THE ADA COMPLEMENTARY PARATRANSIT REQUIREMENT:
Case Studies in Smaller Transit Agency Challenges and Solutions

December 2004

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a publication of the
Mineta Transportation Institute
College of Business
San José State University
San José, CA  95112
Created by Congress in 1991
**Abstract**

The Americans with Disabilities Act (ADA) and succeeding regulations issued by the Federal Transit Administration (FTA) require the provision of complementary paratransit services to qualified persons with disabilities who cannot access traditional fixed route transit services. Complementary paratransit must be provided during the same days and hours as fixed route services, and the transit agency may charge no more than twice the comparable fixed route fare for a paratransit trip.

By considering the history of accessible transit services, the specific requirements of the ADA and succeeding regulations, the operating conditions of paratransit agencies nationwide, and case studies of eight smaller transit agencies that offer complementary paratransit services, this research seeks to gauge the specific challenges smaller agencies face as a result of the complementary paratransit requirement and the specific solutions these agencies use to effectively manage the requirement, and provide recommendations for improvement.

**Key Words**

Transit, Paratransit, ADA, Small Agency, Disability

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**Distribution Statement**

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**Security Classification**

Unclassified

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**Price**

$15.00
ACKNOWLEDGMENTS

Support from the American Public Transportation Association (APTA) was critical in framing this research. I would like to thank Pamela Boswell and Lynne Morsen for helping to identify transit agencies willing to participate in the project, and Jim Olivetti and Terry Bronson for furnishing critical data and statistics. I am grateful to APTA as an organization for the leadership and advocacy they provide.

I owe a debt of gratitude to the following public transit managers for sharing with me a wealth of practical information and ideas, often on their own time or between important projects at their own agencies:

- John Andoh – Palo Verde Valley (CA) Transit Agency
- Rick Cain – Central Oklahoma Transportation and Parking Authority
- Keith Carlson and James R. Krueger, Jr. – La Crosse (WI) Municipal Transit Utility
- Fred Cavanah and Bill Latham – City of Modesto (CA) Transit
- Judylynn Gries – Riverside (CA) Transit Agency
- Jim Heilig – Duluth (MN) Transit Authority
- Jeanne Krieg – Eastern Contra Costa (CA) Transit Authority
- Terry Parker – Lane (OR) Transit District

I would like to take this opportunity to thank both supervisors and co-workers at my current employer, the Beaver County Transit Authority in Rochester, PA, and my former employer, the California Department of Transportation – District 3 in Sacramento, CA for their moral and financial support as I earned my degree.

Thanks are also in order for my fellow MSTM students, especially Gabriel Corley, Crystal De Castro, Jeremy Ketchum, Jeff Spencer, and Haile Ford. It has been a pleasure working beside you, learning from you, and laughing with you.

I appreciate the time and attention spent by all of my instructors in the MSTM program to teach and challenge me. I extend special thanks to William D. Taylor, Esq. for not only providing me with an understanding of transportation law and regulation, but also for instilling in me a lasting appreciation for the effect of law and regulation on individuals and organizations. The latter is the inspiration for my research.

Thanks to Viviann Ferea and Peter J. Haas, Ph.D. for their valuable assistance throughout the program. When I left California over two years ago, I was not sure I would be able to finish my degree. Their encouragement and advice kept me moving forward despite my physical location.

Most importantly, I would like to express my deepest love and gratitude for my parents, Dolores and Harold; my sister, Jeannine; my stepmother, Christine; my dear friends, Greta and Bob; and most especially, my wonderful companion, Mindy. Their love, patience, and support mean more to me than they will ever possibly know.
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EXECUTIVE SUMMARY

During the mid-1960s, Congress passed two critical pieces of legislation creating a strong foundation for fully accessible public transportation to serve persons with disabilities. The Civil Rights Act of 1964 prohibited discrimination on the basis of race and religion, and established a leadership role for the federal government in the protection of equality for all Americans. The Urban Mass Transportation Act of 1964 provided federal funding for the development, maintenance, and expansion of public transit infrastructure, thereby giving rise to a significant degree of federal control over transit policy.

In the ensuing years, the federal government took considerable action to build upon this foundation by further contributing to public transit development through financial support and policy development, and facilitating access to transit systems for persons with disabilities. Subsequent federal legislation mandated the physical accessibility of transit facilities and vehicles, funded planning activities for accessible transit services, required curb cuts along federal highways to provide access to transit stops located along these highways, and established reduced transit fares for persons with disabilities.

The Rehabilitation Act of 1973 was the major precursor to the ADA, prohibiting discrimination against persons with disabilities in all aspects of all federally funded programs – including public transportation – and requiring significant affirmative action to establish accessibility. In 1979, the FTA promulgated regulations, based on Section 504 of the Rehabilitation Act, which required transit agencies to completely reconfigure their systems to provide full access for persons with disabilities. These regulations, however, were stuck down in court based largely on a lack of statutory authority within the legislation upon which strict requirements could be set and affirmative action mandated.

Accordingly, the FTA responded with a relaxed set of regulations, initiating the policy of local option, under which local transit agencies were required to consult with the persons with disabilities in their community and develop an accessibility plan that was suitable to the needs of the community and practical with respect to the agency’s resources. Under the policy of local option, transit agencies were not required to make their systems 100% accessible. Persons with disabilities could be relegated to “separate but unequal” paratransit systems or subject to capacity constraints on either fixed route or paratransit services.

During the late 1980s, persons with disabilities, advocates, and allies in Congress pressed for a comprehensive piece of legislation that would strongly and clearly prohibit discrimination on the basis of disability, establish specific rights for persons with disabilities – including full access to local public transit services – and provide statutory authority to serve as the basis for strong regulations. Thus was born the ADA. Prominent among the proposed transit provisions was a requirement that agencies outfit all fixed route vehicles with wheelchair lifts or ramps, and augment that action with a complementary paratransit system for persons unable to access the fixed route.

In Congressional hearings to draft the ADA, transit managers and officials noted several concerns with these requirements, specifically:

- The federal government did not propose an appropriations bill to facilitate compliance
- Full fixed route accessibility coupled with complementary paratransit could create duplication and inefficiency
• The transit agency, subject to strict laws and regulations, could lose the ability to create the system most suitable to the unique needs of the service area
• Local human service agencies might dump their disabled clients onto mandatory complementary paratransit services, overwhelming the transit agency’s available capacity

But persons with disabilities, advocates, and even transit managers themselves testified to the importance of fully accessible public transportation to more complete and rewarding interaction in society – including the ability to pursue employment and educational opportunities, maintain a household, enjoy recreation, and build stronger relationships with family and friends. Moreover, this testimony noted that the potential societal costs resulting from isolation would likely be far greater than the financial costs of providing accessibility. These latter concerns ultimately prevailed. The ADA passed Congress by an overwhelming margin and was signed into law by president George H.W. Bush on July 26, 1990.

With respect to public transit, the final version of the ADA and succeeding regulations mandated that all fixed route vehicles purchased, going forward, be equipped with wheelchair lifts or ramps and be fully accessible to persons with disabilities; the goal was to eventually create 100% accessible fixed route fleets as vehicles were replaced and purchased for expansion. At the same time, transit agencies were required by law and regulation to provide complementary paratransit for customers unable, either by the nature of their disability or by deficiencies in vehicle or stop accessibility, to utilize a fixed route service.

Complementary paratransit service is required within ¾-mile of either side or end of fixed bus and rail routes, during the same days and hours as these fixed routes are operated. The transit agency may charge no more than twice the comparable fixed route fare for paratransit, must provide the ability to schedule and cancel paratransit trips on relatively short notice, must operate the service without capacity constraints and trip denials, is required to maintain schedule adherence and reasonable trip lengths and durations, and must provide capacity for a personal care attendant and one companion to ride along if needed. The agency is permitted to determine paratransit eligibility based on a strict interpretation of the provisions of the ADA and succeeding regulations. Before implementing service, transit agencies were required to submit paratransit plans to the FTA, and were eligible for a waiver of service if such service constituted an undue financial burden.

Complementary paratransit is categorized as a demand response service. Since the passage of the ADA, national demand response operating statistics reveal that this mode is characterized by:

• The highest number of providers of any transit mode – a number that grew rapidly during the early 1990s
• Significant growth in the annual number of unlinked trips provided, but a low share of these trips relative to other modes
• Very high growth in the number of annual vehicle miles of service provided, and a significant share of vehicle miles provided relative to other modes
• The highest rate of growth, with respect to annual vehicle hours of service provided, of all transit modes, and a significant share of vehicle hours provided relative to other modes
• An exceedingly high number of both vehicle miles and hours of service provided, relative to the number of trips provided
The highest rate of operating expense growth, in real dollars, of any transit mode, but a low share of operating expenses relative to other modes

An operating cost structure dominated by purchased transportation, wages, and fringe benefits, with the cost of fringe benefits, wages, and fuel growing significantly

Unremarkable capital expense growth, in real dollars, and a low share of capital expenses relative to other modes

A capital cost structure overwhelming dedicated toward the purchase of rolling stock

Very high growth in the number of active vehicles operated, and a significant share of fleet size relative to other modes

The highest rate of workforce growth of any mode, and a significant share of operating employees relative to other modes

Very low, and declining, productivity in terms of trips per operating employee

The lowest operating cost recovery ratio in the industry – and cost recovery that is generally stagnant to falling

The lowest productivity in the industry in terms of passengers per revenue hour – and productivity that is declining significantly

The highest, and most sharply rising, operating cost per passenger trip of any mode of transit

A high, and generally rising, average fare collected relative to other modes

In terms of operating costs and passenger trips, significant, and slightly rising, influence of the complementary paratransit requirement within the mode

Government sources, and transit agencies themselves, supply considerable amounts of operating and capital funds to support transit services, including complementary paratransit as defined by the ADA and succeeding regulations. The federal government administers ten major programs to fund transit, with each program adhering to certain guidelines in terms of eligibility and acceptable uses. Federal funding sources provide a very large, and significantly increasing, level of support for transit capital purchases. But the federal government provides only limited, and relatively stagnant, support for transit operating expenses.

State transit funding varies widely by location; some states offer very generous support for public transit, while others offer none at all. State transit assistance can be allocated out of general funds; can take the form of a dedicated portion of tax on income, sales, property, or gasoline; can be provided out of road, bridge, and tunnel tolls; or might come from some other source altogether. State sources provide a relatively low, and stagnant, level of support for transit capital expenses, but do provide a more significant, and rising, level of support for transit operating expenses.

Where federal and state transit funding sources do not cover all of a transit agency’s capital and operating needs, local and directly generated funds assume a more prominent role. Local transit assistance comes from many of the same sources as state assistance, and its availability is equally complex. Directly generated revenue comes from passenger fares, advertising revenue, and providing contracted services to other agencies. Local and directly generated funding sources provide for the overwhelming majority of transit operating needs, and this level of support is growing significantly. They also provide for a significant, and increasing, level of capital needs.

Clearly, the transit-related provisions of the ADA, including the complementary paratransit requirement, provide an increased level of mobility and independence for persons with disabilities. But based on their limited level of resources, smaller transit agencies are challenged
by the ADA paratransit requirement. To determine the specific nature of these challenges, and to evaluate the solutions employed by smaller transit agencies to meet these challenges, eight case studies of smaller transit agencies were conducted as part of this research. The case studies included documentation and evaluation of each agency’s:

- Background and history
- Service area characteristics
- Complementary paratransit implementation process
- Paratransit service policies
- Methods by which the service is delivered
- Funding sources
- Operating statistics and performance trends
- Unique challenges in providing complementary paratransit service
- Solutions employed to meet these challenges
- Suggestions for positive changes to the paratransit requirement
- Other relevant concerns

An examination of the history of public transit accessibility in the United States, the concerns expressed by transit managers, officials, and persons with disabilities during the development of the ADA, paratransit-related provisions as contained in the ADA and succeeding regulations, the current and historical operating conditions of paratransit agencies across the nation, the funding available for paratransit services at the federal, state, and local levels, and the practical experiences of several smaller transit agencies in providing complementary paratransit service reveals key pieces of information and trends with respect to the manner in which ADA complementary paratransit is carried out in smaller transit agency service areas.

The evolution of accessible transit services, including the development of complementary paratransit, is marked by considerable and incremental progress over a period of almost thirty years. The rights afforded to persons with disabilities under the ADA are derived from years of struggle on the part of persons with disabilities and advocates. Based on the increasing utilization of accessible fixed route and complementary paratransit services, there is no question that persons with disabilities benefit from the services that have evolved. Although meeting the initial legal and regulatory proposals with skepticism, transit officials seem to support the goal of full transit accessibility, but continue to lobby for measured progress and adequate funding support from all levels of government. Transit managers, though challenged by the requirements, generally approach these challenges with the highest sense of duty and purpose.

Implementation of ADA complementary paratransit was carried out in a much smoother manner than was initially predicted. Smaller agencies implemented the service rather quickly, without taking an undue financial burden waiver; previous experience in providing demand response services seemed to contribute to a rapid implementation, and many agencies employed a staged implementation to more effectively manage the new requirements. Coordination with local human service agencies remains strong, and stands to improve even more through the “United We Ride” initiative. Smaller transit agencies, however, are increasingly stretching their complementary paratransit resources as more dialysis patients make use of the service.

Fixed route fares, level of service, and administrative staffing levels have not been adversely affected solely as result of the ADA complementary requirement. Where fares have been raised,
or services or staff cut, these effects can be attributed to a general deficiency in funding support for transit services. Moreover, fixed route service continues to expand in many areas, especially in areas of significant population growth. Some duplication does exist between fixed route and complementary paratransit services, but in many cases, this is because the smaller transit agency has not taken strong action to delineate between the two portions of the system.

Although many of the negative outcomes expected as a result of the ADA complementary paratransit mandate did not come to pass, or have not harmfully impacted smaller transit agencies to quite the degree predicted, these agencies still face real and pressing challenges in providing paratransit services. A lack of adequate funding and a recent increase in dialysis patients using paratransit systems are but two examples. Some of these additional challenges – fixed route accessibility, eligibility requirements, the ¾-mile rule, trip scheduling, revenue constraints, and high standards for service delivery – are inherent in the legal and regulatory requirements. Others – such as data collection, population growth and density, climate, natural barriers, political boundaries, late cancellations and no-shows, scheduling group trips, revenue control, farebox recovery standards, and extent of and fare charged for non-ADA paratransit – are unique to individual smaller transit agency service areas, although there are some commonalities between agencies. Many of these challenges are reflected in operating statistics and trends, both at the national and agency level.

Smaller transit agencies employ a wide variety of techniques to meet these challenges. These solutions come in many forms, including technology, eligibility determination standards, operating arrangements, funding and revenue generation, alternative service delivery methods, fixed route accessibility, coordination and planning, and others.

The results of this research suggest a model for positive change to facilitate more effective management and sustainability of ADA complementary paratransit service. Several minor changes are needed to the policies prescribed by the ADA and succeeding regulations. Increased and consistently applied funding is needed for complementary paratransit at the federal, state, and local level, and individual agencies must do more to directly generate operating revenue. Smaller agencies must improve their collection of paratransit data, so as to drive sound decision-making and form the basis for policy improvements. Duplication between fixed route and complementary paratransit must be minimized through demand management techniques. And once the backbone of the ADA complementary paratransit system has been set, the agency must make this service as efficient and productive as possible.

The ADA complementary paratransit requirement clearly challenges the resources and ingenuity of the smaller transit agency. Fortunately, many smaller agencies already employ some sound techniques for managing this requirement, and the knowledge base is adequate to support further improvement. What is most critical is that elected officials, transit officials, transit managers, and persons with disabilities take the necessary action to ensure that paratransit serves as a truly complementary service, and that these services are supported by adequate funding sources and operated in an efficient, productive, and high-quality manner.
INTRODUCTION

In 1990, Congress passed, and President George H.W. Bush signed, the Americans with Disabilities Act (ADA). Perhaps the most comprehensive piece of civil rights legislation in United States history, the ADA provides a solid legal basis for not only the protection of the basic human rights of persons with disabilities, but also for significant affirmative action on the part of businesses, agencies, and individuals to ensure the full and active participation of these persons in American society. The ADA carries with it implications for virtually all aspects of public service, including the public transit industry.

Specifically, the law and succeeding regulations provide for complementary paratransit services for persons with disabilities who live near fixed route transit, but cannot access it due to the nature of their disability, to this disability in combination with a physical barrier between a point of origin or destination and a fixed route stop, or to a lack of accessible fixed route vehicles or stops. ADA paratransit service usually consists of door-to-door transportation, using a fully accessible vehicle and a driver who is able to assist the passenger. This service must be provided during days and hours similar to fixed route service, with little advance reservation required, even if there is no other demand for a similar trip. For this highly personalized service, the transit agency can charge no more than twice its comparable fixed route fare.

There can be little doubt that ADA paratransit service contributes to improved mobility, independence, and overall quality of life for persons with disabilities. But these benefits can come at a very high cost to the transit agency, particularly a smaller one with limited financial, capital, and human resources. The text of ADA did not authorize federal appropriations for the actions required on the part of transit agencies to move toward compliance. Accordingly, the complementary paratransit requirement may be the largest, most significant unfunded, or under-funded, federal mandate to ever be imposed on transit providers.
MAJOR RESEARCH QUESTIONS AND METHODOLOGY

This research seeks to answer the major question: How are smaller transit agencies managing the ADA complementary paratransit requirement? This will be accomplished through the exploration of several component research questions as follows:

- How did the transit-related provisions of the ADA evolve? – This question is answered through a review of civil rights and transportation law and regulation, as found in the United States Statutes at Large, the Code of Federal Regulations, and the Federal Register.

- What concerns did key stakeholders express regarding the transit-related provisions of the ADA? – These are identified by a synthesis and representation of the opinions of public transit managers and officials, persons with disabilities, and advocates. These opinions are contained in the transcripts of Congressional Hearings leading up to the passage of the ADA.

- What transit-related provisions did the ADA contain, as ratified? – This question is answered by a review of the Americans with Disabilities Act of 1990 (PL 101-336).

- How was the ADA complementary paratransit requirement interpreted in Department of Transportation (DOT) regulations? – This question is answered by a review of Title 49, Part 37 of the Code of Federal Regulations (49 CFR 37).

- What are the national operating and performance trends in paratransit, as part of the demand response mode, since the passage of the ADA? – These are calculated and synthesized by the author from volumes of the American Public Transportation Association Public Transportation Fact Book as well as the National Transit Database (NTD).

- What funding programs are available for paratransit operating and capital costs, and what are the trends in transit funding at the federal, state, and local level? – These are identified through a review of information from the Federal Transit Administration (FTA), APTA and the NTD.

- What specific challenges do smaller transit agencies face in providing ADA complementary paratransit, and what methods do these agencies use to meet these challenges? – These are identified through a series of eight case studies of smaller transit agencies that provide ADA complementary paratransit services. For the purposes of this research, smaller agencies are generally defined by the APTA Bylaws, which include an agency that “operates no more than one hundred buses in any peak period.” Two exception are made for agencies that have grown from smaller ones to larger ones in the years after the passage of the ADA. The agencies include:
  - Eastern Contra Costa (CA) Transit Authority
  - Duluth (MN) Transit Authority
  - Lane (OR) Transit District
  - City of Modesto (CA) Transit
  - Riverside (CA) Transit Agency
  - Central Oklahoma Transportation and Parking Authority
  - La Crosse (WI) Municipal Transit Utility
  - Palo Verde Valley (CA) Transit Agency
APTA solicited agency participation on behalf of the author. The agencies chosen to participate in the research were selected to exhibit a wide range of operating conditions, so as to promote the greatest possible understanding of issues and concerns. They range from very small to medium in terms of fleet size and annual ridership. One agency operates in a service area that is strictly rural in character, a few others in predominantly urban and suburban areas, but most provide service in a mixed area. The size of the sample service areas range from about twenty square miles to about 2,500 square miles. One agency’s service area is sparsely populated and several are quite dense. Almost all of the agencies purchase their paratransit services from a private contractor, but one directly operates its service. Most provided, or were a partner in providing, paratransit services to senior citizens and persons with disabilities before the passage of the ADA.

An extensive survey questionnaire was distributed to a manager or ADA coordinator from each agency (Appendix A). This survey was designed to capture basic transit agency information, the ADA paratransit implementation process, service characteristics, operating arrangements, funding information, operating and performance trends, paratransit challenges realized by the agency, and solutions employed to mitigate those challenges. The survey includes a section allowing the respondent to include some thoughts concerning needed changes to the ADA paratransit requirement.

Data from the survey responses is supplemented by information from each transit agency’s printed informational materials and website, follow-up interviews with several of the respondents, and operating data from the NTD. Each agency’s information is presented in a strict format in the second half of this research project.
LEGISLATIVE AND REGULATORY EVOLUTION OF ACCESSIBLE PUBLIC TRANSIT

The current state of accessible public transit in the United States is the cumulative result of two key processes, operating over substantially the same timeline. The struggle for civil rights reached critical mass in the mid-1960s, and, through the years, the movement grew to encompass other groups of people forced for so long to exist on the periphery of American society. Today, despite significant legislative efforts toward inclusion, equality for all Americans is a goal that is not fully realized; existing civil rights programs continue to operate, and new provisions are regularly being developed to eliminate the more insidious forms of discrimination and exclusion.

The condition of public transportation also reached a dire state in the mid-1960s. The postwar boom in transit ridership quickly faded in the face of advancing home ownership, automobile ownership, and suburbanization. Private transit services struggled to operate profitably, and when they folded, urban residents living on low and fixed incomes found themselves without reasonable options for mobility. The federal government stepped in to provide financial support, and in doing so, assumed some authority for setting transit policy and regulation. As federal funding for transit has increased, so too has this regulatory authority.

The transit-related provisions of the ADA represent the major meeting point of these dual processes. As both evolved, however, there have been many other noteworthy intersections of civil rights and transit policy, resulting in the following legislative and regulatory events.

Civil Rights Act of 1964 (PL 88-352)

Mounting frustration over the marginalization of minorities erupted in the period between the mid-1950s and the mid-1960s, resulting in boycotts, marches, “sit-ins”, and other forms of non-violent protest that characterized the American Civil Rights Movement. Congress responded to this moral crisis by passing the Civil Rights Act of 1964, which codified basic human rights for people of all races and creeds.

With a single statement, Title II of the Act dismissed the acceptability of “separate but equal” facilities and services for people of different races and religions, and provided for:

- full and equal enjoyment of the goods, services, facilities, and privileges, advantages, and accommodations of any place of public accommodation [...] without discrimination or segregation on the ground of race, color, religion, or national origin.²

Title II also prohibited discrimination and segregation under color of any provision of State or local law, thus eliminating the ability of states, counties, towns, and other political subdivisions to circumvent the federal mandate through their own legislative processes.

Title VI of the Act, constructed to ensure a leadership role for the federal government in the establishment of equality for all Americans, declared that:

- No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.³
Though it did not specifically include persons with disabilities as a protected class, the language and spirit of the Civil Rights Act of 1964 served as a strong foundation for subsequent legislation oriented toward the preservation of equality, including the ADA. Many of the Act’s definitions and enforcement mechanisms are still in place today.

**Urban Mass Transportation Act of 1964 (PL 88-365)**

In drafting the Urban Mass Transportation Act of 1964, Congress recognized the declining state of privately owned and operated transit services, and found “that Federal financial assistance for the development of efficient and coordinated mass transportation systems is essential to the solution of […] urban problems”, including increased traffic congestion, decreased mobility for the elderly, persons with disabilities, and low-income urban residents, and a weakened link between transportation and land use planning.⁴

The Act authorized the federal government, for the first time, to provide significant financial assistance to state and local governments and public transit agencies for the purpose of “financing the acquisition, construction, reconstruction, and improvement of facilities and equipment for use […] in mass transportation service in urban areas and in coordinating such service with highway and other transportation in such areas.”⁵ By accepting this assistance, a government or agency was obligated to adhere to the terms of any applicable federal laws and regulations, including, for example, the provisions of Title VI of the Civil Rights Act of 1964.

**Architectural Barriers Act of 1968 (PL 90-480)**

The primary thrust of the Architectural Barriers Act of 1968 was to increase the physical accessibility of public and government buildings. This law authorized the General Services Administration; Department of Housing and Urban Development; Department of Defense; and Department of Health, Education, and Welfare to set regulatory standards “for the design, construction, and alteration of buildings […] as may be necessary to insure that physically handicapped persons will have ready access to, and use of, such buildings.”⁶ Under the Act, most buildings “constructed,” “altered,” “leased,” or “financed” using federal funds, following the adoption of applicable standards, were required to feature some form of physical access for persons with disabilities.⁷ This provision applied to certain public transportation facilities built or modified with federal money.


While the objectives of the Architectural Barriers Act of 1968 included the creation of accessible public transportation facilities, the Urban Mass Transportation Assistance Act of 1970 was Congress’ first attempt to ensure equal access to the benefits of public transportation services for persons with disabilities. It amended the Urban Mass Transportation Act of 1964 by including the following statement of policy:

> […] that elderly and handicapped persons have the same right as other persons to utilize mass transportation facilities and services; that special efforts shall be made in the planning and design of mass transportation facilities and services so that the availability to elderly and handicapped persons of mass transportation which they can effectively utilize will be assured; and that all Federal
programs offering assistance in the field of mass transportation (including the programs under this Act) should contain provisions implementing this policy.  

The Act further authorized appropriations to governments and public transit agencies to facilitate the implementation of this policy, including small amounts for the study of relevant “information and technology which is available to provide improved transportation facilities and services planned and designed to meet the special needs of elderly and handicapped persons.” The Urban Mass Transportation Assistance Act of 1970 also clearly defined, for the first time, the term “handicapped person” as it applied to mass transportation programs.

**Developmental Disabilities Services and Facilities Construction Amendments of 1970 (PL 91-517)**

The Developmental Disabilities Services and Facilities Construction Amendments of 1970 modified the Mental Retardation Facilities and Community Mental Health Centers Construction Act of 1963. It authorized federal financial assistance to “public or nonprofit private agencies” for a range of activities intended to enhance the quality of life for persons with developmental disabilities, generally defined in the Act as mental and cognitive impairments including or similar to mental retardation.

The grants authorized by this Act applied to facility construction, planning, program operating costs, employee training, and research, development, and demonstration projects to advance the understanding, treatment, and living conditions of persons with developmental disabilities.

Congress constructed a broad definition of the term “services for persons with developmental disabilities”, to include:

- specialized services or specialized adaptations of generic services directed toward the alleviation of a developmental disability or toward the social, personal, physical, or economic habilitation or rehabilitation of an individual with such a disability, [including] diagnosis, evaluation, treatment, personal care, daycare, domiciliary care, special living arrangements, training, education, sheltered employment, recreation, counseling of the individual with such disability and of his family, protective and other social and socio-legal services, information and referral services, follow-along services, and transportation services necessary to ensure delivery of services to persons with developmental disabilities.

Inherent in this definition was the recognition of transportation, whether public, personal, or provided by one agency specifically for the use of its own clients, as the linchpin of an effective system of services designed to enhance independence and quality of life, and increase self-actualization, for persons with developmental disabilities.

