received that cabs were late so the customers had to cancel their rides.

Other Observations

- Drivers continue to meet all requirements for FTA Drug and Alcohol testing, including required screenings after accidents and random tests.
- Drivers work as a team to accept almost all ride requests in the broad service area (despite the fact that there are only eight accessible taxicabs in operation).
- The driver group is very dedicated to service quality. Drivers typically work 12 hours a day/7 days a week driving the taxicab, but also volunteer many hours running the business side of the office (access overflow scheduling, billing and data collection for the grant reports).

APPENDIX F

Excerpts from Transit Authority of River City's *Transit Standards Manual: A Reference Guide*

4) Street Furniture

Transit Shelter - A shelter is used at sites where passenger activity levels are high or where customer requests have shown a demonstrated need or desire to have a shelter. The following are guidelines and may be modified due to the type or style of land use present at the site.

Types of Shelters - TARC and its outdoor advertising company can provide and maintain the transit shelter. A shelter that is more in keeping with the design of the development may be used. However, maintenance of a custom shelter would be undertaken by the owner, and any future property owners. A shelter could be a combination of an awning and a bench or some other configuration of covered seating.

Shelter Lighting - Proper lighting is important for safety and security of transit patrons. Shelters should be well lit when it is dark outside or when existing street lights do not provide adequate lighting. All lighting standards should follow Chapter 4, Part 1 of the Land Development Code.

Placement of Shelters - Placement of shelters follows the same guidelines for a transit stop with the following additions:

- Shelters should not be placed in the 5 foot by 8-foot landing pad
- Americans with Disabilities Act (ADA) requirements must be followed around the shelter and between the shelter and other street furniture
- A minimum distance of 2 feet should be maintained between the back-face of the curb and the roof or panels of the shelter (greater distances are preferred to separate waiting passengers from nearby vehicular traffic)

- Shelter should be located at the end of the bus stop zone so it is highly visible to approaching buses and passing traffic and to reduce walking distance from the shelter to the bus
- Shelters should not be located directly in front of store windows
- When shelters are directly adjacent to a building, a 12-inch clear space should be preserved to permit trash removal or cleaning of the shelter
- A minimum clear entrance (doorway) of 32 inches is recommended Entrance may be constructed as part of the "path of travel" but then must be 36 inches wide minimum

- A minimum clear floor area measuring 30 inches wide by 48 inches long, completely within the perimeter of the shelter, must be provided
- A rider using a wheelchair or other mobility aid must be able to enter the shelter from the public way and reach the 30 inch by 48 inch clear floor area
- A minimum 7.5 feet clearance between underside of roof and sidewalk surface is desired

Trash receptacles - Trash recepatacles may be needed at a boarding area, even if boardings per day are low because of surrounding uses (e.g. a transit stop near a fast food restaurant.) Guidelines for placement of a trash receptacle are as follows:

- Anchor the receptacle securely to the ground to reduce unauthorized movement
- Locate the receptacle away from wheelchair landing pad areas and allow for at least a 3-foot separation from other street furniture
- Locate the receptacle at least 2 feet from the back of the curb.
- Ensure that the receptacle, when adjacent to the roadway, does not visually obstruct nearby driveways or land uses
- Avoid installing receptacles that have ledges or other design features that permit liquids to pool or remain near the receptacle (this may attract insects)
- Avoid locating the receptacle in direct sunlight (heat may cause foul odors to develop)

Other street furniture and amenities - An amenity is defined as "any physical improvement made to a transit facility that contributes to a rider's comfort, access, and/or safety while either waiting to board, boarding, or alighting any TARC bus." These include, but are not necessarily limited to:

- Magazine Racks
- Newspaper Stands
- Pay phones (or other telecommunications access point)
- Information Kiosks
- Coffee stands
- Lunch carts / food vendors
- Small shops
- Clocks
- Bike racks / locks
- Public art
- Landscaping / Shade trees (as long as visibility is not obscured)

Photographic Examples

The following images illustrate a variety of contexts for on-street facilities, with recommendations for installation.

On-Site Transit Access

Certain developments, due to their size or use, may warrant direct transit access in the site, e.g. airports, other transportation facilities, museums, schools, large employers, sporting facilities, institutional/governmental buildings or any development where a large number of people will be using the facility at a given time. If on-site transit access is warranted, then the following guidelines should be followed.

Pavement - Roadway pavements must accommodate repetitive bus axle loads of 40,000 pounds, with exact pavement designs dependent on site specific soil conditions. Concrete pavement is desirable in these areas to avoid failure problems that are experienced with asphalt.

Clearance Requirements - Transit vehicles generally travel in the traffic lane closest to the curb because of their need to make frequent stops.

- Overhead obstructions should be a minimum of 12 feet above the street surface
- Obstructions should be located a minimum of 2 feet from the street edge
- Traffic lanes for buses should be 12 feet minimum in width
- Desirable curb lane width (including the gutter) is 14 feet.

Road Grade - Selection of the roadway grade is related to topography and cut and fill material considerations. Typically, the maximum grade for 40-foot buses is between 6 and 8 percent. The recommended grade change between a street and a driveway is less than 6 percent.

Wheelchair Access - Wheelchair lifts may be at the front or rear door, so bus stop designs need to allow for either possibility. Passengers in wheelchairs access the sidewalk/bus from a ramp deployed from the floor of the bus, which typically extends 2 to 3 feet from the edge of a bus to the curb.

Curb Height - Curbs should be between 6 and 9 inches in height for efficient passenger-service operation. If curbs are too high, the bus will be prevented from moving close to it and the operations of a wheelchair lift could be negatively affected. If curbs are too low or not present, elderly persons and passengers with mobility impairments may have difficulty boarding and alighting. The effective use of low floor buses is also influenced by the height of the curb.

Abbreviations used without definitions in TRB publications:

AAAE	American Association of Airport Executives
AASHO	American Association of State Highway Officials
AASHTO	American Association of State Highway and Transportation Officials
ACI–NA	Airports Council International–North America
ACRP	Airport Cooperative Research Program
ADA	Americans with Disabilities Act
APTA	American Public Transportation Association
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
ATA	Air Transport Association
ATA	American Trucking Associations
CTAA	Community Transportation Association of America
CTBSSP	Commercial Truck and Bus Safety Synthesis Program
DHS	Department of Homeland Security
DOE	Department of Energy
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
FMCSA	Federal Motor Carrier Safety Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
IEEE	Institute of Electrical and Electronics Engineers
ISTEA	Intermodal Surface Transportation Efficiency Act of 1991
ITE	Institute of Transportation Engineers
NASA	National Aeronautics and Space Administration
NASAO	National Association of State Aviation Officials
NCFRP	National Cooperative Freight Research Program
NCHRP	National Cooperative Highway Research Program
NHTSA	National Highway Traffic Safety Administration
NTSB	National Transportation Safety Board
SAE	Society of Automotive Engineers
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (2005)
TCRP	Transit Cooperative Research Program
TEA-21	Transportation Equity Act for the 21st Century (1998)
TRB	Transportation Research Board
TSA	Transportation Security Administration
U.S.DOT	United States Department of Transportation