**Federal-Aid Highway Act of 1973 (PL 93-87)**

The Federal-Aid Highway Act of 1973 contained a variety of provisions that increased access to the benefits of public transit facilities and services. It authorized financial assistance to the Washington Metropolitan Area Transit Authority (WMATA or Washington METRO) “in
amounts sufficient to finance 80 per centum of the cost of providing such facilities for the subway and rapid rail transit system [...] as may be necessary to make such subway and system accessible by the handicapped” pursuant to the Architectural Barriers Act of 1968.\textsuperscript{12}

The Act also amended Title 23 of the United States Code (USC) to reflect two important requirements. First, it prohibited discrimination on the basis of sex in federally funded transportation programs “through agency provisions and rules similar to those already established, with respect to racial and other discrimination, under title VI of the Civil Rights Act of 1964.”\textsuperscript{13} This continued the trend of inclusion for marginalized groups (in this particular case, women) in the distribution of benefits provided by public transportation programs.

Second, it mandated the provision of “adequate and reasonable access for the safe and convenient movement of physically handicapped persons, including those in wheelchairs, across curbs constructed or replaced [with federal assistance] on or after July 1, 1976, at all pedestrian crosswalks [...]”\textsuperscript{14} These curb cuts are necessary to ensure not only the accessibility of highway and commercial facilities, but also that of fixed route transit stops.

In drafting the Federal-Aid Highway Act of 1973, Congress recognized that public transit systems, on their own, could not possibly provide for all of the transportation needs of persons with disabilities. Coordination between the public sector and private nonprofit groups was necessary to yield a more comprehensive array of mobility options. Accordingly, the Act amended the Urban Mass Transportation Act of 1964 to include a small authorization for grants and loans:

\[
\text{to private nonprofit corporations and associations for the specific purpose of assisting them in providing transportation services meeting the special needs of elderly and handicapped persons for whom mass transportation services planned, designed and carried out [by governments and transit agencies] are unavailable, insufficient, or inappropriate [...]}.\textsuperscript{15}
\]

**Rehabilitation Act of 1973 (PL 93-112)**

The general purpose of the Rehabilitation Act of 1973 was to promote more meaningful and independent living for persons with disabilities, particularly by supporting activities related to education, training, and employment. In drafting the Act, Congress continued to recognize the importance of accessible public transportation to this purpose, by including language similar to the Developmental Disabilities Services and Facilities Construction Amendments of 1970.

The Act continued the trend of broadening the definition of “persons with disabilities”, by including:

\[
\text{any individual who (A) has a physical or mental disability for which such individual constitutes or results in a substantial handicap to employment and (B) can reasonably be expected to benefit in terms of employability from vocational rehabilitation services provided pursuant to titles I and III of this Act.}\textsuperscript{16}
\]

Congress also established the Architectural and Transportation Barriers Compliance Board, whose membership included the Secretary of Transportation. The Board’s charge was to monitor and ensure compliance with the terms of the Architectural Barriers Act of 1968,
including all regulations and standards promulgated pursuant to the Act, to define the nature of “architectural, transportation, and attitudinal barriers confronting handicapped individuals, particularly with respect to […] public transportation”, to examine potential solutions to these problems, and to incorporate the best solutions into plans to eliminate current and future barriers for persons with disabilities.

Section 504 of the Rehabilitation Act of 1973 contained an important and far-reaching provision that profoundly changed the operation of all federally funded programs. By declaring that:

No otherwise qualified handicapped individual in the United States, as defined in section 7(6), shall, solely by reason of his handicap, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.

the Act granted persons with disabilities the same protected status as other groups covered under the Civil Rights Act of 1964 and Federal-Aid Highway Act of 1973. Accordingly, federal departments, state and local governments, and public transit agencies were obligated to construct new rules, regulations, laws, policies, and procedures to support this mandate.

**Department of Transportation and Related Agencies Appropriation Act, 1975 (PL 93-391)**

Satisfactory compliance with the terms of the Rehabilitation Act of 1973 compelled state and local governments and public transit agencies to provide two key elements: accessible fixed facilities and accessible vehicles. Accordingly, the Department of Transportation and Related Agencies Appropriation Act for 1975 declared that:

None of the funds provided under this Act shall be available for the purchase of passenger rail or subway cars, for the purchase of motor buses or for the construction of related facilities unless such cars, buses, and facilities are designed to meet the mass transportation needs of the elderly and the handicapped.

As such, the Act made facility and vehicle accessibility a condition of federal transit capital assistance, though it did not set any definitions or accessibility standards for either vehicles or facilities. As directed by the Rehabilitation Act, that particular responsibility rested with the DOT as part of the regulatory process.


In drafting the National Mass Transportation Assistance Act of 1974 to provide greater levels of federal financial support for public transportation, Congress recognized two important points: that transit was a critical service for persons with disabilities, especially for those that did not have access to either an automobile, or transportation provided by family members, friends, or human service agencies; and that persons with disabilities quite often lived on a fixed, severely limited income. The Act initiated a half-fare transit program for persons with disabilities, by amending the Urban Mass Transportation Act of 1964 to provide that:

The Secretary shall not approve any project under this section unless the applicant agrees and gives satisfactory assurances […]
that the rates charged elderly and handicapped persons during nonpeak hours for transportation utilizing or involving the facilities and equipment of the project financed with assistance under this section will not exceed one-half of the rates generally applicable to other persons at peak hours, whether the operation of such facilities and equipment is by the applicant or is by another entity under lease or otherwise. 20

The Act, however, preserved the right of state and local governments and public transit agencies to provide free transit services to senior citizens and persons with disabilities, if they elected to use such a strategy to meet local needs. Such a government or public agency remained eligible to receive federal financial assistance. Indeed, some transit systems do provide free fares for the elderly and persons with disabilities, albeit under limited circumstances and with State or local assistance.

**DOT Section 504 Final Regulations, 1979**

Section 504 of the Rehabilitation Act of 1973 contained a blanket policy prohibiting discrimination on the basis of disability in all federal programs. Following the lead of the Department of Health, Education, and Welfare, it was the responsibility of each individual federal department and agency to promulgate regulations directing the manner in which their own programs would be made accessible to persons with disabilities. After a lengthy period of hearings and public comment, DOT published its final regulations in the Federal Register on May 31, 1979. These were later included in a new Part 27 of Title 49 of the Code of Federal Regulations (CFR). 21

49 CFR 27 was divided into six subparts, each addressing a different component of transportation accessibility. Subpart A set the general terms of compliance. It included the same language as Section 504 of the Rehabilitation Act of 1973, and obligated all programs directly receiving or otherwise benefiting from federal financial assistance to comply with the applicable regulations. It also provided clear definitions for all terms found within the regulations, including the most broad disability definition constructed to date. The regulations protected:

> any person who (a) has a physical or mental impairment that substantially limits one or more major life activities, (b) has a record of such an impairment, or (c) is regarded as having such an impairment. 22

This was the same definition that would later be used in the ADA.

Subpart A further directed that recipients of federal financial assistance make all communications available to those “applicants, employees, and beneficiaries” with “impaired vision and hearing”. 23 It gave DOT the authority to take action against any recipient not in compliance with the regulations, and obligated each recipient to draft their own procedures for providing due process to any complainant in the event of an alleged violation of the regulations. Finally, Subpart A established federal preemption of any state and local laws or regulations that provided a lesser degree of protection for persons with disabilities.

Subpart B addressed the employment practices of state and local governments, and public agencies, receiving or benefiting from federal financial assistance. It prohibited discrimination
on the basis of disability in recruiting and hiring processes, and required reasonable accommodation to be extended to otherwise qualified employees with disabilities, as necessary, to enable them to complete the core functions of their job. Subpart C set general standards for accessibility across all federally funded transportation programs. With respect to transportation facilities, the regulations largely left the decision to achieve accessibility through equipment upgrades, facility renovation, new facility construction, or some combination of these up to each individual government or agency. The regulations generally required structural modifications be made to existing facilities to “as soon as practicable, but in no event later than three years after the effective date of this regulation.” If, due to an excessively costly or complex project, more time was needed to complete structural modifications, the recipient was obligated to submit a detailed explanation and proposed timeline for completion. New and altered facilities were required to comply with the provisions of the Architectural Barriers Act of 1968. Along with fixed transportation facilities, Subpart C also required renovated vehicles to be made accessible.

Subpart D addressed specific program accessibility requirements for air, rail, and highway facilities and vehicles governed by the Federal Aviation Administration (FAA), Federal Railroad Administration (FRA), and Federal Highway Administration (FHWA), respectively.

Subpart E applied the requirements of Section 504 to public transportation in several critical areas: mass transit facilities, fixed route bus systems, rapid and commuter rail systems, light rail systems, paratransit systems, and policies and procedures.

FACILITIES

This section generally restated the mandates contained in Subpart C, but further required that particular emphasis be placed on accessible:

- “[F]are vending and collection systems”
- “[V]isual and aural information systems”
- Telecommunications devices useful to those with hearing disabilities and those in wheelchairs
- Parking and vehicle boarding areas

FIXED ROUTE BUS SYSTEMS

To realize program accessibility, in addition to meeting the accessible facilities requirements, fixed route bus systems were obligated to operate at least 50% of their peak-hour service using accessible buses, and to place accessible vehicles into service before non-accessible vehicles during the off-peak hours. Each transit agency had up to three years to achieve program accessibility, but could be given up to ten years in the event of “extraordinarily expensive” vehicle or facility modifications, or new vehicle procurement. All new vehicles put out for bid after the effective date of the regulations were required to be accessible to persons with disabilities.

RAPID AND COMMUTER RAIL SYSTEMS

For a rapid and commuter rail agency to realize program accessibility, all stations were required to be accessible to persons with disabilities “who can use steps,” with certain “key stations” accessible to persons in wheelchairs. Key stations included:
• Those with a high level of boarding and alighting activity
• Connection points, either within the system or to other modes of transportation
• Rail line termini
• Stations serving major trip generators, either for all persons in general or persons with disabilities specifically.\(^{31}\)

In similar fashion, all rapid and commuter rail \textit{vehicles} were required to be accessible to those with the ability to use steps, with at least one car per train accessible to persons in wheelchairs.\(^{32}\) Except in rail systems where all stations were wheelchair accessible, a rail transit agency was obligated to provide accessible connector service to bring persons with disabilities from areas near non-accessible stations to an accessible station, and back again. The connector service, “when combined with the [accessible] key stations, [had to] provide a level of service comparable to that provided for a nonhandicapped person.”\(^{33}\) This connector service was the first precursor to the complementary paratransit services later required under the ADA.

As with fixed route bus systems, each rapid or commuter rail agency had up to three years to achieve program accessibility, but, due to the costly nature of rail infrastructure, could be given up to thirty years in the event of “extraordinarily expensive” facility modifications, five years for rapid rail vehicle modification or procurement, or ten years for commuter rail vehicle modification or procurement. Connector service was expected to be complete within thirty years.\(^{34}\)

New rail vehicles put out for bid after the effective date of the regulations were generally expected to be accessible to persons with disabilities, but in certain circumstances this deadline was extended to January 1, 1983.\(^{35}\)

\textbf{LIGHT RAIL SYSTEMS}

The standards for light rail program accessibility were very similar to those for rapid and commuter rail, including the “key station” provision. No connector service of any kind was required. Vehicle accessibility conditions were similar to those for fixed route bus systems, with at least 50\% of the peak-hour service required to use wheelchair-accessible vehicles, and an obligation to place accessible vehicles into service before non-accessible vehicles during the off-peak hours.\(^{36}\)

A light rail agency had up to three years to achieve program accessibility, but could be given up to twenty years in the event of “extraordinarily expensive” vehicle or facility modifications, or new vehicle procurement.\(^{37}\) New vehicles put out for bid after January 1, 1983 were required to be fully wheelchair-accessible.\(^{38}\)

\textbf{PARATRANSIT SYSTEMS}

Because most paratransit service was, at the time the 1979 regulations were published, already oriented towards the elderly and persons with disabilities, accessibility standards were not as stringent as for other modes. Program accessibility for paratransit systems required only that “the system must operate a number of vehicles sufficient to provide generally equal service to handicapped persons who need such vehicles as is provided to other persons.” As long as this standard was met, no other modifications or new vehicles were necessary.\(^{39}\) Paratransit was not required, either outright or as a supplement to fixed route bus or rail transportation, but rather was to be developed in response to local needs or as connector service if warranted.
POLICIES AND PROCEDURES

For any mode of transit, internal policies and procedures constructed or modified to support inclusion and accommodation were critical components of program accessibility. Regulations required, within three years, that new and/or revised policies and procedures be developed, as necessary, to include:

- “[E]mergency” action and response
- “[S]ensitivity”
- Coordination with other transportation and human service agencies
- Vehicle maintenance

In general, the remainder of Subpart E compelled transit agencies to make continuous, incremental progress toward program accessibility, according to the applicable deadlines for each individual mode. In the case of a projected delay in achieving program accessibility, due to expensive or complex facility modifications or vehicle procurement, agencies were obligated to provide interim accessible transportation. Interim accessibility could involve, for example, bus transportation in place of rail transportation, or accessible paratransit instead of bus or rail transportation. Local persons with disabilities and advocacy groups were entitled to participate in planning for interim accessibility strategies.

Subpart F set the terms of enforcement for the regulations, including public information requirements, method and timing of compliance reviews, and responsibilities in providing due process to complainants.

Department of Transportation and Related Agencies Appropriation Act, 1981 (PL 96-400)

The comprehensive and fairly rigid nature of the DOT Section 504 regulations elicited a significant backlash, both within Congress and within the public transportation industry. Some elected officials and transit managers, particularly those closely affiliated with the passenger rail sector, were frustrated by the extensive costs inherent in full compliance with the regulations. The Department of Transportation and Related Agencies Appropriation Act, 1981, weakened a substantial portion of these regulations by limiting the use of urban discretionary grants provided to rail transit agencies. In the Act, Congress directed that:

none of these funds shall be available to retrofit any existing fixed rail transit system to comply with regulations issued pursuant to section 504 of the Rehabilitation Act of 1973.

With the passage of this Act, both the attainability on the part of transit agencies, and the enforceability on the part of DOT, of many of the rail-related provisions of the DOT Section 504 regulations was cast into serious doubt.

DOT Section 504 Interim Amendment, 1981

Soon after DOT published final regulations implementing the provisions of Section 504 of the Rehabilitation Act of 1973, these regulations also came under judicial scrutiny. APTA challenged the statutory authority of the Secretary of Transportation to issue the regulations. In American Public Transportation Association v. Goldschmidt (485 F.Supp. 811), the United States District Court for the District of Columbia Circuit considered whether the language of
Section 504 provided an appropriate legal foundation for the DOT regulations, and subsequently held that these regulations:

- “[D]id not exceed statutory authority”
- “[W]ere not procedurally defective”
- “[W]ere not arbitrary and capricious”

The District Court did find, however, that the regulations were subject to the provisions of the National Environmental Policy Act (NEPA), and therefore that DOT erred by not preparing an environmental impact statement (EIS) regarding the potential effect of the regulations on the natural and built environments. But the content and scope of the DOT regulations were upheld.

Shortly thereafter, APTA appealed the District Court’s ruling. In *American Public Transportation Association v. Lewis* (655 F.2d 1272), the United States Court of Appeals for the District of Columbia Circuit reversed the District Court and struck down DOT’s regulations, by finding that the Rehabilitation Act of 1973:

ban[ned] discrimination but [did] not mandate affirmative action to accommodate the handicapped, and [that] the [succeeding] regulations required extensive modifications of existing systems and imposed extremely heavy financial burdens on local transit authorities.

The Secretary of Transportation was thereby ordered to take one of two actions: determine whether the statutory authority for the Section 504 regulations existed in some other piece(s) of legislation; or promulgate new regulations that, allowing for modest proactive efforts on the part of individual transit agencies, severely scaled back the standards for program accessibility. Finding no other statutory authority for significant affirmative action to accommodate persons with disabilities, DOT published an interim amendment to the Section 504 regulations in the Federal Register on July 20, 1981.

This amendment deleted Subpart E of 49 CFR 27. A mass transit section was added to Subpart D of 49 CFR 27, which generally required most recipients of federal transit assistance to “certify that special efforts are being made in their service area to provide transportation that handicapped persons, including wheelchair users and semiambulatory persons, can use.” This certification was required within sixty days after the effective date of the interim amendment, but the specific nature of any “special efforts” to be undertaken was left for the local lead agency and populace to decide.

With respect to the local transportation programming process, DOT advised, “projects designed to benefit handicapped persons […] should appear in the annual element of the transportation improvement programs.” Such projects were required to meet the following four conditions:

- “[T]he service and vehicles serve wheelchair users and semiambulatory persons”
- “[T]he service meets a priority need identified in [the local] planning process”
- “[T]he service is not restricted to a particular organizational or institutional clientele”
- “[A]ny fares charged are comparable to those which are charged on standard transit buses for trips of similar length”

DOT also advised that the local planning process include “specific planning for [the handicapped]”, input from “handicapped persons, including wheelchair users and
semiambulatory persons”, and “genuine, good-faith progress.” Clearly, the interim amendments provided much more freedom to local agencies to determine the best course of action to meet local needs, but did so at the expense of requirements for very specific and measurable action.

**DOT Section 504 Final Regulations, 1986**

With the 1981 interim amendment in place, DOT had an opportunity to re-evaluate the level of effort by recipients of federal transit assistance necessary and appropriate to comply with the provisions of Section 504 of the Rehabilitation Act of 1973. Based on the ruling of the Appellate Court in *APTA v. Lewis*, some level of affirmative action was deemed appropriate, yet the costs of compliance needed to be contained so as to preserve already-existing levels of transit service. Following another lengthy period of hearings and public comment, DOT published a new set of regulations in the Federal Register on May 23, 1986 – some seven years following the issuance of the original regulations, and almost thirteen years after the passage of the Rehabilitation Act.

The 1986 regulations defined more substantial terms of compliance than the interim amendment, but at levels of effort and expenditure far below those called for in the original regulations. They replaced Subpart E in 49 CFR 27, deleted upon the adoption of the interim amendment, with a new section applicable to most recipients of federal transit assistance who provided “transportation services to the general public by bus.” Requirements for rapid, commuter, and light rail services were not defined by the 1986 regulations.

The regulations compelled certain public transit agencies to develop an accessibility program with sufficient input from disabled customers and advocacy groups. Agencies were obligated to consult, “as early as possible in the planning process, with handicapped persons and groups representing them, [and] transportation and social service organizations,” among other parties. Once a suitable local program was developed, it was subject to a sixty-day public comment period, including “at least one public hearing.” To foster the involvement of interested persons with disabilities, the recipient was required to provide “all notices and materials pertaining to the program, comment period, and public hearings […] in a form that persons with vision and hearing impairments can use.” Public participation was further required on a continual basis, for the purpose of refining the accessibility program, and before any significant changes could be made to the program.

Once each accessibility program cleared the public comment process, and was approved by DOT, the recipient was required to “at all times, provide the service called for by its program […] to all eligible handicapped persons.” Performance was subject to DOT compliance reviews at least once every three years.

By contrast to the very specific and extensive requirements spelled out in the original regulations, the 1986 regulations prescribed certain “minimum service criteria” for the following three types of systems: special service systems, accessible bus systems, and mixed systems. The required minimum criteria had to be met “as soon as reasonably feasible […] but in any case within six years of the initial determination by [FTA] concerning the approval of its program.”

**SPECIAL SERVICE SYSTEMS**

These systems were obligated to be made available to “[a]ll persons who, by reason of handicap, [were] physically unable to use the recipient’s bus service for the general public.” Service was
to be provided upon one day’s notice, without regard to trip purpose. Fares were required to be “comparable to the fare for a trip of similar length, at a similar time of day, charged to a user of the recipient’s bus service for the general public.” Service days, hours, and areas were all required to be the same as those for general public service. Such service was a second precursor to the complementary paratransit later required by the ADA.

ACCESSIBLE BUS SYSTEMS

For accessible mainline service, days and hours of operation were required to be the same as those available to the general public. This standard involved accessible vehicles at adequate intervals to allow persons with disabilities “ready use” of the system. Such vehicles were to be placed into service along all regular bus routes where a need had been established through the public participation process. Fares were required to be no higher than those charged to members of the general public, yet still include applicable reduced fares as mandated by the National Mass Transportation Assistance Act of 1974. On-call service was to be provided under standards very similar to those for special service systems.

MIXED SYSTEMS

Systems consisting of some combination of special service, mainline accessible service, and/or on-call accessible service were required to comply with all applicable provisions of the regulations.

For any recipient with an approved accessibility program, annual costs of compliance were capped at “3.0 percent of [...] total annual average operating costs,” calculated using projected operating costs for the current fiscal year, and actual operating costs for the previous two fiscal years. Although nothing in the regulations precluded recipients from spending more than this percentage, it was not required “even if, as a result, the recipient cannot provide service to handicapped persons that fully meets the [minimum] service criteria.” In instances where full compliance involved more than the maximum expenditure, the recipient was required to set priorities through the public participation process. Only capital and operating expenses directly attributable to compliance with the approved accessibility program were eligible to be counted towards the three percent limit.
THE DEVELOPMENT OF THE ADA

In the span of over twenty years following the passage of the Civil Rights Act of 1964, Congress made significant progress in protecting the basic rights of persons with disabilities. These protections, however, were scattered across various pieces of legislation, making it difficult to determine which provisions applied to different programs or people, and clouding the lines of accountability and enforcement. Moreover, by the late 1980s, significant gaps still existed in the protection afforded to persons with disabilities, and advocates generally expressed that the laws and regulations in effect did not go far enough to prohibit discrimination.

Members of the disability community and advocacy groups were particularly vocal about the accessibility of public transportation. The progress realized by opening up educational and vocational opportunities, as well as public programs and accommodations, to persons with disabilities, was tempered by a lack of adequate accessible transportation. Although Section 504 of the Rehabilitation Act of 1973 was a strong statement of national policy on disability rights, in terms of serving as a foundation for specific agency rules and regulations it was actually quite weak.

In theory, the legal and administrative battles over the DOT Section 504 regulations reduced the financial impact of accessibility on local transit agencies, and returned control over accessible public transit to local “roundtables” comprised of the transit agency, metropolitan planning organization (MPO), and members of the disability community – thus encouraging solutions that met local needs within available resources. In practice, however, this local option sometimes resulted in a separate, unequal service for persons with disabilities. As transit agencies were not required to make 100% of their fixed route fleet accessible, passengers with disabilities could be relegated to special paratransit services with longer wait times, longer trip times, advance reservation requirements, and capacity constraints. Moreover, the six-year implementation period and the cap on accessibility expenditures meant some accessibility needs would go unmet, at least for some time, even if these needs were identified as significant through the public participation process.

In April 1988, after receiving technical advice from the National Council on Disability, Senator Lowell Weicker (R-Connecticut) and Congressman Tony Coelho (D-California) introduced the original draft of the ADA into the Senate (as S. 2345) and House (as H.R. 4498), respectively. Following a failed reelection campaign by Senator Weicker later in 1988, Tom Harkin (D-Iowa) and Edward Kennedy (D-Massachusetts) assumed sponsorship of the ADA in the Senate. After building an advisory committee comprised of federal department heads, businesspeople, and persons with disabilities, the Congressional sponsors revised the draft of the ADA, and reintroduced it into the Senate (as S. 933) and House (as H.R. 2273) in May 1989.60

The revised draft of the ADA included, among numerous other provisions, requirements for the procurement of accessible bus and rail vehicles, as well as an obligation to offer paratransit services as a complement to accessible fixed route services. As the bills moved through both houses of Congress, legislators, transit managers and industry representatives, persons with disabilities, and advocates testified passionately to their opinions regarding these requirements. These concerns fit into several broad categories.
Extensive and Costly Unfunded Requirements

Transit professionals, including representatives of APTA, state public transit associations, and individual transit agencies, were deeply concerned about the unfunded mandates proposed in both the Senate and House versions of the ADA. As neither draft included federal appropriations to cover the costs of compliance, these officials were understandably worried about how transit agencies might bear these costs. Increasingly scarce federal transit funding, notwithstanding any requirements proposed within the ADA, magnified these concerns.

In hearings before the Senate Committee on Labor and Human Resources, Subcommittee on the Handicapped, during May and June of 1989, Dennis D. Louwerse, Executive Director of the Berks Area Reading (PA) Transportation Authority and member of the APTA Elderly and Disabled Persons Task Force, entered a prepared statement testifying that:

APTA and the transit industry have consistently recognized that providing for the mobility needs of our nation’s citizens who are elderly and disabled is a major objective and challenge for public transit systems across the country. Meeting the challenge over the past few years has been made much more difficult because we have experienced a drastic reduction in the federal transit program of more than 50% in real dollars. Still deeper cuts have been proposed by the Administration in the FY 90 budget which, if adopted, would force major service cutbacks for all citizens, including the elderly and persons with disabilities.  

Accordingly, Louwerse’s statement goes on to implore:

If Congress chooses to mandate all of the requirements set forth in the proposed legislation concerning mass transportation services, [APTA] would urge that [Congress also] provide financial assistance to ensure that its mandates can be carried out. Limited funding forces increasingly difficult choices especially for smaller operators in the use of available resources to provide services for people who are elderly and disabled.

In his request, Louwerse implied, as many other transit officials did throughout the Congressional hearings, that transit agencies would have to cut services to other deserving groups of people in order to implement the ADA’s requirements, absent increased funding. Louwerse further expressed his concern for small agencies, with smaller administrative staff and tighter budgets, for which this effect would be even more dramatic.

Carol L. Lavoritano, Director of Program and Policy Analysis for the Southeastern Pennsylvania Transportation Authority (SEPTA), echoed Louwerse’s sentiments. In a hearing before the House Committee on Energy and Commerce, Subcommittee on the Transportation and Hazardous Materials, held September 28, 1989, Lavoritano entered a prepared statement testifying that:

While supplemental paratransit requirements are only required to the extent that they do not ‘impose an undue financial burden,’ the term ‘undue financial burden’ is not clearly defined. [SEPTA is]
greatly concerned about the increased cost of compliance with this bill at a time when the federal government is continuing to reduce assistance to public transit. For example, in the last ten years: Operating assistance has been reduced by 50 percent; capital assistance is down by 64 percent in terms of real buying power; and the transit trust fund is frozen.

In this context, public transit authorities must resist any mandates which are unfunded, especially in the face of demands for expanded service of all types.

For many transit authorities, any additional expense for which new funding is not provided constitutes an undue financial burden, insofar as fares must be raised or other services cut in order to provide new services. We would point out that fare increases and service reductions cause serious hardship to other low and fixed income riders, many of whom have no alternative means of transportation. Therefore, we strongly urge the Congress to fund the increased cost of compliance with the Americans with Disabilities Act.63

It is important to note that neither Louwerse nor Lavoritano seemed to be opposed to the ADA’s requirements for accessible transportation. Indeed, Louwerse acknowledged the provision of accessible public transit services as one of APTA’s primary objectives. Rather, both objected to the imposition of costly requirements on public transit, an industry that has struggled mightily even in the face of federal and state assistance, absent increased financial support.

Potential for Duplicated, Inefficient Services

Given finite government funding and ever-increasing service demands from the general public, the transit industry has always been cognizant of the importance of efficiency in carrying out its mission. Agencies must make the best possible use of their limited resources in order to provide for the public good in the most effective manner. Moreover, as government support for transit has increased, the standards of stewardship and accountability by which transit agencies are judged have increased as well. During the development of the ADA, transit officials, notwithstanding the issue of increased federal funding to cover the costs of ADA compliance, expressed concern about the prospect of being required to operate overlapping services. Lavoritano’s statement reflected this concern:

Eligibility for supplemental paratransit service is not well defined in the Senate bill. The phrase ‘unable to use mainline transportation’ can be broadly or narrowly interpreted. Our experience has been that people often prefer to use paratransit because it is difficult, but not impossible, for them to use accessible fixed-route service.

Congress should avoid mandating a broad eligibility criteria for supplemental paratransit because it will perpetuate costly dual services for the disabled. We believe that majority of the disabled would opt for the convenience of door-to-door services and the
expenditure to retrofit our nation’s public transit systems will only serve a small segment of the disabled population. 64

Lavoritano’s statement seemed to reflect the need for Congress to more clearly define a boundary between accessible fixed route services and accessible paratransit services, so as to make the two truly complementary. Further, it openly questioned whether full accessibility in both systems would be utilized to the extent that the extra investment could be justified.

The draft of the ADA put forward by Congressional sponsors included provisions designed to tighten the response time of paratransit. This was intended to address the potential for long wait times, long trip times, and excessive trip denials that characterized paratransit services under the DOT Section 504 regulations. Given the low customer density, flexible routing, and labor-intensive level of passenger assistance inherent in the operating conditions of paratransit services, however, some lead-time is required to plan paratransit trips so as to maximize their efficiency. Lavoritano’s statement emphasized the importance of this ability to plan:

Short response time requirements for paratransit service can create expensive vehicle requirements and scheduling inefficiencies. The Senate report language raises questions as to what is intended as a comparable response time. It is totally unrealistic to require that paratransit response times be equivalent to fixed route headways, and the committee report language should be revised to clearly reflect this. SEPTA operates many bus routes with headways between five and fifteen minutes. Such a response time requirement is clearly impossible to meet; similar response times are not even available with taxi service. If paratransit service is intended to be truly supplemental, we recommend a response time no shorter than twenty-four hours, to permit efficient scheduling and routing of vehicles, in many cases utilizing computerized systems which have been developed at considerable expense. 65

**Loss of Local Control in Planning Accessible Services**

Proponents of the ADA, especially disabled transit patrons, soundly criticized the level and quality of public transportation services under the local option supported by the 1986 DOT Section 504 regulations. These regulations, however, reflected a key principle of transportation planning: that the potential for variance in each operating environment and in the needs of each local citizenry is virtually infinite, therefore appropriate transportation solutions should be developed in direct response to these conditions and needs. Louwerse stated APTA’s position on this issue:

Our current industry policy, which is now under review by APTA’s task force, is that each community should continue to be permitted to determine the best means of providing service to the elderly and those with disabilities by tailoring service to the diverse needs, circumstances, and desires of the local community. 66

Louwerse’s statement further testified as to the successful progress of transit accessibility in such diverse locations as Reading, PA; San Diego, CA; Iowa City, IA; Duluth, MN; Memphis, TN;
Arlington Heights, IL; Cleveland, OH; and Seattle, WA, noting that “[…] local transit authorities, along with the local disabled community that they serve, are working together to create transportation programs that are workable and successful at the local level.”

In a hearing before the House Committee on Energy and Commerce, Subcommittee on Transportation and Hazardous Materials, held September 28, 1989, Thomas Gagliano, Executive Director of New Jersey Transit, entered a prepared statement testifying that:

H.R. 2733 would require a level of paratransit service ‘comparable’ to the level of service provided on a fixed route basis. While we agree with the need for the Federal government to guarantee disabled citizens the civil right of access to public transportation, the issue of mobility as provided through a paratransit system must remain a local issue. Some communities may elect to provide paratransit services where no fixed route service exists. Others who have fixed-route service may determine that local conditions do not require comparable paratransit services, and the resources may be more efficiently used elsewhere. New Jersey’s paratransit system has been developed with the input of the local disabled community. A Federal requirement for a comparable paratransit system in conjunction with a fixed-route transit system would inappropriately interfere with this local decision making process.

Both Louwerse’s and Gagliano’s statements did not seem to argue against the establishment of standards, albeit limited ones, of public transit accessibility. But they were in opposition to very restrictive standards that would force the uniform implementation of transportation solutions not necessarily appropriate to a certain geographic area or group of customers.

Loss of Coordination with Human Service Agencies in Providing Transportation to Persons with Disabilities

In most areas, the working relationship between public transit agencies and other human service agencies is a strong one. Some human services clients may be unable to obtain a valid driver license, afford an automobile, or navigate direction from one point to another – making transit services a necessary form of mobility. Moreover, human service agencies and transit more often than not work together to ensure that where possible, the agencies are included along fixed bus routes, and that social workers are trained in the intricacies of the transit system, so as to be able to effectively explain mobility options to their clients.

Congress recognized the importance of these relationships in the language of the Federal-Aid Highway Act of 1973, when it authorized transportation grants to human service agencies so they could supplement the services offered by public transit. During the development of the ADA, however, transit officials feared an erosion of these important relationships. In hearings before the Senate Committee on Labor and Human Resources, Subcommittee on the Handicapped, during May and June of 1989, J. Roderick Burfield, Spokesman for the Virginia Association of Public Transit Officials (VAPTO), entered a prepared statement testifying that:

‘Dumping’ has been occurring across the country for several years and is accelerating because of reduced funding for social service
programs. Basically, this phenomenon occurs when the social service agency contacts the mass transit provider and informs them that [the agency] will no longer be able to transport their [own] clientele. The social service agency does not normally transfer any funds in order to pay for the increased expenses of the mass transit agency, since the ‘dumping’ occurred so they could reprogram their transportation funds to other purposes.69

Were most of these clients to migrate to a fixed route system, where increased passenger density generally supports increased efficiency and levels of service, this would not be a problem. Given the complexities and cost inherent in operating a paratransit service, however, more passengers are not always better. In this respect, Burfield’s statement seemed to predict an unintended second wave of challenges to public transit agencies as a result of the ADA.

Similar to the concerns expressed by Louwerse and Lavoritano, Burfield warned that a deterioration of the working relationship between transit and human service agencies in providing transportation services could place some human service clients in jeopardy, particularly if, as a result of the costs of compliance with the ADA, a public transit agency was forced to make service cutbacks:

A major problem that occurs is that some of the social service clients who are ‘dumped’ are not classified as disabled under current statutes or under the definitions contained in S. 933. What happens to the elderly? What happens to dialysis patients? What happens to homeless persons or drug and alcohol rehabilitation patients? These persons are served by social service agencies but frequently do not meet the definition of disabled under the law.70

Burfield, as did many other transit officials, urged Congress to consider these important questions before completing a final draft of the legislation.

Effective Transportation as the Linchpin in the Full Realization of Civil Rights

Persons with disabilities and advocacy groups argued, with the same level of conviction as did transit officials in highlighting the potential effects of the law, for extensive action toward fully accessible public transportation facilities and services. Public transportation, they reasoned, is a core human service linking a disabled person with all manner of other human services. Moreover, transportation is a key component in connecting persons with disabilities to jobs, education, medical appointments, shopping, cultural amenities, and families and friends.

In a hearing before the House Committee on Education and Labor, Subcommittee on Select Education, held October 6, 1989, Gregory S. Fehribach, attorney and Chairman of the Indiana Governor’s Planning Council for People with Disabilities, entered a prepared statement that testified:

Transportation is essential for a disabled person to maintain self-sufficiency. There is not one of us […] who does not need some form of transportation in order to pursue employment, to recreate, or contribute effectively to society as a whole. Disabled people are
disabled by the present transportation system in America today, but ADA will allow the disabled to become ‘differently able’ to use transportation as necessity dictates. \(^{71}\)

Not only was transportation viewed as a critical component of self-actualization, it was widely regarded as the most critical component. In a hearing before the House Committee on Education and Labor, Subcommittees on Employment Opportunities and Select Education, held September 13, 1989, Jay Rochlin, Executive Director of the President’s Committee on Employment of People with Disabilities, directly testified that:

> It makes little sense to protect an individual from discrimination in employment if, for example, they have less than adequate accessible public transportation services. We have conducted surveys in 45 communities over the last seven years, and, consistently, inaccessible transportation has been identified as the major barrier, second only to discriminatory attitudes. \(^{72}\)

Rochlin argued that the sum of the provisions of the ADA, as proposed, would certainly serve to assist persons with disabilities in overcoming both of these barriers. Others felt, however, that the lack of accessible transportation actually reinforced and perpetuated these discriminatory attitudes. In a hearing before the House Committee on Education and Labor, Subcommittee on Select Education, held October 6, 1989, Marchell Hunt, Chairperson of Common Concerns, an advocacy organization in Indianapolis, entered a prepared statement testifying that:

> In response to […] concerns associated with the current transportation system, paratransit has been proposed as a possible solution. However, if solely implemented, such a system will serve only to further segregate the disabled from the non-disabled thereby feeding stereotyped public attitudes and beliefs concerning persons with disabilities.

Such stereotypes include misplaced safety concerns, notions that disabled people need to be protected and cared for, a lack of understanding as to why persons with disabilities would even want to leave their homes, and in the personal discomfort that some may feel when coming into contact with people who are physically different. \(^{73}\)

Giving persons with disabilities full access to the benefits of society through accessible public transportation, Hunt reasoned, would promote interaction, and thereby understanding and tolerance.

**Potential Costs to Society Inherent in Isolation**

During Congressional hearings regarding the provisions of the ADA, many business owners and agency officials offered testimony that questioned the projected high costs of compliance with the law. Persons with disabilities and advocacy groups found this type of testimony to be particularly offensive. By opening up society through protection from discrimination, particularly through accessible public transportation, they reasoned, persons with disabilities
would be given a chance to be as independent and productive as all other members of society. Fehribach’s statement argues:

Many consider the language of [the ADA] to be burdensome, yet we must consider the burdensome costs that a citizen who is not able to contribute to his own health and well being places on society. Those who feel it is cheaper to institutionalize a citizen than it is to work side by side with that same citizen have a false perception [...] ADA gives other Disabled Americans an opportunity. The ADA will allow disabled people the privilege of paying income tax and it will prevent them from using the welfare system for their care and maintenance.74

Public transit officials also argued in favor of many of the provisions of the ADA, for much the same reason. In a field hearing before the House Committee on Education and Labor, Subcommittee on Select Education, held August 28, 1989, Robert C. Lanier, Chairman of the Metropolitan Transit Authority of Harris County, Texas (Houston METRO), entered a prepared statement testifying that:

The Board of Directors of the Metropolitan Transit Authority of Harris County, Texas (Houston METRO) formally voted to outfit its new buses, vans, and mini-buses with wheelchair lifts, commencing with the first purchases of 300 full size buses (60 per year for 5 years), 51 mini-buses, and 35 micro-buses.

This Board action supplements a door-to-door pick-up service presently funded with $5,894,000.00 of annual expenditures, well above the level of most other cities.

The wheelchair lifts were added, not because we believe them to be the most cost effective, but because we believe them to be right. The controlling issue, as I see it, is an attempt to afford all our citizens the right to fully participate in the economic and political process. The analogy that comes to mind is the old contention that minorities should be segregated under the ‘separate but equal doctrine’. I do not subscribe to that, but subscribe to the notion that, as best we can, we should afford all our citizens the right of full participation. Houston METRO’s decision is a small step in that direction. A step we are comfortable with because it is soundly based in American values and overall economic health.

Many argue that allowing full participation takes people off the welfare roll, makes them into tax-paying citizens. That is all true. But I think there is a larger value […]

[...] Who knows what outstanding contribution lies dormant within some handicapped person, that contribution teetering on the brink of whether he or she is allowed full participation in our society? The mobility provided by a wheelchair equipped bus fleet is an important element of full participation in our society.”75
Lanier’s statement was a notable example of a large public transit agency not only complying with the requirements of the DOT Section 504 regulations, but also really listening to the needs of its local disabled community, and taking action to meet those needs at a greater level than the regulations required.

Congress entertained a great deal of testimony, not only as part of these hearings but also many others, hosted by several different Committees and Subcommittees. Although the final Senate and House bills tightened up some of the ambiguities pointed out by public transit officials, the requirements for accessible transit vehicles and facilities, as well as that for complementary paratransit, remained largely the same as those contained in the drafts. Moreover, the final bills did not include any additional authorizations for accessible public transit. Following conference to clear up the discrepancies between the final Senate and House bills, the ADA was passed by a 377-28 margin in the House, and by a 91-6 margin in the Senate. President George H.W. Bush signed the ADA into law on July 26, 1990.\textsuperscript{76}
PUBLIC TRANSIT PROVISIONS OF THE ADA

Congress’ stated purpose in drafting and adopting the ADA was to, among other things, “provide a clear and comprehensive national mandate for the elimination of discrimination against individuals with disabilities” and “provide clear, strong, consistent, enforceable standards” by which the fair and equitable treatment of persons with disabilities could be judged. By mandating specific actions in the legislation, rather than directing federal agencies to promulgate their own rules and regulations around a loose set of general policies, the ADA minimizes the issue of statutory authority that slowed progress in developing accessible transit services during the 1980s.

Title I

Title I covers hiring and employment practices across all industries, in both the public and private sectors, and generally provides that:

No covered entity shall discriminate against a qualified individual with a disability because of the disability of such individual in regard to job application procedures, the hiring, advancement, or discharge of employees, employee compensation, job training, and other terms, conditions, and privileges of employment.

This mandate applies to most public and private employers, including state and local governments and public transit agencies. Much like the original DOT regulations established under the Rehabilitation Act of 1973, the ADA requires that reasonable accommodation be extended to otherwise qualified employees with disabilities, as necessary, to enable them to complete the core functions of their job.

Title I also limits the types of questioning a potential employer can use during the job interview process, eliminating those that might be used to screen out applicants with disabilities. It does, however, allow questions and physical examinations directly related to the duties of the job, and protects the right of an employer to conduct pre-employment, random, reasonable suspicion, and return-to-duty tests for illegal drugs and alcohol. Such tests are instrumental in ensuring the safety of the nation’s public transportation infrastructure, employees, and customers.

Title II, Subpart B

FIXED ROUTE SYSTEMS

Going forward, the ADA requires that all new vehicles leased or purchased by a fixed route transit system, including buses, rapid rail, and light rail vehicles, to be “readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs.” This mandate also applies to most used and remanufactured vehicles. With some limitations, “historic” vehicles are exempt from this accessibility requirement. A temporary waiver can be provided, under certain circumstances, if a transit agency makes a “good faith” effort to procure accessible vehicles but cannot due to a lack of suitable parts and/or manufacturers.
COMPLEMENTARY PARATRANSLIT

Fixed route operators, including rapid and light rail systems, are required to provide “paratransit and other special transportation services” to persons with disabilities who cannot utilize the fixed route due to three general conditions:\(^{82}\)

- An inability to board, deboard, or ride the fixed route without assistance
- An inability to travel to or from a fixed route bus stop without assistance
- The lack of an accessible fixed route vehicle or stop on the needed route.\(^{83}\)

Section 223 also requires complementary paratransit service to be made available to at least one companion wishing to travel along with the eligible person with a disability; more companions can travel along on a space-available basis. Complementary paratransit service is mandated in the same service area as the fixed route system.

Fixed route systems were permitted under the law to apply for an “undue financial burden” waiver and subsequently be exempted from providing some portion, or all, of the complementary paratransit service. Congress directs DOT to determine the guidelines for such a waiver, at their own discretion, through the rulemaking process.\(^{84}\)

Each agency was required to submit to DOT, and update on an annual basis, a plan for providing complementary paratransit services under Section 223 of the ADA. Much like the amended Section 504 regulations promulgated by DOT, the ADA requires that the planning process include ample opportunity for public participation and comment, particularly by members of the local disability community. The law exempts fixed route systems from providing all or a portion of complementary paratransit services if another agency in the service area is responsible for providing those services.

Because the legislation requires that each of the provisions in Section 223(c) be included and addressed in DOT regulations, it provides a very strong basis for these regulations, and minimizes the opportunity for legal challenges, such as those that slowed the implementation of Section 504 of the Rehabilitation Act of 1973.

DEMAND RESPONSIVE SYSTEMS

The ADA requires operators of demand responsive transit systems, whether already existing, or newly formed as a result of the complementary paratransit requirement, to generally follow the same procedures as fixed route systems for the procurement of vehicles “readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs.” Systems can be exempted from this requirement, however, if they have a sufficient number of accessible vehicles in operation to provide a level of service for persons with disabilities “equivalent” to that which is provided to other passengers.\(^{85}\)

FACILITIES

Public transit agencies are required to ensure that all new facilities or facility alterations are constructed so as to be “readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs.”\(^{86}\) This requirement generally mirrors the provisions of Subpart C of the original DOT Section 504 regulations, as well as the Architectural Barriers Act of 1968. The ADA, however, does not merely apply to facilities constructed or modified with federal funds, but to all public transportation facilities.
Under the ADA, rapid rail and light rail transit agencies are subject to largely the same requirement for accessibility of certain “key stations” as they were under the original DOT Section 504 regulations. Key stations are required to accommodate all passengers with disabilities, including those using wheelchairs, within three years. In the event of “extraordinarily expensive structural changes” needed to make these stations fully accessible, an extension can be granted up to thirty years; however, at least 2/3 of the key stations must be fully accessible within twenty years. 87

The legislation also compels public transportation agencies to ensure that any “program or activity” conducted in existing facilities is “readily accessible to and usable by individuals with disabilities.” These provisions do not necessarily require 100% accessibility for existing facilities, but that any program or activity be accessible “when viewed in the entirety.” 88

**RAPID AND LIGHT RAIL VEHICLES**

Rapid and light rail transit agencies are generally subject to the same “one car per train” wheelchair accessibility requirement as contained in the original DOT Section 504 regulations. Agencies are obligated to comply with this requirement within a five-year period. Exemptions can be made available to agencies that operate trains consisting of only one car, or “historic vehicles.” 89

**REGULATIONS**

The ADA directs the Secretary of Transportation to promulgate regulations as necessary to implement the requirements of the legislation. These regulations were to be issued within one year of the passage of the ADA. 90

**COMMUTER RAIL**

Commuter rail agencies are required to adhere to the same “one car per train” requirements as rapid and light rail agencies. 91 In the same manner as fixed route bus systems, new and used commuter rail vehicles are required to be “readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs.” 92 A “good faith” exemption, however, is included for used vehicles. 93 Remanufactured commuter rail vehicles are also required to be accessible, but, unlike buses and rapid and light railcars, the accessibility requirement only applies to vehicles remanufactured “so as to extend its usable life for 10 years or more.” 94

Much like the requirements for fixed route bus, and rapid and light rail stations, all new and modified commuter rail stations are required to be “readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs.” 95 Existing “key stations” are required to be made accessible “as soon as practicable but in no event later than 3 years after the date of enactment of this Act.” If “extraordinarily expensive structural changes” are required, this deadline can be extended to twenty years. 96

**Title III**

Title III prohibits discrimination:

on the basis of disability in the full and equal enjoyment of the goods, services, facilities, privileges, advantages, or accommodations of any place of public accommodation by any
person who owns, leases (or leases to), or operates a place of public accommodation.\textsuperscript{97}

with the term “public accommodation” generally referring to any place, such as a theatre, restaurant, or shopping mall, operating under private ownership but being engaged in “commerce” and available to any member of the general public. This prohibition is similar to the provisions of Section 201(a) of the Civil Rights Act of 1964.\textsuperscript{98}

Section 302 imposes requirements on fixed route and demand response systems operated by private entities (not primarily engaged in the business of transportation) for public consumption – for example, airport, hotel, and parking lot shuttles. Vehicle accessibility requirements consist of language very similar to that applicable to public fixed route and demand response transit systems, but include an exemption for vehicles with a total capacity of “16 passengers or less (including the driver).” A system including such small vehicles is still required to be accessible to persons with disabilities when the system is “viewed in its entirety.”\textsuperscript{99} Rail vehicles are specifically excluded from this requirement.\textsuperscript{100}

Section 304 imposes similar accessibility requirements, but does so for private entities “primarily engaged in the business of transporting people and whose operations affect commerce” – for example, a charter or tour operator. For these particular operators, the small vehicle exemption is limited to vehicles “with a seating capacity of less than 8 passengers.”\textsuperscript{101} Rail vehicles are included in these requirements, but again an exemption for “historic vehicles” is provided.\textsuperscript{102}
COMPLEMENTARY PARATRANSIT REQUIREMENTS AS SPECIFIED IN 49 CFR 37

The ADA delegates regulatory authority for transportation accessibility directly to the DOT. These regulations are incorporated in 49 CFR 27, 37, and 38. The complementary paratransit requirements are regulated by 49 CFR 37, and include the following provisions.

Eligible Groups

Complementary paratransit services are required to be provided to the following groups of passengers:

- Persons with disabilities who cannot, without assistance, “board, ride, or disembark from” an accessible fixed route vehicle placed into service by a transit agency
- Persons with disabilities who would independently use an accessible fixed route vehicle, but cannot because one has not been placed into service by the transit agency at the needed boarding place or time
- Those using a wheelchair of “common” size and shape that cannot be accommodated by an otherwise accessible vehicle
- Those using a wheelchair and need to board or alight at a fixed route stop where “the lift cannot be deployed, the lift will be damaged if it is deployed, or temporary conditions at the stop, not under the control of the [transit agency], preclude the safe use of the stop by all passengers”
- Persons with disabilities who desire to use a rail system but cannot due to the inaccessibility of vehicles or “key stations”
- Those prevented by the specific nature of their disability, outright or in conjunction with “architectural […] and environmental barriers,” from traveling to or from a fixed route stop
- One other individual traveling as a companion of a person with a disability between the same origin and destination as that person
- A “personal care attendant” of a person with a disability
- Additional companions of a person with a disability on a space-available basis
- With some limitations, visitors eligible for complementary paratransit in another jurisdiction who can provide documentation to that effect

Eligibility Determination Process

The regulations direct transit agencies to establish a process for determining complementary paratransit eligibility in “strict” accordance with the criteria outlined in Section 37.123. Several restrictions are placed on this eligibility process. First, the transit agency has to review the application and related documentation, and make a determination of “eligible” or “ineligible” within twenty-one days, or grant interim eligibility “until and unless” a determination of “ineligible” is made. The determination is required to be provided in writing to the applicant, and this notification as well as all application materials are to be made available in accessible formats (such as Braille, large-print, or audiotape) upon request.

Once a determination of “eligible” is made, the transit agency is required to provided documentation or some form of identification verifying this eligibility. Any applicant found to be ineligible is entitled to due process through the right of an appeal and hearing.
Transit agencies are encouraged to develop policies and procedures to sanction eligible customers who exhibit a “pattern or practice” of missing scheduled paratransit trips. The agency is permitted to suspend service “for a reasonable period of time” upon written notice and after providing due process.  

Service Criteria

SERVICE AREA

Fixed route bus systems are required to provide complementary paratransit services within corridors measuring ¾-mile on each side and at each end of a fixed route, plus to “small areas not inside any of the corridors but which are surrounded by corridors.” Rail systems are required to provide these services within and between areas with a radius of ¾-mile around all stations. Exemptions are created for “commuter bus service”, defined as:

- fixed route bus service, characterized by service predominantly in one direction during peak periods, limited stops, use of multi-ride tickets, and routes of extended length, usually between the central business district and outlying suburbs. Commuter bus service may also include other service, characterized by a limited route structure, limited stops, and a coordinated relationship to another mode of transportation.

An exemption is also established for service area corridors that traverse jurisdictional boundaries, over which a transit agency is not permitted to operate. Transit agencies are, however, required to take steps to resolve these jurisdictional issues where they exist.

RESPONSE TIME

The public transit agency is required to provide for all eligible complementary paratransit trips scheduled at least “the previous day” and up to fourteen days in advance. This means that, for example, a transit agency not operating Sunday services is still obligated to open up on Sunday to take requests for Monday travel. Departure times cannot be scheduled “to begin more than one hour before or after the individual’s desired departure time.”

FARES

For a complementary paratransit trip, an agency can charge no more than twice the full fixed route fare “for a trip of similar length, at a similar time of day.” This applies to any companions as well, though a qualified personal care attendant is exempt from any fare.

TRIP PURPOSE

The regulations prohibit any “restrictions or priorities based on trip purpose.” A qualified rider can expect equal treatment for trips involving work, school, medical appointments, shopping, recreation, or visiting family and friends.

SERVICE DAYS AND HOURS

A fixed route agency is obligated to offer complementary paratransit service during the “same hours and days” as any fixed route service operated.
CAPACITY CONSTRAINTS

The regulations expressly prohibit any methods used to control complementary paratransit service availability, including: restricting the number of trips a qualified passenger can take during a given time period, establishing a waiting list for use of the service, knowingly degrading the on-time performance of the service or missing trips entirely, or imposing inordinately long trip lengths or times when compared to the fixed route service or an automobile trip. This provision does not apply to unforeseen events, such as traffic or weather.\textsuperscript{113}

49 CFR 37.133 governs “subscription service”, or paratransit trips set aside for regular riders who are issued a standing reservation by the transit agency. According to the regulations, such trips “may not absorb more than fifty percent of the number of trips available at a given time of day, unless there is non-subscription capacity.” This is to allow for spontaneous paratransit travel by eligible persons with disabilities.

Paratransit Plans

Each fixed route agency obligated to provide complementary paratransit service was also required to submit an initial plan for its implementation by January 26, 1992. The agency is thereafter responsible for either updating the plan or certifying its compliance on an annual basis. Generally, each agency was responsible for commencing implementation of its plan by January 26, 1992 and achieving full implementation no later than January 26, 1997.\textsuperscript{114}

Much like the 1981 DOT Section 504 interim amendment, and the subsequent 1986 regulations, the regulations developed under the ADA require a substantial public participation process as part of plan development. This includes early outreach to affected groups, targeted consultation with the local disability community, and opportunities for public comment, both through public hearings and on an “at-large” basis. This process is mandated on an ongoing basis; even after plan approval and full implementation is achieved. In general, these plans need to include an inventory of current fixed route and paratransit services and providers, demand and cost projections, and a description of how the agency intends to meet all of the other requirements outlined in the legislation and regulations.\textsuperscript{115}

Undue Financial Burden

Under limited circumstances, the regulations provide for a temporary waiver exempting a public transit agency from meeting all or part of the complementary paratransit requirements. Generally, these waivers were intended for agencies who, in preparing their implementation plan, realized they could not realistically meet the 1997 deadline for full implementation, or those who met some unforeseen circumstances after having their implementation plan approved.\textsuperscript{116} If such a waiver was granted, the agency might be required:

- To offer complementary paratransit services only “to the extent it can do so without incurring an undue financial burden”
- To offer such service along certain fixed route corridors regardless of any undue financial burden incurred
- To coordinate with other area transportation providers in order to allow for as much accessible service in the area as possible\textsuperscript{117}
It is important to note that such waivers were only intended as a temporary measure of relief, to allow a fixed route transit agency to plan in more detail and make any organizational changes necessary in order to fully implement the service.

In considering whether to grant a waiver of undue financial burden, the FTA committed to reviewing such factors as: resulting effects on other fixed route or specialized services, fare increases proposed to cover the costs of providing complementary paratransit, the accessibility of existing facilities and vehicles within the system, the level of coordination between the agency and other area providers and agencies, opportunities to maximize operating efficiency, and any other unique factors present within the service area.\textsuperscript{118}
OPERATING CHARACTERISTICS OF DEMAND RESPONSE TRANSIT SERVICES

Paratransit services, including complementary paratransit as defined by the ADA, fall into the demand response mode category. Demand response services do not adhere to the fixed routes typical of other transit modes, but rather are characterized by a customer-driven labor and vehicle scheduling process. Customers contact the transit agency by phone or computer to request demand response trips as they are needed; usually this is done with at least some lead-time to allow for more efficient routing and scheduling of resources.

Once the transit agency compiles all of the trip requests for a given block of time, a dispatcher or scheduler looks for origin, destination, and temporal patterns in the requests, and sets logical routes and schedules accordingly. In this manner, the trips provided are a direct response to the demand of transit customers. Flexibility is the defining characteristic of demand response transit services; however, these services do not necessarily operate as a taxi service. Demand response customers are not only generally required to make a trip request in advance, they also must be somewhat flexible with regard to their pick-up and drop-off times. Further, though demand response services typically involve door-to-door, or at least curb-to-curb, transportation, a customer must often share the vehicle with other like customers. Therefore, the trips provided are not always direct.

Demand response services typically use smaller vehicles than do conventional fixed route bus services, due in part to both a lower passenger density and the need to navigate narrower, local streets to provide door-to-door or curb-to-curb service. These vehicles can include cutaways (a bus-like body on a van or truck chassis), full-size vans, minivans, and even passenger sedans. Demand response vehicles generally hold at least two, but no more than twenty passengers.

This particular mode exhibits a unique set of operating conditions, which reveal changes following, but not necessarily directly related to, the enactment of the ADA and succeeding regulations. These conditions are described below.

Amount of Service Supplied and Consumed

NUMBER OF AGENCIES

One method by which to examine the amount of demand response service available is to look at the number of transit agencies supplying such service (Figure 1). The number of demand response agencies is relatively flat between Fiscal Year (FY) 1990 and 1993, increases markedly for FY 1994, then levels out again. As of FY 2001, there were 5,251 agencies providing demand response transit, more than twice as many agencies as providing conventional fixed route bus service. No modes other than demand response and fixed route bus involve more than 100 agencies.119

This trend reveals two important points as to the nature of demand response transit. First, a significant number of agencies provided such service before the passage of the ADA, presumably either as part of a local plan to meet transportation needs for the elderly and persons with disabilities, pursuant to the DOT Section 504 regulations of 1986; or as a means of providing transit to areas that do not justify conventional fixed route bus or rail transit. Second, the increase in agencies providing demand response services after the passage of the ADA is
considerable (about 34%), and most probably includes many agencies that did not provide such service under the DOT Section 504 regulations published in 1986 or earlier.\textsuperscript{120}

This would imply a significant level of inexperience within the transit industry, where paratransit is concerned, in the years preceding the adoption of the ADA and succeeding regulations. Such a lack of familiarity with the planning and operation of a paratransit system would almost certainly contribute to the resistance to complementary paratransit service, as expressed by transit managers and officials during the Congressional Hearing process.

Another method by which to determine the amount of paratransit service available is to examine the number of trips taken by passengers. As the number of agencies providing demand response transit service increases, so too does the number of trips provided by these agencies (Figure 2). The increase in number of trips provided, however, occurs at a much more gradual rate. This could imply several circumstances: that existing and new demand response agencies implemented complementary paratransit service incrementally; that these agencies may have taken significant measures to make their fixed route bus and rail services accessible, thereby minimizing the immediate need for complementary paratransit; or that persons with disabilities were slow to begin using the service available, perhaps due to a lack of awareness of the service or the procedures followed to utilize it.

During FY 1990, demand response agencies provided roughly 68 million unlinked passenger trips. This measure generally increases until the present. During FY 2001, roughly 105 million demand response passenger trips were taken – an increase of about 54% during the twelve-year period.\textsuperscript{121}

Between FY 1990 and 2001, in terms of percentage increase in annual unlinked passenger trips, demand response is one of the fastest-growing modes of transit. Its growth rate over this period is second only to light rail, which enjoyed a 92% increase due at least in part to a number of new
system startups – a phenomenon not unlike that seen within the demand response sector – as well as an operating environment characterized by high passenger densities. Moreover, the growth rate of demand response passenger trips over the twelve-year period is well above that of transit overall (about 9%). But while demand response trips are increasing at a very rapid pace, this expansion does not translate into a significant mode share. During FY 2001, demand response services carried many times fewer passengers than fixed route bus and heavy rail, and several times fewer passengers than commuter rail and light rail – modes that typically serve very densely populated areas.

![Figure 2 Unlinked Demand Response Trips Provided (FY 1990-2001 in millions)](attachment:image)

**ANNUAL VEHICLE MILES**

The number of demand response vehicle miles provided between FY 1990 and 2001 follows much the same trend as seen in annual unlinked trips (Figure 3). During FY 1990, demand response agencies provided almost 306 million vehicle miles of service – a number that increases steadily until the present. During FY 2001, about 789 million vehicle miles of demand response service were provided – well over twice the amount provided at the beginning of the twelve-year period.

Between FY 1990 and 2001, demand response vehicle miles increased by about 158% - a rate of growth second only to that exhibited by vanpool services as part of the “other” mode category (about 325%), but still much higher than all other modes, as well as transit overall, which experienced a growth rate of about 29% over the same period. That the growth rate of demand response vehicle miles greatly outstrips that of demand response unlinked passenger trips over the same period suggests that these demand response trips are getting longer over time, involve more empty “deadheading” between demand response terminals and the individual pick-up and drop-off points of each trip, or some combination of both. As the ADA and succeeding regulations contain very stringent criteria to guarantee the availability of service on relatively short notice, it is entirely conceivable that a vehicle could be dispatched to pick up and deliver a single passenger within the service area before returning to the terminal.
When one compares all modes of transit according to FY 2001 statistics, it becomes clear that demand response provides a considerable number of overall vehicle miles of service – about 1/3 of that provided by fixed route bus agencies, but more than any other mode, and quite a bit more than most other modes. Given the comparatively small number of demand response trips provided, this suggests that such services are very vehicle-intensive, and therefore both very labor-intensive, in terms of the number of employee hours required to operate, dispatch, and maintain these vehicles, and more dependent on fuel on a per-passenger basis when compared to other modes.¹²⁶

![Figure 3 Demand Response Vehicle Miles Provided (FY 1990-2001 in millions)](image)

**ANNUAL VEHICLE HOURS**

Vehicle hours provide still another means by which to examine the amount of demand response service provided (Figure 4). For demand response services, vehicle hours follow a generally upward trend very close to that exhibited by demand response vehicle miles, increasing from roughly 24 million vehicle hours during FY 1990 to almost 54 million vehicle hours during FY 2001 – again, well over twice the amount provided at the outset of the twelve-year period. That the number of demand response vehicle hours provided is growing at a slightly slower rate than demand response vehicle miles implies that demand response vehicles exhibit a higher average speed over time, perhaps because agencies have gained efficiencies in scheduling or routing vehicles that increase the average speed, or because the vehicle miles provided include more empty “deadheading” between the terminal and pick-up or drop-off points at highway speed.¹²⁷

When compared to that of other modes, the growth rate of demand response vehicle hours provided over the period FY 1990-2001 indicates significant expansion. This expansion is greater than that exhibited by all other modes of transit during the same period, as well as transit overall (which grew by about 23%). As with vehicle miles, the number of demand response vehicle hours provided during FY 2001 is considerable - about 1/3 of that provided by fixed route bus services, but significantly higher than all other modes.¹²⁸
Like the number of vehicle miles provided, the high number of demand response vehicle hours provided, in light of the comparatively small number of passenger trips provided, suggests that demand response services are very time-intensive, and much more vehicle- and labor-intensive than other forms of transit. The ADA and succeeding regulations call for a complementary paratransit service much more personalized than conventional fixed route bus or rail service. As vehicle hours increase, so does the number of person-hours required to operate, maintain, and dispatch the vehicles.

Cost Characteristics

ANNUAL OPERATING COSTS

To better determine the conditions under which demand response service operates, it is useful to look at the trends in costs, and types of costs, involved in providing the service. During the period from FY 1990 to 2001, demand response operating costs follow an increasing trend in terms of 2001 dollars - from almost $702 million during FY 1990, to well over $1.7 billion during FY 2001, with a very sharp jump during the last two years (Figure 5). This increase, of about 150% in just twelve years, is somewhat to be expected, based on significant increases in the number of agencies providing demand response service, the number of passenger trips taken, and the number of vehicle miles and hours of service provided over the same period. Moreover, increasing operating costs are common to all modes (except heavy rail) over the period FY 1990 to 2001. Overall, in terms of 2001 dollars, transit services cost about 10% more to operate during FY 2001 than they did during FY 1990. However, light rail (with a growth rate of about 112%) and vanpool services as part of the “other” mode classification (with one of about 85%) are the only modes that come close to equaling the growth in real dollars seen in demand response operating costs. This growth could be the result of not only the increase in demand response services supplied and consumed, but also of the cost to operate demand response services relative to other types of transit services. Given the labor- and vehicle-
intensive nature of demand response services, especially the manner of service prescribed by the ADA and succeeding regulations, this is likely the case.\textsuperscript{130}

Despite the rapid growth rate of demand response operating costs, the mode is unremarkable in terms of raw operating dollars expended on an annual basis. During FY 2001, the level of demand response service on the street only cost about $1/7$ as much as the level of conventional fixed route bus service. On an annual basis, heavy rail and commuter rail service also cost more to operate than demand response service.\textsuperscript{131}

![Figure 5 Demand Response Operating Costs (FY 1990-2001 in millions of 2001 dollars)](image)

**OPERATING COST STRUCTURE**

It is also important to note how demand response agencies allocate their operating expenses. “Purchased transportation”, or services contracted out to private operating companies and nonprofit organizations, is by far the largest single component of demand response operating costs (Figure 6). During FY 2001, demand response agencies allocated over 72\% of their total annual operating expenditures to purchased transportation; this percentage represents a dollar amount almost equal to the dollar amount spent by fixed route bus agencies for purchased transportation, despite the much higher level of service furnished by fixed route bus agencies.\textsuperscript{132}

The purchased transportation expenditures by demand response agencies are critical, as they indicate that an overwhelming number of such agencies, relative to other modes, rely on outside organizations to manage the activities and competencies inherent in providing demand response service. Some such agencies outsource only one or several portions of their service, operating the remainder themselves.

Salaries and wages make up the next largest component of demand response operating costs, followed by fringe benefits, services, other materials and supplies, and fuel and lubricants. All other components account for a relatively negligible portion of operating costs.\textsuperscript{133}

The operating cost components, purchased transportation notwithstanding, that make up the largest proportion of total demand response operating costs also seem the be the ones that exhibit
the most rapid growth (Figure 7). During the period FY 1996 to 2001 (the years for which the best data is available through the NTD), in terms of 2001 dollars, fringe benefit expenditures grow by 34%, likely exhibiting a strong influence from rising health insurance costs. Salary and wage costs grow by almost 16% over the same period. Fuel and lubricants, and other materials and supplies grow by about 9% and 7.5%, respectively. As these operating cost components both account for significant portions of overall operating costs, and are increasing somewhat rapidly, it seems that paratransit managers need to make specific efforts to identify and implement solutions to keep these costs in check.  

Figure 6 Demand Response Operating Cost Components (FY 2001)

Figure 7 Percentage Growth in Demand Response Operating Cost Components (FY 1996-2001 in 2001 dollars)
ANNUAL CAPITAL COSTS

Demand response capital costs, which provide for the equipment needed to operate the service, have also increased in terms of 2001 dollars since the early 1990s, from just over $85 million in FY 1992 to about $154 million in FY 2001 – a difference of about 80% (Figure 8). Data is not readily available for FY 1990 and 1991. When compared to other modes over the same period, the growth rate of demand response capital expenses is unremarkable, well below that in real dollars for trolleybus agencies (with a growth rate of about 235%), light rail agencies (with one of about 115%), and fixed route bus agencies (with one of about 112%). Other modes likely spend significant amounts of capital funds to make vehicles and facilities accessible, thereby helping to minimize the need for complementary paratransit.135

On both an outright and proportional basis, demand response services do not require a particularly high level of capital investment. During FY 2001, demand response agencies spent only a small fraction of the capital expenses of fixed route bus and rail modes. And with only about $1 capital dollar spent for every $11 operating dollars, demand response transit is not nearly as capital-intensive as these other modes, which often entail costly vehicles and facilities, particularly in the rail sector. Demand response services are quite vehicle-intensive, but these vehicles can be obtained far more inexpensively than a fixed route transit bus or rail vehicle.136

Figure 8  Demand Response Capital Costs (FY 1992-2001 in millions of 2001 dollars)

CAPITAL COST STRUCTURE

Vehicles, as opposed to facilities and other types of equipment and infrastructure, account for the majority of demand response capital expenditures. During FY 2001, demand response agencies allocated over 77% of their capital costs for such rolling stock (Figure 9). With the exception of vanpool services as part of the “other” mode classification, all other modes dedicate a far greater proportion of their capital expenditures to facilities and other equipment and infrastructure. This statistic again underscores the strong importance of vehicles, as opposed to other capital elements such as shelters and stations, within the demand response operating environment.137
In the case of demand response transit, many of the vehicle storage and maintenance facilities used are already built, or are being built, for primary use by another mode – namely fixed route bus service. In other cases, a small rural agency operating only demand response transit, for example, can probably not bear the cost of an expensive new capital facility, and will likely elect to lease a suitable existing facility at the lowest possible cost. Moreover, as much of the demand response service on the street is currently contracted out to private companies and nonprofit agencies, the individual contractor may be responsible for providing its own facilities, and, if this is the case, will likely lease a local facility rather than building their own.

![Figure 9  Demand Response Capital Cost Components (FY 2001)](image)

**Vehicles**

**NUMBER OF ACTIVE VEHICLES**

As the number of demand response agencies, and the level of demand response service provided have increased, so too has the number of demand response vehicles – from almost 16,500 in FY 1990 to just over 35,500 in FY 2001, an increase of about 110% (Figure 10). Only vanpool services as part of the “other” mode classification (with a growth in fleet size of about 378% over the same period) exhibited a larger expansion than demand response transit. Over this period, the number of active demand response vehicles grew at a much greater rate than the number of demand response passenger trips, but at a slower rate than that exhibited by vehicle hours and miles of service provided. This seems to suggest that while demand response services are quite vehicle-intensive, and becoming more so, agencies are more fully utilizing their existing vehicles by keeping them out in service for longer hours before making the decision to add to their fleet. Such a scenario would place heavy importance on vehicle maintenance.\(^{138}\)

Moreover, expansion in the number of active demand response transit vehicles is most pronounced between FY 1990 and FY 1994. This implies that agencies added vehicle capacity rapidly at the time they initially implemented complementary paratransit service under the ADA. Since that time, however, fleet growth has been comparatively slow even as the number of
passenger trips continues to steadily increase, further suggesting that agencies are more fully utilizing existing vehicles rather than purchasing additional ones.

Comparing the number of active demand response vehicles to other modes really highlights the vehicle-intensive nature of the service. During FY 2001, demand response agencies used 34,661 active vehicles – just less than half the number used by conventional fixed route bus agencies, but at least three times the number of active vehicles used by any other mode. It should be noted, however, that most other modes, particularly in the rail sector, use vehicles that are designed to carry very large numbers of passengers in dense urban environments.

![Graph showing the number of active demand response vehicles (FY 1990-2001)](image)

**Figure 10  Number of Active Demand Response Vehicles (FY 1990-2001)**

**Workforce**

**NUMBER OF OPERATING EMPLOYEES**

Examining the number of operating employees is another way to determine the level of labor involved in providing a given mode of transit service. Since FY 1990, the number of operating employees working to provide demand response transit services has grown by approximately 145%, from almost 23,000 employees in FY 1990 to almost 56,000 in FY 2001 (Figure 11). This growth rate is considerably higher than that exhibited by any other mode.

The number of demand response operating employees is expanding at a much higher rate than the number of demand response passenger trips – suggesting, as with vehicles, that the service is very labor-intensive, and likely becoming more labor-intensive over time. This could be for any one of a number of reasons. For example, demand response clients may require a greater level of operator assistance than in years past; more administrative employees may be needed to guide clients through program or trip eligibility processes, or to set daily demand response routes and schedules; or more maintenance may be required to keep vehicles in a reliable operating condition.

As with the number of active demand response vehicles, however, expansion in the number of demand response operating employees is primarily concentrated early after the adoption of the
ADA and succeeding regulations. This implies that agencies added comparatively large numbers of paratransit staff at initial implementation, but since that time are more fully utilizing their existing employees – likely in the scheduling, dispatching, and maintenance areas, as the number of bus operators would seem to be the most sensitive to the number of trips taken.

On an outright basis, when compared to other modes, demand response transit is clearly very labor-intensive. Despite its relatively small modal share in terms of passenger trips provided, during FY 2001 demand response agencies employed 55,846 people in operations – a little more than 1/4 of the number employed in fixed route bus operations, but considerably more than any other mode.\textsuperscript{141}

![Figure 11 Number of Demand Response Operating Employees (FY 1990-2001)](image)

**Performance Measures**

**OPERATING COST RECOVERY RATIO**

Operating cost recovery ratio is one of the more widely accepted measures of transit efficiency and performance. This ratio is defined as the percentage of operating costs that are recovered through the collection of passenger fares. For example, an operating cost recovery ratio of 50% would mean that for every dollar in operating costs expended, fifty cents are brought in at the farebox.

Since the early 1990s, in terms of 2001 dollars, the operating cost recovery ratio for demand response transit exhibits pronounced upturns and downturns, but generally remains flat to slightly increasing – from almost 8% during FY 1990 to just over 10% during FY 2001. Since the mid-1990s, however, the operating cost recovery ratio of demand response services exhibits a generally decreasing trend (Figure 12). This indicates that, in later years, demand response transit agencies are receiving a declining return on their operating expenditures, and are increasingly having to cover the costs of operating their service with other sources of federal, state, and local funding, advertising revenue, etc.\textsuperscript{142}
Per the ADA and succeeding regulations, complementary paratransit fares are directly tied to fixed route fares. Therefore, to improve farebox recovery assuming stable incremental operating costs, the transit manager must increase fixed route fares, often a zero-sum proposition due to transit fare elasticity; find a method by which to attract larger number of passengers while keeping the level of service consistent in terms of vehicle miles and hours; or gain other operating efficiencies.

When compared to other modes of transit, demand response service exhibits the lowest operating cost recovery ratio in the industry. During FY 2001, its measure of 10.35% was roughly 1/6 the recovery ratio of heavy rail services, about 1/5 that of commuter rail services, about 1/3 that of trolleybus, conventional fixed route bus, and light rail services, and about 1/2 that of “other” services, including vanpool and miscellaneous rail services. Demand response services also operate at a level of cost recovery well under the industry average. During FY 2001, the overall operating cost recovery ratio for all transit services was 37.81%. While demand response services are very labor- and vehicle-intensive, and are intended to operate in less densely populated service areas than other forms of transit, this indicator certainly suggests room for improvement in terms of efficiency and productivity.

![Figure 12 Demand Response Operating Cost Recovery Ratio (FY 1990-2001 based on 2001 dollars)](image)

**UNLINKED PASSENGER TRIPS PER REVENUE HOUR**

This performance measure indicates the efficiency and productivity of transit service, in terms of the number of people transported for each hour each vehicle is used in providing service. As such, it is also a measure of the level of vehicle-intensity of a given type of transit service. Since the early 1990s, demand response trips per revenue hour decline slowly but steadily – from about 5.5 passenger trips per revenue hour during FY 1990 to just over 3 passenger trips per revenue hour during FY 2001, a percentage decline of about 42% (Figure 13). This further indicates the increasing vehicle-intensity of demand response service, relative to the number of passengers carried.
When compared to other modes, demand response services are becoming significantly less efficient and productive, and more vehicle-intensive, in terms of passenger trips per revenue hour. Only vanpool services as part of the “other” mode classification exhibit a greater percentage decline in passengers per revenue hour (about 48%) than do demand response services. All other modes exhibit either a very modest decline in this measure, or a slight gain. Overall, transit services experience a decline of about 15% in passengers per revenue hour over the twelve-year period.\(^{145}\)

The decline in demand response passenger trips per revenue hour is troubling, but considering this measure on an outright basis relative to the rest of the transit industry is cause for even more concern on the part of transit managers and officials. In these terms, demand response is by far the least efficient and productive mode of transit. During FY 2001, demand response services carried less than 1/30 the level of trips per revenue hour as did light and heavy rail services, and about 1/13 the level of trips per revenue hour as did conventional fixed route bus services.\(^{146}\)

![Figure 13 Demand Response Passenger Trips per Revenue Hour (FY 1990-2001)](image-link)

**UNLINKED PASSENGER TRIPS PER OPERATING EMPLOYEE**

In much the same manner as unlinked trips per vehicle hour, this performance measure indicates the efficiency and productivity of transit service. It also measures the level of labor-intensity of service, in terms of the number of unlinked passenger trips that can be provided with a given workforce. Like demand response passenger trips per vehicle hour, since the early 1990s, this measure slowly and steadily declines – from almost 3,000 passenger trips per operating employee during FY 1990 to almost 1,900 passenger trips per operating employee during FY 2001, a percentage decline of about 37% (Figure 14).\(^{147}\)

In terms of the percentage decline in this measure, demand response services perform far worse than the rest of the transit industry. Such services exhibit a much higher rate of decline in passengers per operating employee than all other modes (rail modes actually enjoy an increase), and transit overall, which exhibits a decline of 11% in passengers per operating employee over
the same period. Thus, demand response services are seemingly becoming more labor-intensive than the rest of the transit industry.  

On an outright basis, demand response also seems by far the least efficient and productive, and most labor-intensive, mode of transit. During FY 2001, in terms of passenger trips per operating employee, demand response services were only about 1/9 as productive as the next most labor-intensive mode (commuter rail), and about 1/14 as productive as transit services overall.  

![Figure 14  Demand Response Passenger Trips per Operating Employee (FY 1990-2001)](image)

**OPERATING COST PER UNLINKED PASSENGER TRIP**

This performance measure reveals the average operating costs involved in providing one unlinked passenger trip – essentially indicating how expensive a given mode of transit is to provide per capita. In 2001 dollars, the cost of providing demand response service increases steadily over the period between FY 1990 and 2001 – from roughly $10.32 per trip in FY 1990 to $16.70 per trip in FY 2001, an increase of about 62%. Per-trip operating costs also seem to rise more sharply of late, between FY 1999 and 2001 (Figure 15). This trend matches that seen in overall demand response operating costs, despite increasing ridership over the same period.  

Although the per-trip operating costs of most modes of transit increase in real dollars over the twelve-year period (these costs actually decline for commuter and heavy rail services), no other mode of transit matches the percentage increase exhibited by demand response services. Overall, the per-trip cost of transit services increases by .4% in 2001 dollars over the period between FY 1990 and 2001. Thus, it appears that demand response service is becoming more costly to operate, at a more rapid rate, than other modes of transit. The increasingly labor- and vehicle-intensive nature of demand response service may be one possible explanation for this trend.  

In outright terms, demand response service is significantly more costly to operate on a per-trip basis than other modes of transit. During FY 2001, the per-trip operating costs of providing demand response service were almost three times that required to provided commuter rail
service, the next most-costly mode. Moreover, the demand response per-trip cost of $16.70 was about seven times higher than the operating costs involved in providing one average transit trip overall ($2.44).

![Demand Response Operating Cost per Passenger Trip (FY 1990-2001 in 2001 dollars)](image)

**Figure 15 Demand Response Operating Cost per Passenger Trip (FY 1990-2001 in 2001 dollars)**

**AVERAGE FARE COLLECTED**

This is an important performance measure to consider because it reveals the average amount of fare revenue the transit agency takes in per trip provided. Since the early 1990s, much like the operating cost recovery ratio, the average fare collected by demand response transit agencies in 2001 dollars exhibits pronounced upturns and downturns, but is generally increasing – from $.82 during FY 1990 to almost $1.75 during FY 2001 (Figure 16). Over the twelve-year period, this represents an increase of about 111%.

Although the average fare in real dollars of all non-rail transit modes increase over the same period, no other mode of transit matches the percentage increase exhibited by demand response services, which is greater than seven times the percentage increase of any other mode. Overall, the average fare collected by all transit services increases by 1% over the period between FY 1990 and 2001. This seems to suggest that demand response transit agencies are increasing fares at a rate much greater than the rest of the rest of the industry to better cover the high costs of the service. The paratransit agency’s statutory and regulatory ability to charge up to twice the comparable fixed route fare for ADA complementary paratransit trips may explain such a phenomenon.

In outright terms, demand response service collects a relatively high average fare. During FY 2001, the demand response average fare of $1.73 was second only to that collected by commuter rail agencies ($3.44). More telling, however, is the gap between average fare and average per-trip operating costs of the service. For demand response services, this gap remains the highest in the industry, both in terms of raw dollars ($14.97) and percentage.
That the average fare collected by demand response agencies is so low compared to the cost of the service seems to imply that ADA complementary paratransit exerts a strong influence within the demand response mode. ADA paratransit fares are capped at no more than twice the comparable fixed route fare by law and regulation, which would artificially depress the average fare and raise the gap between per-trip cost and per-trip fares. Transit agencies that offer demand response services to the general public have more discretion in the fares they can charge to passengers to make up this gap. Moreover, such properties that transport human service agency clients can seek a greater level of funding from these agencies to cover the costs of the service. Were the majority of demand response trips of a non-ADA nature, the average fare collected would likely be higher.

![Figure 16 Demand Response Average Fare Collected (FY 1990-2001 in 2001 dollars)](image)

**Contribution of ADA Paratransit to the Operating Conditions of Demand Response Transit Services**

It is somewhat difficult to gauge the specific operating conditions of ADA complementary paratransit, as a subset of demand response transit services, using data available from APTA and the NTD. Beginning with FY 1996, however, agencies were required to begin reporting to the NTD very basic information regarding the level of ADA complementary paratransit service provided, and the cost of operating this level of service. Both statistics allow one to draw some limited conclusions with respect to the amount of ADA paratransit service available to the public, as well as to the degree of influence the ADA complementary paratransit requirement exerts on the overall operating conditions of demand response transit.

**ADA PARATRANSIT OPERATING COSTS**

In terms of ADA complementary paratransit costs relative to overall demand response operating costs, the ADA paratransit requirement seems to exert significant influence on the general operating condition of demand response services, at least within the systems that are obligated to report operating and financial data to the NTD. During FY 1996, the first year in which agencies were required to report ADA paratransit data to the NTD, ADA paratransit operating costs
accounted for about 61% of total demand response operating costs. Between FY 1997 and 2001, ADA paratransit costs consistently make up about 72%-73% of total demand response operating costs (Figure 17).\textsuperscript{156}

This would seem to suggest that either public transit agencies limit the amount of demand response service provided outside of the requirements of the ADA, devoting most of their labor, fuel, and maintenance resources to fulfilling their ADA-related legal and regulatory requirements, or that ADA paratransit services are more costly to operate, on an average basis, than other types of demand response services. Given the strict standards set by the ADA and succeeding regulations to guarantee the availability of paratransit service to eligible persons, the latter seems very likely. Moreover, that the total percentage of demand response operating costs allocated to ADA paratransit service remains relatively stable over the over the last several years implies that transit managers have found some method by which to balance their investment in ADA paratransit with their investment in other types of demand response services.

![Figure 17 Percentage of ADA Paratransit Operating Costs Relative to Total Demand Response Operating Costs (FY 1996-2001)](image)

**ADA PARATRANSIT UNLINKED PASSENGER TRIPS**

The ADA paratransit requirement also seems to exert significant influence over the general operating conditions of demand response transit services in terms of the number of passenger trips provided. As with operating costs, a large percentage of total demand response trips are comprised of those provided under the auspices of the ADA. During FY 1996, the first year in which agencies were required to report ADA paratransit data to the NTD, ADA paratransit passenger trips accounted for almost 59% of total demand response passenger trips. This number climbs slowly but steadily over the last several years, and surpasses 64% during FY 2001 (Figure 18).\textsuperscript{157}

This trend implies that the availability and utilization of demand response services of a non-ADA nature is limited, when compared to that of ADA complementary paratransit services, in many transit service areas. This is not to suggest that transit agencies purposely withhold paratransit
service to other suitable populations, such as senior citizens or persons traveling to and from more rural and sparsely populated portions of their service area. Such service may not be warranted given the unique market characteristics of certain populations and service areas.

That the proportion of ADA paratransit trips relative to total demand response passenger trips is smaller than that of ADA paratransit operating costs relative to total demand response operating costs implies that ADA complementary paratransit is at least slightly more costly to provide, on an average basis, than other forms of demand response transit service. Both proportions seem to suggest that the ADA complementary paratransit requirement is no small factor in many overall demand response operating statistics and trends, including those related to the amount of service supplied and consumed, cost characteristics, vehicle fleets, the workforce, productivity, and cost recovery.

![Graph showing the percentage of ADA paratransit passenger trips relative to total demand response passenger trips (FY 1996-2001).](image)

**Figure 18** Percentage of ADA Paratransit Passenger Trips Relative to Total Demand Response Passenger Trips (FY 1996-2001)
FUNDING FOR PUBLIC TRANSIT SERVICES

Federal Assistance

Beginning with the Urban Mass Transportation Act of 1964, and continuing up to the present, the federal government delivers increasing amounts of financial assistance to the maintenance and expansion of public transportation systems. Over the years, this support has evolved into the following series of major funding programs, generally referred to by their place in Title 49 of the USC.

SECTION 5303

This program supports “cooperative, continuous, and comprehensive” planning for transportation projects, including those involving a transit component, at the MPO level. Section 5303 funds are distributed to individual states based on a formula that takes into account, among other factors, “each State’s urbanized area population in proportion to the urbanized area population for the entire Nation.” In turn, each state distributes their share of funds to the MPOs based on a similar formula. Both levels of apportionment include provisions for minimum shares of available funding. Section 5303 funds are not likely to be used for ADA complementary paratransit purposes, other than perhaps the most basic level of regional planning and coordination between systems.158

SECTION 5307

These funds are intended to provide for transit capital and operating expenses in “urbanized areas”, defined as an “incorporated area with a population of 50,000 or more that is designated as such by the U.S. Department of Commerce, Bureau of the Census.” Distributed by formula, Section 5307 funds can be used to support a wide variety of transit business activities, including “some Americans with Disabilities Act complementary paratransit service costs.” In very large urbanized areas “with populations of 200,000 or more”, however, these funds cannot be used to offset operating expenses.159

SECTION 5309

Distributed on a “discretionary basis”, these funds are for capital investments only – rolling stock, facilities, maintenance, technology, passenger amenities, and the like. Though the program does not generally place any qualifiers on, for example, service area population or amount of service provided, the funds cannot be used for operating expenses. Section 5309 would conceivably be used to purchase the vehicles used to provide ADA complementary paratransit services, as well as other accessible transit vehicles.160

SECTION 5310

This program is designed to support “the special needs of the elderly and persons with disabilities”, pursuant to the provisions of the Federal-Aid Highway Act of 1973. Funds are provided on a formula basis directly to each state, taking into account the elderly and disabled population of the state. Each state, in turn, typically allocates its share of funds to transit agencies and nonprofit groups that provide transportation services which complement existing public transit. Section 5310 funds generally offset capital expenses, but can also provide for the “acquisition of transportation services under contract, lease or other arrangements.”161
SECTION 5311

In contrast to Section 5307, this program provides for transit capital, operating, and overhead expenses both within and between nonurbanized areas of “less than 50,000” people. Section 5311 funds are allocated by formula to individual states using a method similar to that employed by the Section 5307 program. 162

SECTION 5311(b)(2)

Also referred to as the “Rural Transit Assistance Program” (RTAP), these funds are allocated by formula in tandem with Section 5311 funds to “assist in the design and implementation of training and technical assistance projects and other support services tailored to meet the needs of transit operators in nonurbanized areas.” In essence, they allow rural transit operators to use their Section 5311 funds more efficiently and effectively by helping to build the knowledge base within these smaller transit properties. 163

SECTION 5313(b)

This funding program supports a wide variety of “statewide planning and other technical assistance activities” in both urbanized and nonurbanized areas. Section 5313(b) funds are distributed by formula, and include minimum funding shares for each state. As with the Section 5303 program, Section 5313(b) funds likely only contribute to the operation of ADA complementary paratransit services in terms of basic planning and coordination. 164

JOB ACCESS REVERSE COMMUTE

Authorized by the Transportation Equity Act for the 21st Century (TEA-21) through FY 2003, the JARC program is intended to help:

develop transportation services designed to transport welfare recipients and low income individuals to and from jobs and to develop transportation services for residents of urban centers and rural and suburban areas to suburban employment opportunities. 165

JARC funds can be used to cover a number of transit operating, capital, and promotion expenses, and are distributed on a discretionary basis, with a much larger proportion of funds set aside for the largest urbanized areas. Though JARC cannot be used to offset ADA complementary paratransit expenses, agencies implementing new fixed route bus routes under this program must also necessarily consider the associated ADA implications. 166

NATIONAL RESEARCH AND TECHNOLOGY PROGRAM

This federal program supports the research and development of transit technology applications designed to increase ridership and efficiency, promote environmental stewardship, and enhance “safety and security.” Research and technology funds are distributed on a discretionary basis, with no minimum share guaranteed to any particular geographic area. These funds would seem to be particularly useful in enhancing the productivity of ADA complementary paratransit services through the development and implementation of technology-based solutions. 167

FLEXIBLE FUNDS

Initiated under the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), and continued by TEA-21, these funds can be allocated to either highway or transit projects,
depending on local needs and as decided by some combination of local MPO and state DOT decision makers. If “flexed” to transit, these funds can supplement an area’s Section 5307, Section 5311, or Section 5310 funds. This means that in larger urbanized areas, flexible funds generally cannot be used for transit operating expenses – with the one exception being funds “flexed” to transit under the Congestion Mitigation and Air Quality Improvement (CMAQ) Program.\textsuperscript{168}

\textbf{State and Local Assistance}

Despite significant investment in public transportation by the federal government, financial support from states, local governments, and transit agencies themselves is necessary to maintain and expand transit services. State and local transit assistance can be allocated out of general funds; can take the form of a dedicated portion of tax on income, sales, property, or gasoline; can be provided out of road, bridge, and tunnel tolls; or might come from some other source altogether. Moreover, transit agencies can help their own financial position in several ways – for example, by designing an efficient and effective system of services, so as to maximize fare revenues while minimizing costs; by selling advertising space in and on their vehicles and facilities; and by providing maintenance and transportation services under contract to other organizations.

The sources, amounts, provisions, and rules of each of these state and local transit funding programs are too numerous and varied to be included within the scope of this research. That noted, state and local assistance for transit is just as, if not more, important than that which is provided by the federal government. State and local funding provides for many of the needs not covered by any federal program – for example, transit operating assistance in urbanized areas with a population of over 200,000. Moreover, virtually every federal transit assistance program requires a certain state or local match to fully fund a project or agency. Depending on the specific program, the required match can be anywhere from 10\% to 50\%.

Accordingly, it is critical that state and local governments provide transit funding that is both adequate and stable enough to allow constituent transit agencies to take full advantage of their share of any federal apportionments. To do any less would be to forgo scarce federal resources. Further, such state and local funding allows the transit agency to build a system of services that more fully meets the needs of the populace, and is indicative of a commitment to public transportation at the hometown level.

\textbf{Current Funding Trends}

Current amounts of federal, state, local, and directly generated transportation funding, as well as trends in these types of funding over time, seem to reflect one primary concern of transit managers expressed during the drafting of the ADA – the lack of federal funds with which to operate ADA complementary paratransit services according to federal requirements imposed by Congress and the FTA.

\textbf{OPERATING FUNDS}

Since the adoption of the ADA and succeeding regulations, demand response transit services exhibit tremendous growth, expressed in real dollars, of annual operating costs. Moreover, of late almost 75\% of these costs are directly related to the ADA complementary paratransit requirement. Transit services overall show an increase of about 10\% in annual operating costs.
over the period FY 1990 to 2001, in terms of real dollars. Yet, federal operating funds exhibit a modest decline in terms of 2001 dollars over the period – falling from about $1.3 billion during FY 1990 to about $1.1 billion during FY 2001, a decrease of about 14% (Figure 19).\(^{169}\)

Accordingly, state and local governments and transit agencies need to make up the difference. This can be accomplished through general funds, taxes, tolls, or increased operating revenue generated by the transit agency. Both state and local/directly generated operating funds exhibit an increase in terms of 2001 dollars over the period FY 1990 to 2001. State operating funds rise from about $4 billion during FY 1990 to about $5.7 billion during 2001 – an upsurge of about 42% over the period. Local and directly generated funds show moderate growth over the same period, rising from about $16.4 billion during FY 1990 to almost $18.5 billion in FY 2001 – an increase of over 12%.\(^{170}\)

It is clear that state and local governments, as well as transit agencies themselves, are responsible for a very large, and increasing, share of transit operating costs – including those brought about by the ADA complementary para-transit requirement. Moreover, the level of total operating funds is higher than the level of total operating expenses throughout the period, and it would seem that the increase of about 16% in total transit operating funds over the period FY 1990 to 2001, expressed in 2001 dollars, is sufficient to cover the corresponding increase of about 10% in transit operating costs over the same period. This would imply that transit agencies have the funding they need to operate their current services, including ADA para-transit. The critical issues, however, are the methods by which funds are distributed to each individual transit agency, and the manner in which these funds are allocated to the different services offered by each agency. Based on the widely varied transit services and funding programs in place in each locale, as well as the restrictions placed on funding programs, it would seem that some agencies inevitably get the funding they need while others fall short.\(^{171}\)

![Figure 19 Transit Operating Funding by Source (FY 1990-2001 in millions of 2001 dollars)](image-url)
CAPITAL FUNDS

The current levels of and trends in transit capital funding are much different than those relative to operating funding. All sources – federal, state, and local/directly generated – are contributing more to transit capital purchases over the period FY 1990 to 2001, in terms of 2001 dollars. In contrast to operating funds, the federal government contributes the largest share of transit capital funding. Moreover, this contribution increases substantially over time. From almost $3.9 billion during FY 1990, federal capital funds rise to almost $5.8 billion during FY 2001 – an expansion of about 48% (Figure 20).  

Local and directly generated capital funds increase at an even higher rate in terms of real dollars over the same period. These funds rise from about $1.85 billion during FY 1990 to almost $4.6 billion during FY 2001 – an increase of almost 148%. Although these sources still provide a smaller amount of capital funding than do federal sources, this trend clearly shows that local governments and transit agencies are assuming a very significant responsibility for transit capital investment.  

State transit capital funds exhibit a level to slightly upward trend, in terms of real dollars, over the period FY 1990 to FY 2001. Over this period, state transit capital funds increase from about $944 million during FY 1990 to almost $1.1 billion during FY 2001 – a modest rise of about 13%.  

Overall, both transit capital funding and capital costs increased by about 70% in terms of 2001 dollars over the period FY 1990 to FY 2001, while demand response capital costs increased by about 80% over the same period. Moreover, one might logically assume that a large share of capital funding is dedicated to very capital-intensive rail modes. This suggests that ADA paratransit providers might soon experience difficulty keeping up with their capital needs based on available financial resources. Reliable and accessible vehicles within other modes (specifically fixed route bus and rail), however, are of prime importance in providing a more direct and cost-effective alternative to paratransit. Accordingly, the paratransit manager should regard capital investments in these other modes as wise and beneficial choices.
Figure 20  Transit Capital Funding by Source (FY 1990-2001 in millions of 2001 dollars)
CASE STUDIES OF SMALLER PARATRANSIT SYSTEMS

To better define the operating condition of ADA paratransit at the smaller transit agency level, a series of eight case studies were conducted as part of this research. These studies attempt to document and facilitate analysis of paratransit implementation policies, operational procedures, statistics, specific challenges, and solutions employed to meet those challenges.

Eastern Contra Costa Transit Authority

AGENCY INFORMATION

The Eastern Contra Costa Transit Authority (ECCTA), more commonly referred to as “Tri Delta Transit”, was founded in 1977. Based in Antioch, CA, Tri Delta Transit serves a mix of “rural, suburban, and small urban” communities, including the cities of Pittsburg, Brentwood, and Oakley, and the unincorporated towns of Bay Point, Discovery Bay, Bethel Island, Byron, and Knightsen. Tri Delta Transit also provides commuter service to the Dublin/Pleasanton Bay Area Rapid Transit District (BART) station, and to Livermore in neighboring Alameda County. This long-haul service is exempt from ADA complementary paratransit requirements. The service area spans 225 square miles and is home to 225,000 people — a population density of about 1,000 persons per square mile. The service area population is generally increasing, which brings about an expanding pool of customers for the agency.

When asked about any remarkable geographic, climatic, or topographic barriers to efficient operation of ADA paratransit service, Tri Delta Chief Executive Officer Jeanne Krieg offers that “[t]he weather is very hot in the summer […] and very foggy in the winter [and] the rural areas are sparsely populated.” The extreme heat and fog of eastern Contra Costa County could bring about seasonal increases in vehicle breakdowns and accidents, not only for ADA complementary paratransit services, but also for all transit services. More pertinent to ADA paratransit, however, is the thin population density of certain portions of Tri Delta Transit’s service area. Given the labor- and vehicle-intensive nature of demand response transit service, these sparsely populated areas would almost certainly contribute to productivity and cost concerns for the agency.

During FY 2001, Tri Delta Transit provided just over 2.3 million unlinked passenger trips by means of their “fixed route, commuter service, paratransit, [and] medical service.” The agency provided this level of service by using 58 vehicles (45 fixed route and 13 paratransit) in maximum service. Tri Delta Transit’s fleet consists of a combination of fixed route transit buses, commuter coaches, low-floor transit buses, “trolley replicas”, paratransit vehicles, and “converted minivans.” These minivans, insofar as they offer the necessary capacity and are fully accessible to persons with disabilities, likely provide a more fuel-efficient, if not less heavy duty, alternative to the traditional paratransit vehicle. Minivan operation would not typically require a transit operator to hold a commercial driver license, nor would their maintenance require a mechanic to obtain specialized qualifications in heavy-duty diesel technology. Therefore, this type of vehicle would seem to be an alternative for which the agency has access to a larger pool of qualified drivers and mechanics, at a lower labor cost.

Tri Delta Transit’s organizational structure is arranged by function, including departments for “Administration, Operations, [and] Maintenance.”
ADA PARATRANSIT IMPLEMENTATION

Tri Delta Transit has many years of experience providing demand response services, and implemented ADA paratransit service quickly. According to Krieg, “paratransit service for seniors and the disabled began in 1979 [and] general public ‘Dial-a-Ride’ was provided from 1981 until 1991.” The FTA approved Tri Delta’s initial ADA paratransit plan in 1992, and approved updates as required until 1996. The service itself “was phased in between January 1992 and December 1993” in the following stages:

Stage 1
- Collaborate with other Bay Area transit properties to develop “regional eligibility criteria” and a “standard certification process” for ADA paratransit patrons
- Define the ADA paratransit service area
- Develop policies and procedures to limit paratransit expansion to “non-subscription” trips, as Tri Delta already offered subscription paratransit service to persons with disabilities up to the fifty percent limit as defined by 47 CFR 37.133
- Design a fixed route travel-training program

Stage 2
- Implement the regional eligibility and certification standards
- Given these standards, determine eligibility for existing riders
- Develop new staffing procedures to allow for “next day scheduling,” as directed by DOT regulations
- Deploy the fixed route travel-training program

Stage 3
- Modify the paratransit fare structure to comply with the ADA
- Expand complementary paratransit service days to comply with the ADA
- Expand complementary paratransit service hours to comply with the ADA

During the implementation process, Tri Delta Transit did not request any undue financial burden waiver or implementation extension from the FTA.

PARATRANSIT SERVICE CHARACTERISTICS

Tri Delta Transit currently offers “door-to-door” paratransit to ADA-eligible customers, and to non-eligible seniors and the disabled “if they complete a travel training course.” Non-ADA paratransit is offered during strictly limited hours, in contrast to the ADA service, which is offered during days and hours comparable to the fixed route service. Tri Delta Transit’s non-ADA paratransit service is also offered at a much higher fare ($3 per trip, increasing to $4 this year) than complementary paratransit ($1.50 per trip, increasing to $2 this year). The fare increases will bring ADA paratransit fares in line with legal and regulatory limits (no more than twice the fixed route fare), and should help to improve the operating condition of the service, in terms of average fare collected and operating cost recovery ratio.

Moreover, all paratransit service offered by Tri-Delta Transit utilizes the same eligibility policies and procedures. To apply, a customer completes an application and submits it to the transit agency. The transit agency then forwards the application to a doctor for review, and calls the applicant in for a “functional test” if necessary. Once eligibility is determined, a customer can call from one to three days in advance to schedule a trip reservation. Reservations are accepted
“from 6am to 6pm, seven days per week.” According to Krieg, “[s]ame day trip requests are accommodated if possible.” Customers must cancel reservations “at least 24 hours in advance,” however, a customer is only charged with a no-show if the trip is not cancelled within an hour of the scheduled pick-up time. A one-month suspension of service can be imposed for more than three no-shows in any six-month period.\textsuperscript{186} It seems that the advance notice required for a cancellation could be increased somewhat, to discourage late notification and improve scheduling ability while still providing for comparable, quality service within legal and regulatory limits.

Coordination with other Bay Area transit properties is evident from the Tri Delta Transit website. A link is provided to the Transit511.org website, which includes very detailed information about ADA complementary paratransit and how it operates within the region.\textsuperscript{187}

**PARATRANSIT OPERATING ARRANGEMENTS**

According to Krieg, “all ECCTA paratransit service is provided under a contract with Laidlaw Transit. They provide operators, dispatchers, trainers, and schedulers. ECCTA owns and maintains the buses.” Moreover, Laidlaw also operates Tri Delta Transit’s fixed route service. Tri Delta Transit has always contracted for service because, “it is less expensive.”\textsuperscript{188}

**PARATRANSIT FUNDING**

Tri Delta Transit operates its paratransit service using a mix of state, local, and directly generated funding sources. For the coming FY, the service will be funded as follows:

- State of California funding from a \( \frac{1}{4} \)-cent sales tax: 32\%
- Contra Costa County funding from a \( \frac{1}{2} \)-cent sales tax: 24\%
- Capitalized federal ADA funding: 32\%
- Farebox revenues, interest income, other miscellaneous: 11\%

Krieg explains that “ECCTA does not [currently] use federal funds for operating”, therefore the flexible funding programs initiated by ISTEA and continued under TEA-21 have not yet contributed to the operation of ADA paratransit services.\textsuperscript{189}

This, however, may change in future years, as Tri Delta Transit begins using “capitalized” funding from the federal government to assist in the operation of its ADA complementary paratransit service. Tri Delta Transit’s urbanized area is home to over 200,000 people; therefore the agency has historically not been eligible to use its allocation of Section 5307 funding to offset operating expenses. With the adoption of TEA-21, however, transit agencies in such larger urbanized areas “may use up to 10 percent of their annual formula apportionment to pay for ADA paratransit operating costs.” In larger urbanized areas with more than one transit agency, it is “the responsibility of the Metropolitan Planning Office, working with transit operators, to allocate the 10 percent of the urbanized area's apportionment that may be used for ADA paratransit purposes.”\textsuperscript{190}

Krieg states that this relatively recent change in the type of funding used for the operation of ADA complementary paratransit does not constitute a windfall, but rather ‘really just has to do with the color of money.’\textsuperscript{191} While Tri Delta Transit will now have a much-needed source of additional operating funds for its ADA paratransit service, these funds will come out of a pool that was heretofore used to cover equally important capital costs. Whether this has a negative impact on the ability of the agency to purchase accessible fixed route and paratransit vehicles to
expand or update their fleet remains to be seen. If the federal government elects to continually provide increases in transit capital funding, the net effect may be positive. But, where a transit agency shares an urbanized area with one or more other transit properties, as in the case of Tri Delta Transit, there is no guarantee that the allocation of this ten percent of the urbanized area’s apportionment will be equitable.

**OPERATING STATISTICS AND PERFORMANCE TRENDS**

In terms of annual unlinked passenger trips, Tri Delta Transit’s paratransit service is growing in the years following the passage of the ADA. Beginning in FY 1993, paratransit ridership grows from 68,468, peaks during FY 1998 at 110,105, and settles at 97,843 during FY 2001. This represents growth of about 42% over the nine-year period, well above the national paratransit growth of about 29% over the same period. It should be noted, though, that the growth in Tri Delta Transit paratransit service includes some additional ridership resulting from the operation of a senior bus service taken over from one of the cities within the service area.\(^{192}\)

Total annual operating costs, expressed in 2001 dollars, generally decrease and level out over the period between FY 1993 and 2001 – from a little over $1.9 million in FY 1993 to about $1.65 million in FY 2001, a total decrease of about 14%. Likewise, operating costs per passenger trip, also in terms of real dollars, generally decrease over the same period – from almost $28 during FY 1993 to almost $17 during FY 2001, a total decrease of almost 40%. Although operating costs, both on an annual and per passenger trip basis, seem to be on the rise of late, these figures show that Tri Delta Transit is doing an acceptable job of controlling costs. The agency’s FY 2001 per-trip operating cost is just pennies above the national average, despite a service area situated in one of the most expensive regions of the country. Moreover, annual and per-trip operating costs, in terms of 2001 dollars, bottom out the year Tri Delta Transit absorbed paratransit service previously operated by a city within the service area. This suggests that, given unique service area characteristics, the additional trips fit well within the existing system.\(^{193}\)

Tri Delta Transit’s capital costs, like those of most agencies, vary widely in terms of 2001 dollars over the period between FY 1993 and 2001, ranging anywhere from $65,190 (during FY 1998) to $794,470 (during FY 1997). The level of capital expenses can be influenced by a large procurement of vehicles or other infrastructure.\(^{194}\)

Over the nine-year period between FY 1993 and 2001, the productivity of the agency’s paratransit (as measured by both passengers per revenue mile and passengers per revenue hour) increases. Though both revenue hours and revenue miles of service are growing on an annual basis, productivity increases by about 27% in terms of passengers per revenue mile, and by about 6 % in terms of passengers per revenue hour. This suggests that, in contrast to the national trends, the paratransit services offered by Tri Delta Transit are becoming less vehicle- and labor-intensive. As in terms of operating costs, the system seems to operate at peak productivity following the absorption of the additional senior bus service previously operated by a city within the service area.\(^{195}\)

**ADA PARATRANSIT CHALLENGES**

According to Krieg, the primary challenge faced by Tri Delta Transit in operating ADA paratransit services is that the “[d]emand for subscription service far exceeds our 50% cap. It would be much more efficient to allow for 75% [or more] subscription service.”\(^{196}\) The ADA
does not allow standing orders to exceed 50% of the available daily capacity, in order to allow for spontaneous trip taking. If the remaining 50% of capacity is not utilized on a short-notice basis, however, the transit agency may be left with excess capacity that it is not permitted to fill with latent subscription trip demand.

Tri Delta Transit has not changed the way it plans for new and expanded fixed route service, nor has it cut fixed route service, raised fares, or reduced staffing levels as a direct result of the ADA complementary paratransit requirement.\(^\text{197}\)

**ADA PARATRANSIT SOLUTIONS**

By its own account, Tri Delta Transit is very aggressive in taking actions to reduce the cost, and increase the efficiency, effectiveness, and quality of its paratransit service. Toward this end, the agency is making a significant capital investment in its system by deploying the Trapeze® PASS system.\(^\text{198}\) PASS is an automated paratransit scheduling and dispatch software package that is intended to:

- Optimize paratransit schedules
- Allow reservationists to provide more accurate information to customers with respect to pick-up and drop-off times
- Facilitate real-time adjustments to service
- Determine trip eligibility relative to ADA requirements
- Assist in the generation of a host of operating and performance data\(^\text{199}\)

Tri Delta Transit elects to further enhance PASS with: an interactive voice response (IVR) system that will allow paratransit customers to make automated trip reservations directly over the phone, thereby freeing up administrative staff resources to concentrate on other paratransit-related tasks; mobile data terminals (MDTs) for each paratransit vehicle, which will provide the driver with schedule information and eliminate the need for paper trip manifests; new computer hardware within the dispatch center, to increase reliability; and a second radio channel to enhance driver/dispatch communications. PASS can also be enhanced with technology that allows for trip reservation scheduling over the internet, though Tri Delta Transit has not yet elected to pursue this enhancement.\(^\text{200}\)

With respect to personnel and training, Tri Delta Transit added a Paratransit Coordinator to its staff. This likely helps to enhance and streamline cooperation between the transit agency and its contractor. Tri Delta Transit also provides customer service and phone technique training to contractor staff to help ensure competency and sensitivity in dealing with paratransit clients.\(^\text{201}\)

All Tri Delta Transit fixed route bus stops are wheelchair accessible. Moreover, the agency provides travel training to help senior citizens and persons with disabilities to navigate the fixed route system, and all public information materials are provided in accessible formats. These actions help to increase customer comfort with the use of the Tri Delta Transit system, and steer some passengers away from paratransit and onto more efficient, less costly fixed bus routes that promote the greatest possible level of independence for the consumer. For passengers not eligible under the ADA, travel training is a necessary prerequisite to use Tri Delta Transit’s paratransit services. This policy likely helps to curb paratransit use while maximizing awareness of and exposure to the accessible fixed route services offered.\(^\text{202}\)
Once a client has been found to be at least conditionally eligible (based on certain limited circumstances or trip needs) for the ADA paratransit services offered by Tri Delta Transit, the agency automatically provides full eligibility. As shown by demand response operating statistics, an increasing number of passengers often leads to an corresponding increase in operating costs, and can possibly bring about a decline in productivity. Krieg explains, however, that such a policy ‘means our employees (schedulers) don’t have to make judgment calls about whether a person is eligible or not. Black and white works better for a system our size.’

Tri Delta Transit develops strong partnerships with other local agencies. In the mid-1990s, they assumed operating responsibility for a senior bus system operated by a city within the service area, and successfully integrated these clients with their existing paratransit system. This action lowered per-trip operating costs, and increased productivity, as described earlier in this case study. The agency is also party to a maintenance agreement, whereby Tri Delta Transit maintains the vehicles of a local human service agency. Such an arrangement might help to fill gaps in the maintenance workload, and bring in extra revenue for the transit agency. Moreover, Tri Delta Transit adheres to a uniform regional system of ADA paratransit eligibility criteria and procedures, and coordinates with other Bay Area transit properties to provide regional trips. This regional approach not only helps the consumer to navigate complex trips using several different transit agencies, it spreads the administrative burden of client intake and certification across several agencies.

With respect to funding, Tri Delta Transit is active in the process of reauthorizing the ½-cent sales tax for transportation in Contra Costa County. This will help to ensure that adequate funding is available to allow the agency to provide continued ADA complementary paratransit service, as well as the other fixed route and medical services it offers.

**Duluth Transit Authority**

**AGENCY INFORMATION**

The Duluth Transit Authority (DTA) was incorporated as a public agency in 1969. Based in Duluth, MN, the agency serves an area characterized as “small urban to suburban”, including the cities of Duluth and Proctor, MN, and Superior, WI. As such, DTA’s service area crosses state and county lines, and includes Saint Louis County, MN and Douglas County, WI. The service area covers 143 square miles and, according to the 2000 U.S. Census, is home to about 123,000 people – a population density of about 860 persons per square mile. The service area population growth trend is generally flat. This means that the agency has the operational advantage of dealing with substantially the same client base over time.

DTA Director of Administration, Jim Heilig, is quick to point out the harsh climate of the region: “We are in a northern area so we do have snow and ice. Sidewalks need to be shoveled.” This winter climate presents safety and access challenges not only to the transit agency, but to its older and disabled clients as well. Specifically, operators and clients alike can be more easily injured in a “slip-and-fall” accident, which can lead to increased insurance and worker’s compensation liability, and higher insurance rates. Where access to homes and trip generators is hindered by snow and ice, vehicle boarding, alighting, and dwell times are increased. Accordingly, productivity can suffer and costs can increase. Moreover, according to Heilig, “we are on Lake Superior so we are not circular in shape […] there are major barriers such as hills, streams, and ravines that separate neighborhoods.” Where these obstacles are not
accompanied by access points – such as bridges and tunnels – the effective paratransit service area can increase from a 1-1/2 mile corridor to one many times larger. Less direct trips, and longer trip distances and times result, and therefore lower productivity and service quality usually follow.

During FY 2001, DTA provided a total of 3,176,273 unlinked passenger trips through their fixed route and ADA paratransit service. This service was provided by using 72 vehicles (63 fixed route and 9 paratransit) in maximum service. DTA’s fleet consists of a mix of fixed route transit buses, paratransit vehicles, and vans. The organization is arranged by functional area.

ADA PARATRANSIT IMPLEMENTATION

DTA has acquired over twenty years of experience operating paratransit service, but the implementation of ADA paratransit was somewhat complex given the composition of the service area, involving two distinct strategies and sets of emerging needs. According to Heilig,

[S]ervice started in 1982. Under the old [Section] 504 [regulations] cities had their choice of making buses accessible or providing paratransit services. On the Minnesota side the paratransit service was started as policymakers thought the harsh winters and hills would make it impossible for disabled people to use the regular [fixed] route system. On the Wisconsin side, which has flatter terrain, regular [fixed] route buses were ordered to make the system accessible.

The FTA approved DTA’s initial ADA paratransit plan in 1993. The service itself was staged: “on the Minnesota side, demand often exceeded supply” in the early going, and so the level of service was gradually increased as the agency made the adequate preparations and took lessons from their early experiences. Here, the agency had the advantage of a basic paratransit operation and fleet already in place. Heilig states “[o]n the Wisconsin side service was implemented in June of 1995.” As the DTA elected to satisfy the Section 504 regulations on the Wisconsin side with accessible fixed route transportation, the agency was able to use some of this existing experience to their benefit with respect to ADA compliance, but did need to add to their paratransit workforce and vehicle fleet.

During the implementation process, DTA did not request any undue financial burden waiver or implementation extension from the FTA.

PARATRANSIT SERVICE CHARACTERISTICS

DTA currently offers STRIDE (Special Transit Ride) “curb-to-curb” paratransit to ADA-eligible customers, and to persons with disabilities not eligible under ADA, but who have been “grandfathered in” from the paratransit services operated under the old Section 504 regulations. All new applicants must be ADA-eligible to use the service. This approach likely helped DTA to maintain a good working relationship with the local disability community, and to avoid the controversy and negative publicity that would have been the result of terminating service to non-ADA eligible persons with disabilities. Given the harsh winters that characterize the service area, the decision to offer “curb-to-curb” service as opposed to “door-to-door” service might help to minimize vehicle dwell time and increase productivity, but does so with the consequence of increased risk of a weather-related injury on the part of the passenger.
Therefore, it becomes critical to clearly define the rights and responsibilities of both the passenger and the transit agency, and to place an emphasis on safety in employee training activities.

STRIDE fares are described as “$1 during off-peak hours and on weekends, and $2 during weekday peak hours.” This is exactly twice the fixed route fare during the same periods, and seems quite reasonable given the costs involved in providing paratransit service.

To apply for STRIDE, the customer completes an application and submits it to their health care professional. The professional then certifies the information and sends the completed packet back to DTA. While this eliminates the extra process step of having the transit agency conduct a cursory review of the application before sending it to a designated professional, it does mean the agency must work with a wider range of healthcare providers, and may at best potentially open the system up to loose evaluation standards, and at worst subject the system to abuse and fraud. Once eligibility is determined, a customer can call from one to fourteen days in advance to schedule a trip reservation. Reservations are accepted up until 2pm the day before the scheduled trip, and same-day trip requests are accommodated “based on availability.” Trip reservations must be cancelled “at least three hours in advance of the scheduled pick-up time”, or the customer is charged with a “no-show.” A one-month suspension of service will be imposed for three no-shows in any time period.

The DTA website contains a list of the principal features of the STRIDE program, and potential customers can find and print an application directly from the website. This works to lessen the administrative burden of explaining the system and its processes for application and use, as well as the need to send out paper forms to potential customers.

PARATRANSIT OPERATING ARRANGEMENTS

STRIDE service is provided under a contract with TSS of St. Cloud, MN, which supplies and supervises paratransit operators and dispatchers. All DTA fixed route service is self-operated. The reason for utilizing purchased paratransit services is cost savings; according to Heilig, “Our regular [fixed] route drivers are Teamsters, and the paratransit drivers are non-unionized. We pay about $15 per hour to the [paratransit] contractor, total. Our union drivers cost in excess of $25 [per hour].” Accordingly, contracting for paratransit services seems to be one method by which a transit agency can insulate itself, at least temporarily, from rising labor and health insurance costs.

PARATRANSIT FUNDING

DTA operates its paratransit service using a mix of state, local, and directly generated funding sources. For FY 2003, the Minnesota portion of the service is funded as follows:

- State of Minnesota: 65%
- City of Duluth: 30%
- Farebox revenue: 5%

And the Wisconsin portion of the service is funded as follows:

- State of Wisconsin (including limited federal funding): 42%
- City of Superior: 52%
- Farebox revenue: 6%
The Duluth urbanized area falls well below the 200,000-resident threshold, over which a transit agency cannot use its Section 5307 allocation to cover operating costs. Regardless, DTA operates its ADA paratransit services almost entirely with state, local, and directly generated funding. With regard to flexible federal funding, initiated by ISTEA and continued under TEA-21, Heilig explains, “We have only been able to use those monies for capital purposes as there is such a high demand for highway monies.” The local MPO apparently elects to give highway interests funding priority within the Duluth region.

**OPERATING STATISTICS AND PERFORMANCE TRENDS**

In terms of annual unlinked passenger trips, DTA’s paratransit service recedes slightly in the years following the enactment of the ADA. Beginning in FY 1993, paratransit ridership grows from 28,566, peaks during FY 1998 at 35,962, and settles at 27,392 during FY 2001. This represents a decline of about 4% over the nine-year period. Heilig attributes this trend to two factors: “the [fixed] route system becoming more accessible, both with lifts and low floor buses”, and “in 1999 a major sheltered workshop started phasing out.” This employment center for persons with disabilities was a major trip generator, with “as many as eight group trips to and from that facility.” Heilig further explains, “as these group trips were lost the ‘bus time’ was filled with individual trips.”

Total annual operating costs, expressed in 2001 dollars, generally increase over the period between FY 1993 and 2001 – from almost $328,000 in FY 1993 to about $438,000 in FY 2001, representing total growth of about 34%. Likewise, operating costs per passenger trip, also in terms of real dollars, generally increase over the same period – from almost $11.50 during FY 1993 to about $16 during FY 2001, a total rise of about 39%. Both measures increase sharply in 1995 and 1999, the first year being when the paratransit service area was expanded to include Superior, WI, and the second being when the sheltered workshop group trips were phased out. This seems to suggest that two features of the DTA paratransit system, a relatively compact service area and the effective integration of group trips within the system, were effective in helping to control incremental ADA paratransit costs. DTA’s FY 2001 per-trip operating cost is just below the national average.

DTA only registered capital costs during one year between FY 1993 and 2001. In 1999, the agency spent $148,250 (in 2001 dollars) – all on rolling stock. Given the relatively small size of DTA’s paratransit fleet, measured capital spending is not surprising. Heilig indicates that most capital expenses are covered by the Surface Transportation Program (STP) – a federal flexible funding source – and local money. Over the nine-year period between FY 1993 and 2001, the productivity of the DTA’s paratransit declines moderately. This likely accounts for part of the increase in per-trip operating costs. Productivity decreases by about 19% (from .187 to .151) in terms of passengers per revenue mile, and by about 26% (from 2.39 to 1.78) in terms of passengers per revenue hour. This suggests that the paratransit services offered by DTA are becoming more vehicle- and labor-intensive, though not necessarily more than the industry average. An examination of the year-by-year productivity trends reveals the negative effects of the previously mentioned major events in 1995 and 1999.
ADA PARATRANSIT CHALLENGES

According to Heilig, the primary challenge faced by DTA in operating ADA paratransit services is securing adequate funding. He explains, “the State of Minnesota pays most of this and many legislators look at this as a black hole”, which seems to imply that it may be getting more difficult to justify transit support to policymakers in light of declining productivity and return on investment, strict requirements of law and regulation notwithstanding.²³¹

Two other challenges, not specifically mentioned by Heilig but apparent from looking at DTA’s information, seem to be: the complexities inherent in funding and operating a paratransit system to meet the needs and requirements of constituents in two different states and counties (with two distinct sets of decisionmakers and stakeholders); and securing enough passenger density, with respect to trip location and time, to drive up system productivity with a minimum of increased operating cost.

According to Heilig, the ADA has not changed the way in which DTA goes about planning for new and/or expanded fixed route services. DTA has reduced services, raised fares, and cut administrative staff since the enactment of the ADA, but these actions are not a direct result of the requirements of the law.²³²

ADA PARATRANSIT SOLUTIONS

DTA employs several key methods to more effectively manage the ADA mandate. Like Tri Delta Transit, the agency has deployed the Trapeze® PASS system to schedule and dispatch paratransit trips, including MDTs to deliver schedule information to each driver. Two-way radios are also provided in the vehicles to link drivers with dispatchers. Having both MDTs and radios in each paratransit vehicle provides a backup line of communication in case one should fail.²³³

With respect to their contracted paratransit services, DTA includes a contract provision that protects their revenue stream. Under DTA’s agreement with TSS, “if a fare is not collected, it is deducted from the contractor fee.”²³⁴ Expected fares for each paratransit trip can be easily determined by looking at data provided from the scheduling software. This data can then be reconciled with the actual amount of cash brought in at the farebox. Even though DTA gives up some measure of control over the operation and quality of its STRIDE system by virtue of contracting, this provision ensures that farebox recovery is maximized.

Moreover, although DTA contracts for paratransit service operation and dispatching, they keep the paratransit vehicle maintenance function in-house. Heilig explains that this practice leads to “better maintenance, but [it is] more expensive.”²³⁵ The transit agency is likely held to a higher standard of quality than its contractor; if there is a problem with the service, the affected customer(s) are more apt to lodge a format complaint with DTA rather than the contractor. Accordingly, the transit agency has a deeply vested interest in pursuing maintenance policies and practices that will minimize these complaints and maximize the image of the agency within the community. Extra maintenance expense can potentially be justified, if it yields fewer vehicle breakdowns and minimizes loss of service time, and thereby enhances the quality of the service.

Heilig states that fixed route bus stop design and placement have had “minimal impact” on the operation of ADA paratransit services, as “most were in place long before ADA.”²³⁶ Although more attention to the accessibility of fixed route stops might steer ADA-eligible paratransit
clients toward the fixed route, given the harsh winter climate of the Duluth area, this effort would need to be combined with an aggressive snow and ice clearing program to maintain effective accessibility year-round. As stated earlier in this case study, however, the positive impact of increasing fixed route vehicle accessibility cannot be ignored.

DTA participates in a fascinating program designed to improve the paratransit vehicle purchasing process. According to Heilig, “the State of Minnesota annually does a procurement for all [transit] operators […] this has brought down costs and improved the product as well as warranty work for smaller operators.” Prior to the advent of this program, many smaller transit agencies consolidated vehicle procurement on an informal basis; about five years ago, Minnesota transportation officials took notice of the practice, saw significant potential for cost savings and quality improvement, and decided to administer paratransit vehicle procurement statewide. Where otherwise many different transit properties would each devote administrative staff resources to developing, issuing, and evaluating responses to a very detailed individual Request for Proposal (RFP), under this program the Minnesota Department of Transportation (MinnDOT) prepares specifications for several vehicles of different size and durability. Each transit property selects the vehicle type(s) and quantities they need, and MinnDOT prepares a unified RFP for all transit properties throughout the state. This arrangement does not appear to exclude Minnesota transit properties that operate across state lines. DTA purchases all of its paratransit vehicles through this program, even those used to provide service to the Wisconsin portion of the service area. Moreover, transit agencies providing service to portions of “neighboring North and South Dakota” also purchase their vehicles through the MinnDOT program.

Joint procurement makes sense for several reasons. The practice enlarges the pool of customers and the size of the contract, giving the collective group more influence in negotiating the price and quality of the product. According to Heilig, before the initiation of the MinnDOT procurement program, “smaller agencies […] had no clout” in dealing with vendors. Now, when even the smallest agency requires vehicle warranty service, the vendor is “not just dealing with that one agency, but with every agency in Minnesota.” Consequently, a vendor must pay close attention to the quality of both its product and its service if it wishes to do business with MinnDOT in the future. Further, Heilig explains that there is “no question” joint procurement allows each participating agency to either “save money” off the purchase price of the vehicles they need, or to “upgrade” to a type of vehicle that is larger or includes a higher level of amenities. Finally, some level of vehicle standardization would also seem to allow transit agencies within Minnesota to more easily collaborate with respect to vehicle maintenance practices and training opportunities. This would be of certain advantage to a smaller agency with more limited maintenance and training resources.

At the present time, DTA is exploring other opportunities to conserve financial resources, gain efficiency, and improve quality by pooling resources with other agencies. Though Minnesota does not administer a program to cooperatively purchase fixed route vehicles, DTA works with other transit properties on an informal basis to obtain commuter coaches and urban transit buses. This yields substantially the same types of benefits as pooled paratransit vehicle procurement, but does so on a smaller scale because the group purchase involves fewer agencies. According to Heilig, as part of cooperative paratransit vehicle procurement MinnDOT will soon begin to offer a limited selection of “30- and 35-foot transit vehicles” – thus Minnesota seems to be moving in the direction of pooled procurement for all transit vehicles. DTA would also like to
pool risk with other regional transit agencies as part of a group insurance policy. Neighboring Wisconsin offers such a plan, but it features “very tight eligibility standards”; despite the fact that DTA provides ADA paratransit service within small parts of Wisconsin, they are not eligible to join that state’s insurance pool.\textsuperscript{240}

DTA also maintains strong partnerships with local human service agencies. This is done out of necessity, in order to provide the highest possible level and quality of transportation service to persons with disabilities, irrespective of ADA eligibility, within the Duluth area. Heilig explains:

\begin{quote}
[...] In Duluth, there are still many organizations that provide transportation services. As noted above we operate ten [paratransit] vehicles, there are over forty other paratransit vehicles in use [within the area] at this time. There is no way that we could take on all those trips. The funding is just not available. We work to keep the private nonprofit groups in the mix.\textsuperscript{241}
\end{quote}

This relationship between the public and private nonprofit sectors echoes the findings of Congress in passing the Federal-aid Highway Act of 1973, and seems to refute the fear of erosion of the relationship between transit and human service agencies as expressed by transit managers and other officials during the drafting of the ADA. DTA seems to place a great deal of importance on its role as a facilitator of a full complement of transportation options for persons with disabilities within the Duluth area.

**THE FUTURE OF ADA COMPLEMENTARY PARATRANSIT**

Based on DTA’s experience in providing paratransit services over the last twenty years, Heilig offers two potential changes to the current transit-related provisions of the ADA. First, he would:

\begin{quote}
expand the eligibility criteria to those that were covered under the old [Section] 504 regulations. That would be mainly those that have difficulty getting to a bus stop. In Duluth we have many areas with insufficient or nonexistent sidewalks, along with hills and snow, [so] getting around is difficult.\textsuperscript{242}
\end{quote}

Although DTA retained all of its former Section 504 clients under its ADA program, it strictly adheres to the ADA eligibility criteria for new clients. The agency could potentially elect to expand the eligibility criteria on its own, but that might entail a large increase in ridership, along with a further decline in paratransit productivity, without the means to obtain any additional government funding. Such a position, however, is a very honorable one, as it speaks to DTA’s strong level of commitment to its clients most in need of affordable, high-quality public transportation services.

Heilig also calls for “new federal funding” to support their ADA paratransit program.\textsuperscript{243} Based on this assessment, however, DTA’s funding challenges seem to be more a function of how federal transportation monies are allocated between highway and transit projects by the local MPO as part of the transportation programming process, than of the amount of federal transportation funding available within the Duluth area. From the information and statistics
collected, it seems that the DTA has not enjoyed much success in securing flexible or formula federal dollars for transit projects, despite the regional importance of its mission.

**Palo Verde Valley Transit Agency**

**AGENCY INFORMATION**

The Palo Verde Valley Transit Agency (PVVTA) was founded in 1978, but until 2003 only operated limited shuttle service. Based in Blythe, CA, PVVTA serves a primarily “rural” area, including the communities of Blythe, Ripley, Mesa Verde, Lost Lake, and Desert Center, CA, as well as, on a limited basis, Ehrenberg, AZ. Accordingly, PVVTA services operate in two states and counties: Riverside County, CA, and La Paz County, AZ. The service area spans 1,105 square miles and, according to the 2000 U.S. Census, is home to 28,816 people – a population density of only about 26 persons per square mile. The service area population is generally flat to slightly increasing, with about “2% growth each year.”

Despite the hot, dry desert climate of the PVVTA service area, Transit Manager John Andoh does not seem to consider the prevailing weather conditions a barrier to efficient operation of ADA complementary paratransit services. It would seem that the extreme heat might have a negative effect on vehicle breakdowns, but the transit agency is likely well accustomed to this local climate and considers itself amply equipped to deal with its implications.

During FY 2002 (data is not available for FY 2001), PVVTA provided a total of 27,337 unlinked passenger trips through their shuttle and Dial-A-Ride services. During FY 2003, with the introduction of fixed routes, core system ridership increased to 30,085. This service is provided with 7 vehicles in maximum service. PVVTA’s fleet consists of “one classic American trolley, one gasoline powered van and six diesel powered 16-24 passenger cutaways.” The organization is very small and arranged by function, including employees for operations as well as “finance, contract operations, [and] contract management.”

Based on its large service area, rather small, dispersed population, and rural character, the PVVTA needs to be uniquely creative and diversified in providing mobility for its constituents. In addition to its core fixed route and Dial-A-Ride services (collectively known as Desert Roadrunner), PVVTA also:

- Administers, together with the Partnership to Preserve Independent Living for Seniors and Persons with Disabilities, the Desert Road Transportation Reimbursement and Information Project (Desert RoadTRIP), which recruits and reimburses volunteers willing to transport clients who cannot drive or access existing transit services
- Operates the Greyhound Bus terminal in Blythe, which provides an access point for over-the-road transportation to other locations in Riverside, San Bernardino, and Los Angeles Counties
- Administers the Palo Verde Valley Cab service
- Promotes ridesharing through its Desert RoadShare program

**ADA PARATRANSPORT IMPLEMENTATION**

PVVTA, upon its inception, implemented “Dial-A-Ride […] in 1978”, to complement its shuttle offering. Accordingly, the agency has some years of experience providing demand response services. ADA-compliant service, however, is a relatively recent addition to PVVTA’s transit
system, having been initiated “on May 19, 2003, with the implementation of the fixed routes.” Based on the small size, rural character, and funding environment of PVVTA, the agency has not been required to submit a paratransit plan, and therefore has not requested any undue financial burden waiver or implementation extension from the FTA. Andoh explains that these circumstances could change when the agency elects to pursue federal transit funding for the first time in its history.

**PARATRANSIT SERVICE CHARACTERISTICS**

PVVTA offers two options for ADA-eligible customers, both of which, based upon the current operating conditions of the agency, seem to satisfy the requirements of law and regulation. Each of its fixed routes will deviate up to ¾-mile in either direction to accommodate not only ADA-eligible passengers, but also members of the general public – hence the fixed routes are actually deviated fixed or flexible routes. These flexible routes generally operate on weekdays from 7am to 9pm, and on weekends from 8am to 5pm. Fares are $1.00 for the general public and $.50 for seniors and persons with disabilities. There is no premium fare for route deviation. Such deviations are limited to three per one-way trip, so as to maintain schedule adherence, but ADA-eligible passengers are given first priority. Somewhat surprisingly, despite the flexible nature of the service 99% of the trips are considered “on-time.”

PVVTA’s Dial-A-Ride service is available to the general public only outside of the ¾-mile ADA boundary, but can be used by senior citizens and persons with disabilities throughout the service area. Dial-A-Ride operates Monday through Friday between 6am and 5pm. Fares are currently $1.75 within the ¾-mile boundary and $2.25 outside of this area, although a fare increase is planned to $2 and $2.50, respectively. Accordingly, should PVVTA pursue federal transit funding they will have a fare structure in line with the legal and regulatory provisions of the ADA. When this happens, however, they will need to expand their paratransit service hours, or cut back on their deviated fixed route service hours, to attain compliance with legal and regulatory requirements. As with the deviated fixed route service, ADA-eligible Dial-A-Ride passengers are given first priority. But PVVTA clearly gives persons with disabilities financial and operational incentives to use the flexible routes. Both types of service provide “curb-to-curb” transportation.

Both the flexible routes and Dial-A-Ride services use the same eligibility policies and procedures for curb-to-curb trips. To gain eligibility, a customer completes an application, obtains verification from their doctor, and submits the paperwork to PVVTA. The transit agency reviews the information and makes an eligibility determination. Once eligibility is determined, a customer can call from “two hours to seven days in advance” to schedule a trip reservation. Reservations are accepted Monday through Friday from 6am to 3pm; in the event PVVTA applies for and receives federal funding, they will also need to expand reservation days and hours to be in compliance with the provisions of the ADA. Trip reservations must be cancelled “no less than 60 minutes before [the scheduled] pick-up time.” A no-show is not charged if the bus is “more than 30 minutes late”, but according to PVVTA, “three no-shows in a year will be cause for suspension […] for thirty days.”

Especially for its size, the PVVTA features a highly developed website that includes information regarding its complete range of services, not just the flexible routes and Dial-A-Ride. A flexible route/Dial-A-Ride application is easily obtained on-line, as is comprehensive policy and
procedural information. All information can be presented in both English and Spanish – an important feature in this area of the American southwest.\textsuperscript{259}

**PARATRANSIT OPERATING ARRANGEMENTS**

According to Andoh, all PVVTA “services are purchased from Transportation Concepts.” This includes flexible route and Dial-A-Ride services. When asked to state his rationale for purchasing transportation service from a private contractor, Andoh replies, “the costs are lower and due to a small administrative staff of one for the Agency, it was [more] efficient to bring in a private contractor to manage the daily operations of the system.”\textsuperscript{260} As Transit Manager, Andoh is responsible for all of the agency’s administrative duties.

**PARATRANSIT FUNDING**

PVVTA operates its flexible route and paratransit service using a mix of state and directly generated funding sources. The majority of the funding comes from the California Transportation Development Act (TDA), which receives revenues from a ¼-cent sales tax. This is the same pool of funding utilized by Tri-Delta Transit. The remainder of the agency’s funding comes from the farebox and from some creative programs. As PVVTA operates the local Greyhound Bus terminal, they earn a commission on each intercity bus ticket sold. Local newspapers are sold on PVVTA buses, from which the agency also derives a small commission. Advertising sold on PVVTA vehicles helps to round out quite a diverse directly generated funding package. Currently, the agency does not make use of any federal funding stream.\textsuperscript{261}

**OPERATING STATISTICS AND PERFORMANCE TRENDS**

Due to the recent reorganization of the PVVTA, including the hiring of John Andoh as Transit Manager, there is not much flexible route and Dial-A-Ride ridership data available. In terms of annual unlinked passenger trips, PVVTA’s service is growing since the introduction of the flexible routes. During FY 2002, the agency carried 27,337 unlinked trips within its core system. This increases to 30,085 for FY 2003, and is projected to be over 39,000 for FY 2004 – an upsurge of about 42%.\textsuperscript{262} Because flexible route and Dial-A-Ride services are also offered to seniors and the general public, however, Andoh cautions that only “6-8% of this ridership is ADA-eligible.”\textsuperscript{263}

Total annual operating costs, expressed in 2001 dollars for the sake of comparison to other systems, are increasing quickly – from a little over $286,000 in FY 2002 to a projected $790,200 in FY 2004, representing phenomenal growth of about 176%. This is due to an extreme increase in the level of service during the period, particularly over the latter portion.\textsuperscript{264} Moreover, Andoh cites a large, one-time “$50,000 start-up fee paid to the contractor” as well as larger-than-average expenditures on operating “equipment and supplies” coinciding with the reorganization of the transit system as mitigating factors in the high level of total operating costs.\textsuperscript{265} Again, only a very small percentage of these costs can be attributed directly to ADA requirements. Operating costs per passenger trip, in terms of real dollars, also increase sharply over the same period, but at a lower rate – from almost $10.50 during FY 2002 to a little over $20 projected during FY 2004, a total upsurge of almost 93%.\textsuperscript{266} Although operating costs, both on an annual and per passenger trip basis, are rising sharply, FY 2004 will be the first full year of the reorganized service. Assuming no major increases in the level of service and no further significant “one-time” operating expenditures, overall operating costs should stabilize, and the per-trip operating cost could drop considerably, if PVVTA is successful in promoting and building ridership on its
flexible routes – particularly if most of this additional ridership sticks to the established routes rather than electing to deviate from them.

PVVTA’s capital costs also vary widely in terms of 2001 dollars over the period between FY 2002 and 2004, climbing from no expenditures in FY 2002, to about $94,500 in FY 2003, and again to a projected $211,000 for FY 2004. Andoh states that the FY 2003 capital costs involve vehicle procurement, while the FY 2004 capital costs consist of a “mix of vehicles, computer hardware, and bus stop amenities.” Based on the relatively small proportion of ADA-eligible ridership, the overwhelming majority of these costs cannot really be attributed to the ADA.

Between FY 2003 and 2004, the productivity of the PVVTA’s flexible routes and Dial-A-Ride (as measured by both passengers per revenue mile and passengers per revenue hour) are projected to decline. Total revenue miles are projected to soar by about 163%, while total revenue miles are projected to increase by about 60% – trends likely brought about by the increased average speed of the flexible route service coupled with the higher level of service provided under the recent service reorganization; FY 2004 will be the first full year of this expanded and reorganized service. But productivity is projected to fall from .351 passengers per revenue mile, and 3.46 passengers per revenue hour (both quite respectable numbers when compared to other systems in this research) during FY 2003, to .174 passengers per revenue mile and 2.82 passengers per revenue hour (somewhat low for a service that includes a fixed route component) during FY 2004. This suggests that PVVTA must aggressively build ridership on its flexible route service – again, especially in terms of passengers who do not require a route deviation – to meet the productivity requirements of a fixed route service while still providing a viable mobility option for ADA-eligible clients.

ADA PARATRANSIT CHALLENGES

According to Andoh, group ADA trips can create havoc within the PVVTA system. Unlike agencies such as Tri Delta Transit and DTA, where well-placed group trips seem to increase the productivity and cost-effectiveness of the service, a large group does not necessarily seem beneficial to PVVTA, given the administrative and capacity constraints of the agency. With respect to Inland Regional Center, a sheltered workshop location in Riverside County, Andoh explains that 20 clients “can […] tie up the system for 2 hours in the AM and PM peaks,” effectively shutting out other PVVTA customers who need to use the system during these hours. Given ADA provisions with respect to trip denials, this situation implies that complex challenges are on the horizon as the system matures, ridership increases, and more people register for ADA transportation.

Also implied by PVVTA’s information, though not directly stated by Andoh, are other administrative challenges that might manifest themselves as the system matures. First, when and if the agency applies for federal funding, an ADA plan will be required. As discussed earlier in this case study, strict oversight by the FTA may very well require modification to PVVTA policies, particularly with respect to trip reservation days and hours. Currently the agency does not accept reservations seven days per week, even though it operates service each day. Moreover, depending on the number of trip denials issued by the PVVTA going forward, and on the schedule adherence of the flexible route system, the agency may need to split its ADA service off into the Dial-A-Ride system entirely. Such a scenario would certainly change the manner in which both the flexible routes and Dial-A-Ride service operate, and likely do so in dramatic fashion.
As the flexible routes are set up to deviate up to ¾-mile in either direction, the ADA has had a direct impact on service planning. But during the relatively short life of the reorganized service, the agency has not reduced services, raised fares, or cut staff as a result of the law and succeeding regulations. Andoh explains, “PVVTA has never used all of its TDA funding, so as costs increase, PVVTA will claim the additional TDA.” A fare increase is planned, however, to help meet the State of California farebox recovery standard of 10%. Given the relatively small percentage of ADA-registered ridership within the system, it is highly unlikely that there is a correlation to the planned fare increase.

**ADA PARATRANSIT SOLUTIONS**

PVVTA takes several noteworthy actions to increase the efficiency and cost-effectiveness of its services. The agency has realized benefit from simple actions to improve financial accounting. The fare revenue counting process is now observed by video camera, and reconciled with detailed information from passenger manifests, to secure the process, thereby minimizing revenue shrinkage.

With respect to their flexible routes and bus stop locations, Andoh explains that PVVTA “ensured all bus stops are near controlled intersections and do not impede traffic.” Moreover, “a Bus Stop Development Guide was put together, and mandates that all bus stops must have a pole, sign, and cement pad.” By ensuring ADA accessibility of bus stops, PVVTA makes their flexible routes more navigable to persons with disabilities, thereby helping to minimize demand for less efficient and more costly route deviations and Dial-A-Ride services. These routes are also designed so that “80% of the residents [of the service area] live within ¼-mile.” This close proximity not only increases accessibility for all residents of the service area (irrespective of ADA eligibility), but also helps to minimize the distance flexible route vehicles must deviate from the established route when it is necessary to do so.

PVVTA is closely involved with both human service agencies in the immediate community and other transportation providers throughout the larger region. The agency maintains strong and healthy working relationships with “La Paz County, [the] Town of Quartzsite, Greyhound, and SunLine Transit” to facilitate intra-regional trips, particularly for persons with disabilities, outside of PVVTA’s typical service area. A synchronized service is in place between PVVTA and the ADA-compliant service offered by SunLine Transit, primary transit provider for the neighboring Coachella Valley, to transport customers between the Palo Verde Valley and the Loma Linda Veterans Administration (VA) Hospital. In general, the services offered throughout the Palo Verde Valley are the direct result of a strong public involvement process. Questions, comments, and service requests are actively solicited through the PVVTA website, and for a staff of one, Mr. Andoh is remarkably accessible.

To some degree, PVVTA uses technology to enhance the operation of its system. The agency has deployed Schedule Pro® software to help optimize the routing and scheduling of its Dial-A-Ride vehicles, as well as generate manifests and streamline data collection to fulfill reporting requirements. The detailed recordkeeping afforded by this software also facilitates the revenue accounting process described earlier in this section. “@Road”® tracking devices are used to determine the location of transit vehicles in real-time. These devices assist the routing and scheduling process given the relatively short lead time customers must provide when scheduling
trips, and also allow the dispatcher to more quickly and easily route vehicles around traffic blockages and respond to accidents and breakdowns during revenue service.\textsuperscript{274}

PVVTA administers an in-house travel-training program. The Transit Manager will work with clients one-on-one, to build familiarity and comfort with the flexible route system. This is intended to increase utilization of the more efficient flexible route services, thereby minimizing the need for Dial-A-Ride services, at least within the core flexible route service area.\textsuperscript{275}

With respect to funding, PVVTA will be heavily involved in trying to secure additional monies with which to maintain and grow their system. As previously stated in this case study, the agency plans to pursue additional TDA funds. Andoh states that he is also evaluating some “community development block grants” that may be useful in providing for transit operations.\textsuperscript{276} During the next Fiscal Year, PVVTA will, for the first time in its history, “pursue FTA Section 5310 funding.”\textsuperscript{277} This will bring additional needed funding into the service area, but, as discussed earlier in this case study, will also significantly increase regulatory and reporting requirements, and bring about another period of considerable operational change for the young agency.

\textbf{Lane Transit District}

\textbf{AGENCY INFORMATION}

The Lane Transit District (LTD) was founded in 1970. Based in Eugene, OR, LTD serves a mix of “rural, suburban, and small urban” communities, including the communities of Eugene, Springfield, McKenzie Bridge, Junction City, Veneta, and Coburg. The Lane Transit District service area is wholly contained within Lane County, OR.\textsuperscript{278} It spans 241 square miles and, according to the 2000 U.S. Census, is home to 275,109 people – a population density of about 1,150 persons per square mile.\textsuperscript{279} The service area population is generally increasing.\textsuperscript{280} Accordingly, LTD is regularly subject to an expanding pool of ADA-eligible clients.

When asked about any remarkable geographic, climatic, or topographic barriers to the efficient operation of ADA paratransit service, LTD Accessible Services Manager Terry Parker suggests that rivers can be a problem. She explains:

When calculating the \(\frac{3}{4}\)-mile boundary from fixed route service […] there are a few areas that cross a river without bridge access. As ‘the crow flies’ these areas fit within ADA mileage parameters but would serve areas that are not [served] by fixed route.\textsuperscript{281}

This concern is similar to that expressed by Jim Heilig of the Duluth Transit Authority. Such trips using complementary paratransit might involve a significantly higher level of vehicle miles and hours than those operating strictly within an area located no more than \(\frac{3}{4}\) of a “road mile” from the fixed route. Moreover, it seems unlikely that disabled customers without convenient \(\frac{3}{4}\)-mile access by bridge would find the fixed route to be very useful, implying that in these instances, paratransit is more supplementary than complementary.

During FY 2001, LTD provided a total of 8,733,790 unlinked passenger trips through a mix of “fixed route, paratransit, […] vanpool, and carpool.” This service was provided by using 116 vehicles (94 fixed route and 22 paratransit) in maximum service.\textsuperscript{282} LTD’s fleet consists of a mix of low-floor transit buses, articulated buses, small buses, and minivans. The organization is arranged by functional area, including departments for “General Administration, Finance and
Information Technology, Development Services, Human Resource and Risk Management, Maintenance, [and] Transit Operations.283

ADA PARATRANSIT IMPLEMENTATION

LTD can be considered a leader in transportation for persons with disabilities. Their entire fixed route fleet was accessible by the mid-1980s, well before the passage of the ADA. According to Parker, prior to 1990 “Dial-A-Ride services [were also offered] from 10am to 4pm Monday through Friday.” The FTA approved LTD’s paratransit plan in September 1992, with full implementation achieved in September 1993.284 The availability of accessible fixed route vehicles, as well as the existing makings of a paratransit fleet, at the passage of the ADA no doubt helped LTD to design and implement its complementary paratransit service rapidly. During the implementation process, LTD did not request any undue financial burden waiver or implementation extension from the FTA.285

PARATRANSIT SERVICE CHARACTERISTICS

LTD offers four distinct programs as part of their paratransit service. General RideSource service provides curb-to-curb trips for ADA-eligible individuals. RideSource Escort provides door-to-door medical trips for the “frail elderly” and “riders that meet the ADA eligibility criteria but are too frail to successfully utilize a curb-to-curb service.” RideSource Shopper is “designed as a grouped trip for ADA-eligible riders to provide additional assistance in handling groceries.” This is door-to-door service. Finally, LTD provides door-to-door paratransit under contract with several local human service agencies, who pay “the full cost or a negotiated portion of the full cost of the trip.” The fare for general RideSource service is $2.50; this is exactly twice the current fixed route fare of $1.25. Fares for agency trips may vary according to the terms of each individual agreement, or there may be no fare at all.286

General RideSource service and RideSource Shopper use the same eligibility procedure; a RideSource-eligible customer “can use the RideSource Shopper assuming it operates in their neighborhood.”287 To gain eligibility, a customer completes an application and submits it to a doctor, caseworker, or other “professional” familiar with the client’s disability for verification. Following verification, the application packet is returned to the transit agency. In making an eligibility determination, LTD reserves the right to conduct a “telephone consultation, in-person interview, or professional evaluation” as necessary. Once eligibility is determined, a customer can call from one to fourteen days in advance to schedule a trip reservation. Reservations are accepted “8am to 5pm on weekdays and 11am to 5pm on Saturday and Sunday.” Though twenty-four hours advance reservation is the recommended standard, “same-day requests may be provided only if there is space and time available in the schedule.” Trip reservations must be cancelled “at least two hours before the scheduled appointment time.” A one-month suspension of service can be imposed for more than five “no-shows” in any six-month period.288

Given the more personalized nature of RideSource Escort, the service “involves a second review to determine eligibility.” Once a client is determined to be eligible, the program may be used for medical trips only.289

PARATRANSIT OPERATING ARRANGEMENTS

According to Parker, “[LTD] administration of accessible services includes ADA policy for both fixed route and paratransit, [and] contracting and budgeting for paratransit services.” Operation
of the RideSource program, however, “is subcontracted [...] all revenue miles, hours and passenger trips are provided by the subcontractor.” Moreover, Parker explains, “the contract is held by a nonprofit agency.” Criteria involved in this decision included the contractor’s “experience, organization, operations plan, and cost.” The observed benefits include “cost controls, flexibility, and paratransit expertise.” Indeed, depending on the type of nonprofit agency selected to operate the service, a transit property such as LTD may be able to use this type of arrangement to tap into a pool of labor resources already having a very deep understanding of the transportation and assistance needs of persons with disabilities; this would certainly have a beneficial impact on paratransit service quality. The contactor would also enter such an arrangement with an existing knowledge of the geographic area. Moreover, it would seem that a nonprofit agency contractor, as compared to a private for-profit company, would be more inclined to offer these services at a reasonable cost.

**PARATRANSIT FUNDING**

LTD operates its paratransit service using a mix of federal, state, local, and directly generated funding sources. For FY 2003, RideSource services were funded as follows:

- Lane County General Fund: 48%
- State of Oregon Cigarette Tax Revenue: 27%
- Agency Contracts: 19%
- Farebox revenues: 6%
- Federal Older Americans Act funding: less than 1%

When asked about flexible federal funds under ISTEA and TEA-21, Parker replies, “the State of Oregon Public Transit Division has been able to secure STP funding for capital purchases which has increased the funding for [these] purchases” but that “our agency has not seen any significant change.” The Eugene urbanized area falls slightly over the 200,000-resident threshold for using Section 5307 funds to offset operating expenses. Much like Tri Delta Transit, LTD would be eligible to use up to ten percent of its federal allocation to cover ADA paratransit operating expenses, but does not currently elect to do so, and does not appear to be planning to do so in the immediate future.

**OPERATING STATISTICS AND PERFORMANCE TRENDS**

In terms of annual unlinked passenger trips, LTD’s paratransit service is growing in the years following the passage of the ADA. Beginning in FY 1993, paratransit ridership grows from 79,239 to 110,168 during FY 2001. This represents an upsurge of about 39% over the nine-year period, well above the national paratransit growth of about 29% over the same period. The Eugene area is growing, however, and Parker intimates that system growth would have been stronger had LTD not taken action to reduce demand. This will be discussed in more detail later in the case study.

Total annual operating costs, expressed in 2001 dollars, increase substantially over the period between FY 1993 and 2001 – from a little over $1 million in FY 1993 to about $1.58 million in FY 2001, a total increase of about 57%. But, operating costs per passenger trip, also in terms of real dollars, rise only slightly over the same period – from almost $12.75 during FY 1993 to almost $14.35 during FY 2001, a total increase of about 13%. This seems to suggest that LTD is doing a good job of keeping its incremental costs in check despite system growth. The agency’s FY 2001 per-trip operating cost is well below the national average.
LTD only reported capital costs for two years during the period between FY 1993 and 2001. In terms of 2001 dollars, they spent $126,970 during FY 1998 and $291,790 during FY 1999. Though some of this funding went towards the purchase of facilities and other infrastructure, the vast majority was allocated to rolling stock.\textsuperscript{295}

Over the nine-year period between FY 1993 and 2001, both revenue miles and revenue hours of LTD paratransit service rise rather dramatically. Revenue miles increase 72\% over the period, and revenue hours climb 96\%. Parker attributes this to an increase in trip lengths “as consumers become more independent and expand their use of the service, and growth of residential [land use] and services out to the edges of the Urban Growth Boundary.”\textsuperscript{296} That LTD’s growth in revenue hours outstrips that of revenue miles, however, also suggests that these trips are taking more time to complete and the average speed of the system is decreasing.

Meanwhile, the productivity of the agency’s paratransit (as measured by both passengers per revenue mile and passengers per revenue hour) decreases moderately. Though both revenue hours and revenue miles of service are increasing quickly on an annual basis, productivity decreases by about 17\% in terms of passengers per revenue mile, and by about 28\% in terms of passengers per revenue hour over the period between FY 1993 and 2001.\textsuperscript{297} This suggests that LTD has been able to manage its paratransit so as to minimize productivity losses in the face of very steep increases in miles and hours of service.

**ADA PARATRANSIT CHALLENGES**

According to Parker, the primary challenge faced by LTD in effectively operating its paratransit service is “demand management”, that is “to expand paratransit [judiciously] without eroding accessible fixed route transit.” In essence, Parker explains that LTD’s goal is to make paratransit and fixed route truly complementary, rather than to position them as competing options for mobility, thereby enabling persons with disabilities “to be as independent as possible.”\textsuperscript{298}

Parker reports no cuts to fixed route service, fare increases, or administrative staff reductions as a direct result of the ADA paratransit requirement. She does “suppose that some projects may have taken longer to realize”, but emphasizes that paratransit is still only about 5\% of LTD’s total budget (according to the NTD, it is closer to 8\%).\textsuperscript{299}

**ADA PARATRANSIT SOLUTIONS**

To maximize the efficiency and productivity of its complementary paratransit services, LTD focuses its management techniques on the eligibility process. According to Parker, the agency adheres to a “very strict” interpretation of the eligibility standards, granting full eligibility only when it is absolutely warranted. For example, in the case of an ADA-eligible client having trouble with only one or two bus stop locations, paratransit is made available only for a timed connection to the fixed route at the nearest accessible station. This means that the client can reach their destination quickly and easily, while LTD minimizes paratransit hours and miles of service and boosts utilization of their accessible fixed route system. In other cases, an ADA applicant will be granted temporary paratransit eligibility “pending completion of a fixed route training program.” Accordingly, a client’s mobility needs are met throughout the process, but they can be completely shifted from paratransit to the fixed route once they have gained competence and comfort in using the latter.\textsuperscript{300}
Parker explains that the agency offers a highly developed, highly personalized travel-training program to persons with disabilities. Individual programs last “2 weeks”, “2 months”, or “4 months”, depending on the extent of the customer’s needs, and include an introduction to bus riding as well as more detailed instruction on how to successfully navigate the LTD system. In some cases, assistants are provided at stations and transfer points to help a trainee alight from one vehicle and board another; this keeps ADA-eligible clients who may experience difficulty transferring between more than one route away from dependence on paratransit. Travel training is also taught in Eugene-area high schools as part of special education classes; this is indicative of a particularly strong working relationship between the transit property and another public agency. In all of these cases, LTD is willing to offer free passes for the duration of training because, as Parker explains, “without training these customers would be paratransit riders.” The efficiency gained, and costs saved, as a result of training persons with disabilities to use the fixed route more than offset the revenue lost through free ride passes.  

Fixed route travel training, of course, can only be as successful as the accessibility of the fixed route system allows. As mentioned earlier in this assessment, LTD’s fixed route bus fleet has been fully accessible since the mid-1980s, and the agency is generally regarded as a leader in accessible fixed route transportation. Accordingly, Parker feels that the agency already had the advantage of momentum over other transit properties when the ADA was enacted. Moreover, “virtually all” of LTD’s fixed route stops meet ADA standards.  

Moving ADA-eligible passengers from paratransit to fixed route, Parker estimates, is the result of a sense of “community pride in being accessible.” There seems to be the perception among the local disabled community (which is very active in the Eugene area) that “the fixed route bus is better” — that it fosters greater freedom, spontaneity, and societal engagement for persons with disabilities. LTD capitalizes on this sentiment by maintaining a close working relationship with the disabled community, using them as an “advisory committee” to help improve service delivery. The result of this work is “about 6,000 lift [aided]” trips on the fixed route annually. Taking into account only those ADA-eligible clients who require the use of a wheelchair lift, this saves LTD almost $90,000 per year; it is likely that LTD saves quite a bit more by facilitating fixed route trips for persons with disabilities who do not require the use of a wheelchair, for example, riders eligible under the ADA because of a cognitive or visual disability.  

One unique feature of the RideSource Escort service is that the drivers are “volunteers [who] use their own vehicle or a RideSource minivan to accompany the rider to and from medical appointments.” It is to LTD’s credit that they have been able to parlay their standing in the community into such a unique and beneficial program. As operating labor is one of the highest, and most rapidly growing, paratransit expenses, this arrangement allows LTD to provide a valuable community service with a minimum of expense. Although such an arrangement might not be a viable option within all transit operating environments, it would certainly provide a transit agency with an important operational advantage.  

With respect to paratransit routing and scheduling, LTD has developed its own scheduling database in-house. When asked about the software packages (Trapeze® PASS, Schedule Pro®, etc.) other agencies seem to be using, Parker replied that LTD has evaluated various paratransit scheduling software packages and “didn’t see that we could do it any better than we could” with a proprietary database. Accordingly, the agency could not make a cost-benefit justification for
such a large capital investment, electing to spend this money instead on accessible fixed route and paratransit vehicles.

In portions of the service area where it is difficult to justify fixed route expansion, both in terms of population density and in light of the ADA complementary paratransit requirement, LTD employees some creative operational techniques. In the community of Florence, LTD operates a deviated fixed route service, similar to that operated by the Palo Verde Valley Transit Agency. This provides for the mobility needs of persons with disabilities, other transit-dependent populations, and the general public with a single service offering. In the community of Oak Ridge, LTD uses a combination of Oregon Cigarette Tax funds and federal Section 5311 funds to operate commuter service (which is not bound by the ADA complementary paratransit requirement) during the AM and PM peak hours to and from the “main transfer center in Eugene”, then uses the same vehicle during the mid-day period to operate “deviated fixed route service for medical appointments” in the Eugene area. 306 This connects all customers from the community of Oak Ridge, not just persons with disabilities, to vital services located in the urban area.

LTD takes an active approach to evaluating their paratransit system regularly, and making modifications based on the results. As the agency does not employ a commercial paratransit scheduling software package to automatically optimize trip routing and scheduling on a daily basis, such periodic evaluation and revision is critical to maintaining an efficient and effective service. Recently, LTD employed a group of economics students from the University of Oregon to perform “mapping of trip patterns” in a geographic information system (GIS); this is another noteworthy example of LTD working with a partner agency to improve their service at a minimum of expense. LTD has also hired an outside consultant to conduct a “peer-to-peer” paratransit service comparison and make recommendations for improvement. 307 This allows the agency to adapt effective policies and practices from throughout the industry for their own use. External consultants can be quite costly, but assuming the selected consultant can discover significant potential for operating efficiencies, future cost savings might offset the consultant fee.

Last, LTD continually targets logical group trips that will make their paratransit system more efficient. The RideSource Shopper is a direct result of such a process. Parker explains, “by giving [customers] a greater level of assistance at a lower fare we can get customers to go grocery shopping on our time [schedule] rather than theirs.” 308 If riders are willing to buy into this technique, it can be very useful in combining formerly disparate individual trips into a more productive grouped paratransit run — thereby saving fuel, labor costs, and vehicle wear and tear.

City of Modesto Transit

AGENCY INFORMATION

City of Modesto Transit, more commonly known as “Modesto Area Express” or “MAX”, was founded in 1973. Based in Modesto, CA, Tri Delta Transit serves a mix of “small urban and suburban” communities, including the cities and towns of Modesto, Salida, and Empire. MAX does not cross any state or county lines in the delivery of its services. 309 The service area spans 41 square miles and, according to the 2000 U.S. Census, is home to 190,000 people — a population density of about 4,600 persons per square mile. The service area population is generally increasing by roughly “4-5% per year.” 310 This population growth exposes MAX to
paratransit demand management challenges, resulting from an increasing customer base and similar to those faced by Tri Delta Transit and the Lane Transit District.

When asked about any remarkable geographic, climatic, or topographic barriers to efficient operation of ADA paratransit service, City of Modesto Transit Manager, Fred Cavanah, and Paratransit Coordinator, Bill Latham, indicate none.\(^{311}\)

During FY 2001, MAX provided a total of 3,815,521 unlinked passenger trips through a mix of “fixed route and demand response” service. This service was provided by using 47 vehicles (35 fixed route and 12 paratransit) in maximum service.\(^{312}\) The MAX fleet consists of a mix of fixed route transit buses and paratransit vans. The small “city transit staff is headed by the Transit Manager with a full-time staff of three, and three part-time employees.” A “separate bus maintenance section has nine employees.”\(^{313}\)

**ADA PARATRANSIT IMPLEMENTATION**

MAX had some experience in providing paratransit prior to the passage of ADA, and implemented complementary paratransit service quickly. According to Cavanah and Latham, prior to 1990 the City of Modesto “contracted with a local company to provide paratransit service for riders with disabilities and senior citizens.” The FTA approved MAX’s initial ADA paratransit plan in 1993, and approved updates as required until 1996. The service was fully implemented in 1992, pending formal approval of the paratransit plan.\(^{314}\)

During the implementation process, MAX did not request any undue financial burden waiver or implementation extension from the FTA.\(^{315}\)

**PARATRANSIT SERVICE CHARACTERISTICS**

MAX currently offers “door-to-door” paratransit to ADA-eligible customers, and “curb-to-curb” paratransit to “riders with disabilities who do not meet ADA standards, senior citizens, and the general public during hours when the fixed route service does not operate.”\(^{316}\) ADA service, and service to senior citizens and other persons with disabilities is offered between “4:45am and 11pm, Monday through Friday,” “8am and 7pm, Saturday,” and “8am-6pm, Sunday.” Service for the general public is only offered between “6pm and 11pm, Monday through Friday” and “8am and 6pm, Sunday.” MAX’s paratransit fare for all riders is currently $1.70, which is twice the fixed route fare of $0.85.\(^{317}\) The relatively low paratransit fare gives even the general public a reasonably priced mobility option when and where the fixed route is not in service. Given that national industry trends as well as data from individual agencies, however, show that paratransit productivity can decline as trips are added to the system, it seems that MAX could improve its operating condition by charging a higher fare to the general public for paratransit service.

All paratransit service uses the same application, but different rider groups use a slightly different procedure to gain eligibility. Seniors need only complete the basic identifying information on the application, then attach proof of age and return the packet to the transit agency. Disabled riders need to complete more detailed information, then have the application certified by “either a physician or one of a limited number of specially trained members of local public service organizations” before returning the packet to the transit agency. Once eligibility is determined, a customer can call from one to fourteen days in advance to schedule a trip reservation. Reservations are accepted “from 7am to 9pm, Monday through Friday” and “from 8am to 5pm, Saturday and Sunday.” MAX fills requests for same-day service “on a space
available basis.” Trip reservations must be cancelled “no less than fifteen minutes before the scheduled pick-up time”, or the customer is charged with a no-show. According to Cavanah and Latham, “riders may be suspended […] for thirty days if they accumulate 3 no-shows in a twelve-month period.” The cancellation policy seems quite lenient, which would be consistent with truly complementary paratransit but may have a negative impact on the efficiency and productivity of the system.

MAX’s website contains an extensive explanation of their paratransit service, as well as an application available for download and printing. A high degree of coordination with other local government and human service agencies is evident. A MAX paratransit application can be obtained at one of thirteen locations throughout the service area, and will be certified by numerous local doctors and agency personnel.

**PARATRANSIT OPERATING ARRANGEMENTS**

According to Cavanah and Latham, “all paratransit service is contracted.” They cite as reasons, “reduced cost, and contractor demonstrated responsiveness to changing needs and requirements.”

**PARATRANSIT FUNDING**

MAX operates its paratransit service using a mix of state, local, and directly generated funding sources. The service is funded as follows:

- State and Local funds: 90%
- Rider fares: 10%

As MAX does not use any federal funding for the operation of its paratransit service, Cavanah and Latham indicate no changes as a result of flexible transportation funds being initiated as part of ISTEA and continued under TEA-21. Operating in an urbanized area having more than 200,000 residents, like Tri Delta Transit and the Lane Transit District, means that MAX would be eligible to use up to ten percent of its federal Section 5307 allocation toward ADA paratransit operating expenses.

**OPERATING STATISTICS AND PERFORMANCE TRENDS**

In terms of annual unlinked passenger trips, MAX’s paratransit service is flat to slightly receding in the years following the passage of the ADA. Beginning in FY 1992, paratransit ridership grows from 105,200, peaks during FY 1994 at 114,065, and settles at 101,720 during FY 2001. This represents a decline of about 3% over the ten-year period. Cavanah and Latham explain that the ADA component of paratransit ridership “is generally increasing at 5-6% per year, [but] this is being done at the expense of reduced ridership for seniors and non-ADA disabled.” They cite “local growth, rider awareness, and a city goal to meet ADA requirements” as reasons for the growth in ADA paratransit. MAX seems to have been successful in capping overall paratransit ridership so as to minimize the resources consumed by this portion of the agency’s system. But Latham states, to the contrary, that overall paratransit ridership remains relatively constant to decreasing not because of artificial limits, but rather because discretionary riders, “mostly seniors and non-ADA eligible passengers,” elect not to continue riding because they cannot get the trip times they need. Such riders are in effect being squeezed out of the system as ADA-eligible riders are given priority, and the net effects on regional mobility are negative.
Total annual operating costs, expressed in 2001 dollars, increase slightly over the period between FY 1992 and 2001 – from almost $1.3 million in FY 1992 to about $1.45 million in FY 2001, a total gain of about 13%. Likewise, operating costs per passenger trip, also in terms of real dollars, generally increase over the same period – from a little over $12 during FY 1992 to a little over $14 during FY 2001, representing total growth of about 17%. The higher growth in per-trip costs, as compared to overall costs, may reflect the increasing proportion of ADA-related trips. The agency’s FY 2001 per-trip operating cost is well below the national average, despite a service area situated in a relatively expensive region of the country. Cavanah and Latham cite several specific reasons for the increase in operating costs: “cost of living and population growth”, as well as “the costs of [the] computer reservation system hardware and software, previously provided by the City, [are] now part of the overall operation contract.”

MAX has no paratransit capital costs listed in the National Transit Database for the entire period from FY 1992 to 2001.

Over the ten-year period between FY 1992 and 2001, the productivity of MAX’s paratransit (as measured by both passengers per revenue mile and passengers per revenue hour) slightly recedes. Though both revenue hours and revenue miles of service are flat to increasing on an annual basis, productivity decreases by about 3% in terms of passengers per revenue mile, and by about 11% in terms of passengers per revenue hour. This suggests that, while MAX has performed reasonably well with respect to maintaining productivity levels, the higher level of passenger assistance afforded by door-to-door service, and shorter scheduling lead times, offered to an increasing ADA-related ridership base may be having an adverse effect on system productivity.

**ADA PARATRANSIT CHALLENGES**

According to Cavanah and Latham, the primary challenge faced by MAX in providing ADA paratransit services is “the rapid growth in riders requiring transit to and from dialysis treatment centers.” This is a pressing challenge for several reasons. First, these dialysis clients are taking individual trips which, based on the wide range of appointment durations and start times, as well as the variety of trip origins and destinations, cannot be logically grouped into cohesive, productive runs. Moreover, dialysis clinics in the Modesto area, according to Latham, seem to be locating in outlying communities of late; as the American population continues to suburbanize, so too do the services available for consumption. This has a negative effect on vehicle miles and hours of service, cost recovery, and productivity.

Second, this client group is more likely to require the use of a wheelchair, and a dialysis patient is apt to be in serious physical condition following the completion of their treatment. This necessitates a higher level of passenger assistance, which increases passenger boarding and alighting time, vehicle dwell time, individual trip times, and the overall level of vehicle and labor hours needed to provide the service. Toward this end, MAX has extended morning and weekend hours of paratransit service to accommodate dialysis appointments, keeping drivers and vehicles out on the road for longer hours, and, because a dialysis patient must be cleared by a medical professional before they can leave the clinic, MAX vehicles frequently must wait for such passengers. Although this waiting constitutes “dead time” during which the transit agency cannot transport other passengers or earn revenue, dialysis patients are a sensitive client group that requires immediate, rapid transportation home following treatment. Therefore, if MAX were to elect not to wait and to return for a dialysis patient at a later time, they would risk
alienating a growing and needy group of customers as well as suffer the backlash of local stakeholders.

Third, the relationship between public transit agencies and the dialysis industry has changed in recent years – nationwide, within the State of California, and within the MAX service area. Specifically, transit agencies assume an increasing level of responsibility with respect to transportation of this sensitive customer group. This trend involves several critical factors as described below:

- The number of dialysis clinics is growing. According to the Medicare Payment Advisory Commission (MedPAC), an ‘independent federal body established by the Balanced Budget Act of 1997 to advise the U.S. Congress on issues affecting the Medicare program,’ the number of dialysis facilities in the United States “grew by about 6.5 percent annually […] between 1993 and 2002,” from 2,343 clinics in 1993 to 4,132 clinics in 2002. This represents growth of 76.3% over the period. Accordingly, there seems to be more individual dialysis facilities for transit agencies to serve.

- Dialysis clinic locations are generally becoming more far-flung. According to MedPAC, between 1993 and 2002 the number of “freestanding” dialysis clinics increased from 1,640 to 3,438 – representing total growth of 109.6% over the period. Meanwhile, the number of “hospital based” clinics actually decreased by about 1.3%, from 703 to 694, over the same period. Consequently, more dialysis treatments seem to be taking place away from hospital locations, which are typically major trip generators for transit services. This would support Latham’s observations with respect to suburbanization.

- Dialysis clinics are increasingly becoming for-profit operations. According to MedPAC, between 1993 and 2002 the number of “for-profit” dialysis clinic locations increased from 1,424 to 3,279 – representing total growth of 130% over the period. Meanwhile, the number of “nonprofit” clinics deceased by about 7.8%, from 919 to 847, over that same period. While for-profit clinics would be concerned with maximizing treatment volume and minimizing costs so as to improve profit margin, nonprofit clinics would seem to be more concerned with providing a needed public service, and more apt to either directly provide or coordinate in order to provide (such as with a transit agency or ambulance service), ancillary services, such as transportation, for their clients.

- Where Medicare is concerned, dialysis profit is decreasing. Between 1999 and 2001, according to MedPAC, “payment relative to providers’ cost declined,” yielding a decrease in adjusted profit margin from 10.5% in 1999 to 5.2% in 2001. This decline, of over 100% in just three short years, implies that for-profit and nonprofit clinics alike would be less likely to provide ancillary services, such as transportation, to their clients.

- The frequency of dialysis treatment is growing. According to MedPAC, between 1993 and 2002 the number of dialysis treatments increased from about 19.1 million to about 38.1 million – representing growth of about 99% over the period. Further, “This growth is linked to a number of factors, including improvements in survival as well as increases in the number of people with diabetes, a risk factor for end-stage renal disease.” Accordingly, dialysis patients seem to be an increasing component of the general population and therefore the potential customer base of transit agencies.

- Dialysis patients tend to fit a profile of transit dependency. According to MedPAC, “In 2001, about 96 percent of dialysis patients were Medicare eligible.” Medicare eligibility is limited to those at least “65 years old” or “younger person[s] with a disability or with End-
Such senior citizens and persons with disabilities frequently live on low and or fixed incomes, and as such would be more likely to use public transit services.

- Medicaid non-emergency transportation is not fully deployed. Medicaid provides services for clients much more needy than the general population and the Medicare-eligible population, including dialysis patients. As part of Medicaid, the federal government offers matching grants to states that provide for non-emergency medical transportation services – consequently, such transportation is considered an optional service. According to the Kaiser Commission on Medicaid and the Uninsured, as of January 2003, six states (Missouri, New Hampshire, New Mexico, Ohio, Oklahoma, and Rhode Island) and the District of Columbia did not provide for this type of transportation, and thus much of the responsibility falls on ADA complementary paratransit services in these areas. California does provide non-emergency medical transportation as part of its Medicaid (called Medi-Cal) program.

- Even where it is available, Medicaid non-emergency transportation can be severely limited. Such transportation may be provided on a reimbursement basis and is often subject to strict eligibility criteria. According to the California Association for Coordinated Transportation (CalAct), “the availability of transportation to medical appointments for Medicaid recipients, who are known as Medi-Cal recipients in California, is extremely limited, and this […] places pressure on public transportation systems to provide medical trips for which paratransit systems were not designed.” Moreover, even when a trip appears to be eligible for reimbursement, “it is sometimes uncertain whether Medi-Cal will approve reimbursement.” Thus, clients are more likely to play it safe by requesting ADA complementary paratransit rather than seeking a more expensive medical transportation option, such as by ambulance, taxi, or wheelchair van, for which they may not recoup their out-of-pocket costs.

- As an optional service, Medicaid non-emergency transportation is constantly in jeopardy. According to the California Legislative Analyst’s Office, during the last ten years the state budget has proposed to eliminate non-emergency transportation and other optional services from the Medi-Cal budget four times: during 1994-95, 1995-96, 1996-97, and 2003-04. Though this situation has not yet come to pass, it does illustrate how vulnerable the commitment of the states can be with respect to optional Medicaid services during times of economic hardship. Where non-emergency transportation services are eliminated, the responsibility for transporting dialysis patients falls squarely on public transit agencies.

Last, MAX is experiencing difficulty in discovering new and effective methods by which to deal with the recent influx of dialysis patients. The agency, as a public service provider, must balance operating efficiency, stewardship of public funds, adherence to law and regulation, and compassion. Latham fears that any overtures toward policy change will be met with outrage from the disabled community, negative publicity from the media, and repercussion from local politicians. Moreover, MAX faces the challenge of not knowing where to begin making improvements. According to Latham, despite the fact that the agency uses an automated paratransit scheduling software package, the data extracted from the program is not robust enough to provide a clear picture of how, exactly, dialysis patients could be better accommodated within the MAX paratransit system. Latham has consulted with other regional transit providers as well as industry groups, and, although they seem to be facing similar difficulties, no one is quite sure what a successful solution would look like.
Though not specifically mentioned by Cavanah and Latham, the information given by MAX suggests two additional challenges in providing ADA paratransit. First, the number of “no-shows” seems to be a problem that contributes to paratransit trip denials. According to the MAX website:

Cancellations and no-shows are a major contributor to system inefficiency. During the last year there were 1,200 no-shows on the Modesto Area Dial-A-Ride system. A no-show happens when the van arrives for the passenger and the passenger does not make the scheduled trip. At an estimated cost of $16.00 per no-show, it is easy to see that this is a tremendous waste of a precious resource.

Over 2,500 cancellations occurred last year, and while passengers are urged to notify Dial-A-Ride of cancellations in advance (so they don’t turn into no-shows), often cancellations aren’t made until it’s too late to schedule another badly needed trip for another paratransit rider.

Our goal is to keep ride denials to a minimum, but they do occur more frequently than we would like. If cancellations and no-shows were reduced, there might no longer be ride denials on the Modesto Area Dial-A-Ride System.

That MAX has exceeded its legal limit on subscription service might also be a problem. According to the MAX website, “currently, Modesto Area Dial-A-Ride exceeds the 50% subscription rate; therefore, no new subscription service can be scheduled, except for dialysis patients.” As other customers wishing to travel consistently between two points at a certain time are effectively banned from scheduling a standing order, they must call in to the office to schedule their trips on a day-by-day basis. This could involve a tremendous level of administrative effort.

According to Cavanah and Latham, the paratransit provisions of the ADA have not had an impact on the manner in which MAX goes about planning for new and/or expanded fixed route services. MAX, however, has had to raise fares along the way, in order to meet the 10% standard for farebox recovery mandated by the State of California. This suggests that the increasing proportion of ADA-related paratransit trips is having a negative effect on farebox recovery; a phenomenon supported by MAX’s productivity and cost trends since the implementation of ADA complementary paratransit service, as discussed elsewhere in this case study.

**ADA PARATRANSIT SOLUTIONS**

The City of Modesto takes several noteworthy actions to effectively manage its paratransit service. First, it has introduced a “discounted ten ride ticket” which paratransit customers can use in place of cash. As with fixed route services, non-cash fare payment media helps to minimize instances of a paratransit rider losing or fumbling with a cash fare, thereby speeding up vehicle boarding time, reducing vehicle dwell time, and contributing to shorter trip times and increased productivity. The transit agency must, however, carefully consider the amount of the discount. Too small a discount will not generate enough interest to make the program
worthwhile. On the other hand, paratransit cost recovery ratios are by far the smallest in the industry; too large a discount can lower total operating revenues and decrease an already low cost recovery ratio.

Though MAX does not provide one-on-one or group travel training in-house, they are currently “working with the county transit office on a video that will be made available to interested parties on how local transit systems work.” This could help to increase local awareness of and competency in using both the MAX fixed route and paratransit systems, as well as transportation services offered (both to disabled and non-disabled individuals) under other local programs. Such a video might succeed in helping persons with disabilities to navigate the fixed route system, thereby keeping them off paratransit. It might also minimize the administrative effort required to explain MAX services to individual customers. If, however, the video is made widely available, it also has the potential to increase utilization of both the fixed route and paratransit systems; given MAX’s ability to respond to the level of additional paratransit demand, the latter may not be desirable. Moreover, some measure of outreach or promotion will be needed to ensure that the video is utilized appropriately within the community; this will require the investment of staff time and money.

As previously discussed in this case study, MAX is using a computerized scheduling system to automate the reservation process, aid in scheduling and dispatching, track revenues and expenses, and assist in data collection and statistical reporting. This reduces some of the administrative burden associated with the operation of a paratransit system. Further, MAX is “coordinating with the contractor to provide an automated vehicle location (AVL) system.” Such a system will help dispatchers to identify vehicles that are in mechanical distress, off route, or off schedule, so they can take action to correct the problem with minimal administrative effort and loss of revenue time.

MAX has developed a “handbook that is provided to all new riders on system operation, rules and procedures, etc.” This handbook covers the types of persons eligible for paratransit, locations where an application can be obtained and certified, trip reservation procedures, cancellation and no-show policies, information for personal care attendants and companions, safety rules, other policies and rules, and procedures for filing comments and complaints. It is available on the agency’s website and in paper form. In addition, all informational materials, per the requirements of the ADA, are provided in “a variety of formats to meet riders’ special needs.” This can help to increase a customer’s level of independence and comfort in navigating the system, and, like the instructional video, can minimize effort required on the part of administrative staff members to explain policies and features of the system.

MAX employs strong partnerships with other local agencies in the management of its paratransit system. According to Cavanah and Latham, to facilitate regional trips that MAX cannot provide on its own, “transit staff meets regularly on a formal as well as informal basis with other local transit providers to coordinate schedules and services.” Moreover, to solicit input as to the structure, operation, and performance of its paratransit system, the transit staff maintains “active membership on a regional human service agency transit committee”, and “includes and encourages [human service] agency representatives to participate on a [MAX] sponsored ADA Advisory Committee.”
La Crosse Municipal Transit Utility

AGENCY INFORMATION

The La Crosse Municipal Transit Utility (MTU) was founded in 1975. Based in La Crosse, WI, the MTU serves a “small urban” environment, including the communities of La Crosse, Onalaska, Holmen, and Campbell, WI, and, through deviated route service, La Crescent, MN. As such, the MTU serves two counties and states – La Crosse County, WI, and Houston County, MN. The service area spans 20 square miles and, according to the 2000 U.S. Census, is home to 51,000 people – a population density of almost 2,600 persons per square mile. The service area population is “flat”, but the “suburban area [population] is growing.” This implies that longer trip distances and times, as well as a growing number of widely scattered trips, may be operational challenges for MTU.

Despite the service area’s reputation for harsh winters, MTU Manager Keith Carlson and ADA Coordinator James R. Kreuger, Jr. do not view the weather as a remarkable challenge in providing complementary paratransit services. As with the Palo Verde Valley Transit Agency, MTU may consider itself well accustomed to the local climate and amply prepared to deal with its implications.

During FY 2001, the MTU provided a total of 1,025,070 unlinked passenger trips through a mix of “fixed route [and] paratransit.” This service was provided by using 34 vehicles (24 fixed route and 10 paratransit) in maximum service. MTU’s fleet consists of a mix of “30’ and 35’” fixed route transit buses, and paratransit vans. The organization is arranged by functional area, including the “Transit Manager, Operations Manager, Supervisors, Service Representatives, Mechanics, Service Workers, and Operators.”

ADA PARATRANSIT IMPLEMENTATION

According to Carlson and Kreuger, MTU did not operate paratransit before the passage of the ADA, but “provided some funding to a local mini-bus program for service to elderly and disabled persons.” This seems to have resulted in a more lengthy, staged implementation process as compared to the other agencies discussed in this research. The FTA approved MTU’s initial ADA paratransit plan in January 1997. The service itself was implemented in “January 1992 [and] implemented in stages, with full compliance attained in January 1997.” Accordingly, MTU used the full amount of time granted by the FTA to gradually develop service policies and procedures, mature their methods for accepting reservations and scheduling trips, and build a fleet of paratransit vehicles. As part of this process, MTU did not request any undue financial burden waivers or implementation extensions from the FTA.

PARATRANSIT SERVICE CHARACTERISTICS

MTU currently offers “curb-to-curb” paratransit to ADA-eligible customers, and to non-eligible clients of “La Crosse County Human Services [if] authorized for non-complementary paratransit by a County Case Worker or Social Worker”, under its Mobility Plus program. The service is available “Monday through Friday from 5:10am to 10:40pm,” “Saturday from 7:40am to 7:40pm,” and “Sunday from 7:40am to 6:40pm.” In areas where only limited fixed route service operates, however, there are “reduced hours of MTU Mobility Plus service as well.” The fare for a Mobility Plus trip is $1.70, slightly less than twice the fixed route fare of $0.90. A ten-
cent increase in the Mobility Plus fare might bring in a small amount of additional revenue with which to offset the cost of providing the service.

ADA and non-ADA paratransit follow different eligibility procedures. To apply, an ADA-eligible customer completes an application, obtains professional verification of the disability from a physician, nurse, therapist, social worker, or other health professional, and submits the application to MTU. Employees of La Crosse County Human Services determine eligibility for non-ADA clients on a trip-by-trip basis, thereby splitting some of the administrative responsibility for client intake and registration between both agencies. Once eligibility is determined, a customer can call from one to fourteen days in advance to schedule a trip reservation. Reservations are accepted “from 8am to 5pm, seven days per week.” With respect to same-day service, Mobility Plus will accommodate a customer “if space is available.” Trip reservations must be cancelled “at least one hour before the scheduled ride”, or a no-show is charged. Upon “five or more no-shows within the calendar year” a customer can be suspended from Mobility Plus service indefinitely, pending payment for “the full cost of each no-show over four.” Further, “each additional no-show will suspend service again until full payment is made for that no-show.” Warning letters are sent to customer after “three no-shows”, alerting the customer “they may be jeopardizing their status within [Mobility Plus].”

PARATRANSIT OPERATING ARRANGEMENTS

According to Carlson and Kreuger, Mobility Plus service consists of “100% purchased service from a private contractor.” Fixed route service, on the other hand, is “directly operated.” The MTU did briefly operate its paratransit service “in 1995 when the contractor terminated their contract unannounced.” Their rationale for purchasing paratransit service is “based on cost of operation and maintenance.” Moreover, “the current contractor has the ability to bring in more buses from other company terminals if the need arises, [which] prevents the denial of trips.” This affords MTU a certain level of flexibility that it would not have if it elected to operate its ADA complementary paratransit service directly. According to Carlson and Kreuger, with respect to purchased transportation, “there is also a savings in the area of operator wages.”

PARATRANSIT FUNDING

MTU operates the Mobility Plus program using a mix of federal, state, local, and directly generated funding sources as follows:

- Federal Section 5311 funds: 28%
- State of Wisconsin Section 85.20 funds: 32%
- Local tax funding: 20%
- Farebox revenues: 20%

The La Crosse urbanized area falls well below the 200,000-resident threshold, over which transit agencies are not permitted to use federal transit funds to offset operating expenses; therefore, the use of MTU’s federal allocation is determined solely by the transit agency and the local MPO. Though the MTU uses federal transit operating funds, Carlson and Kreuger are “not sure” if flexible federal transportation funds, made available by ISTEA and continued by TEA-21, have enhanced MTU’s ability to secure federal assistance.
OPERATING STATISTICS AND PERFORMANCE TRENDS

Unfortunately, good NTD information regarding MTU’s paratransit service is only available between FY 1996 and the present, despite staged implementation beginning during FY 1992. In terms of annual unlinked passenger trips, MTU’s paratransit service is growing in the years following the passage of the ADA. Beginning in FY 1996, paratransit ridership grows from 25,864 to 52,542 during FY 2001. This represents an increase of about 103% over the six-year period, well above the national paratransit growth of about 13% over the same period. This trend reflects the later start MTU had in fully implementing ADA paratransit service, and the resulting system growth; indeed, the largest one-year jump in ridership is between FY 1996 and 1997, occurring as the system reached full compliance with the ADA complementary paratransit requirement. Carlson and Kreuger caution, however, that ADA-eligible trips are actually “decreasing” of late, as “people are becoming more comfortable with the fixed route service and also the list of [ADA paratransit-eligible] people is aging and decreasing due to attrition.” Meanwhile, MTU is “experiencing a rapid growth in the La Crosse County Human Services (non-ADA) portion of the paratransit program.”

Total annual operating costs, expressed in 2001 dollars, increase sharply over the period between FY 1996 and 2001 – from almost $292,000 in FY 1996 to a little over $539,000 in FY 2001, representing total growth of about 85%. Operating costs per passenger trip, however, generally decrease in terms of real dollars over the same period – from almost $11.30 during FY 1996 to about $10.25 during FY 2001, a total decline of about 8%. Although the agency spends a larger total amount of operating funds on paratransit each year – seemingly based on the recent growth in the non-ADA portion of their paratransit service offering – they have performed well in terms of keeping their per-trip operating costs in check. During FY 2001, MTU’s per-trip paratransit operating costs were well below the national average.

MTU has no paratransit capital costs listed in the National Transit Database for the entire period between FY 1992 and 2001.

Over the six-year period between FY 1996 and 2001, the productivity of MTU’s paratransit services (as measured by both passengers per revenue mile and passengers per revenue hour) exhibits a very slight decrease. Though both revenue hours and revenue miles of service rapidly increase on an annual basis, particularly in later years, productivity only decreases by about 6% in terms of passengers per revenue mile (from .179 to .168), and by about 7% in terms of passengers per revenue hour (from 2.54 to 2.37). This seems to suggest that, as MTU substitutes some ADA trips for an increasing amount of non-ADA trips, these trips are being added appropriately so as to generally maintain the efficiency of the system. It would also seem to be indicative of the extra flexibility MTU has in providing non-ADA paratransit services as compared to ADA complementary paratransit; trips scheduled through La Crosse County Human Services are likely not subject to same stringent standards, with respect to service area, response time, and capacity constraints, as are ADA complementary paratransit trips.

ADA PARATRANSIT CHALLENGES

According to Carlson and Kreuger, MTU faces two primary challenges in operating its paratransit services. The first is securing adequate funding with which to operate the services. Current operating conditions, however, suggest that the ADA paratransit requirement is not directly responsible for this challenge. Though MTU exhibits a relatively low, and steady, per-
trip paratransit operating cost, the number of ADA-related trips provided by MTU is declining. This suggests that the current level of growth in the non-ADA portion of the Mobility Plus program may be placing a strain on available operating funds. If program growth cannot be curtailed, or additional funding secured, the scarcity of total funding may lead to trip denials for both ADA-eligible and human service agency clients. At the very least, ADA-eligible trips will need to be given priority over agency trips to ensure an acceptable level of service. If MTU is to continue to manage its Mobility Plus program effectively, it will need to find a method for limiting the La Crosse County Human Services trips, generate additional revenue for these agency trips, secure a greater overall level of paratransit funding, discover new potential for operating efficiency within its system, or some combination of these.

The second challenge is largely a matter of program administration: “the ability to keep the Paratransit Certified List client addresses current and getting information regarding deceased clients.” Though it is primarily administrative in nature, this challenge can potentially carry implications for program operation as well. Inaccurate address information may bring about inefficient use of resources and a decline in the quality of MTU’s paratransit service. For example, if a paratransit driver travels to a client’s former address, rather than to their current address, four negative effects are realized. First, the vehicle has traveled out of its way and in the wrong direction, which amounts to dead vehicles miles and hours for which no fare revenue is collected. Second, any passengers already on board the vehicle are delayed in reaching their destination as the driver and dispatcher investigate the situation. Next, the original client is left stranded at their actual address, which delays that client in reaching their destination. Last, resources must be quickly mobilized in order to provide the promised level of service to that original client, affording the transit agency very little lead time with which to provide the trip in the most efficient manner possible.

Carlson and Kreuger estimate that the complementary paratransit provisions of the ADA have had an effect on MTU’s planning process for new and/or expanded fixed route services. They explain, “two of the least three service expansions elected route deviation bus service so that ADA complementary paratransit service was not required.” This is similar to the strategy employed by both the Palo Verde Valley Transit Agency and Lane Transit District. MTU, however, has not reduced its level of service, raised fixed route fares, or eliminated administrative staff positions as a direct result of their compliance with the provisions of the ADA.

ADA PARATRANSIT SOLUTIONS

MTU uses several noteworthy methods to effectively manage the cost and productivity of its paratransit program. As discussed in the preceding section of this case study, the agency has developed two deviated fixed or flexible route services in response to regional needs for transit service expansion. These services will diverge from the published route and schedule “within the service area” to pick up or drop off passengers, including those with disabilities. Route deviation eliminates the need for a separate, complementary service by combining the personalized nature of paratransit service with the efficiency, cost-effectiveness, regularity, and predictability of fixed route service.

Like some of the other agencies examined in this research, such as the City of Modesto and Tri Delta Transit, the MTU has introduced a series of “ride tickets to reduce the handling of cash by drivers and passengers.” As mentioned earlier in this research, non-cash fare payment media
can be useful in speeding up vehicle boarding time, reducing vehicle dwell time, and contributing to shorter trip times and increased productivity. The amount of the discount, however, must be carefully considered so as to build interest and utilization while minimizing negative effects to the revenue stream and farebox recovery ratios.

Though the MTU does not offer a formalized, ongoing fixed route travel training program, Carlson and Kreuger explain that the “ADA Coordinator meets [on a one-on-one basis] with agencies and individuals that want to participate in travel training.” Such training is not mandated by the MTU as part of their ADA paratransit eligibility process, but nevertheless might help to explain the growing level of comfort with the MTU fixed route system, as perceived by Carlson and Kreuger. Moreover, as local human service agency personnel are trained in the use of the MTU fixed route system, each human service agency can become a sort of satellite travel training center that can be used to educate future agency clients and actually reduce MTU’s level of effort in conducting travel training over the long term, with little or no extra cost involved to the transit agency. In essence, MTU becomes the master trainer of a large local pool of front-line travel trainers. This can only work, however, if MTU’s training is comprehensive and tailored to needs of each individual agency.

MTU enjoys a strong working relationship with the La Crosse County Human Services Agency. As mentioned earlier in this case study, agency clients are able to utilize MTU’s paratransit service irrespective of ADA eligibility, and the county agency is designated to both certify ADA applications and to determine non-ADA client and trip eligibility. Further, as MTU purchases its paratransit service from a private contractor, the two agencies work together to issue a “coordinated RFP for services,” thereby dividing the administrative responsibilities involved in drafting the document and evaluating the responses of prospective contractors. Both agencies seek further coordination with respect to paratransit services in the La Crosse area. Toward this end, they are “working to coordinate with the La Crosse County Aging Unit” for future services, presumably paratransit service for senior citizens.

**Riverside Transit Agency**

**AGENCY INFORMATION**

The Riverside Transit Agency (RTA) was founded in 1975. Based in Riverside, CA, the RTA serves a mix of “urban, small urban, and rural” areas, including the communities of Banning, Beaumont, Calimesa, Canyon Lake, Corona, Hemet, Lake Elsinore, Moreno Valley, Murrieta, Norco, Perris, Riverside, San Jacinto, Sun City, and Temecula. RTA also provides fixed route, ADA paratransit, and express service to the communities of Loma Linda, Yucaipa, Grand Terrace, and Montclair in neighboring San Bernardino County, and the City of Orange in neighboring Orange County. Accordingly, the fixed route service area spans three counties and the paratransit service area includes two. The RTA service area stretches an astounding 2,500 square miles and, according to the 2000 U.S. Census, is home to 1,143,163 people – a population density of about 460 persons per square mile. The service area population has increased rapidly in recent years, with “a 32% increase in population during the last decade.” Moreover, this population is “projected to double within 20 years.” According to the RTA 2002-03 Annual Report, the agency provides transit service to “the second largest service area in the nation to be served by one transit agency.”

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When asked about any remarkable geographic, climatic, or topographic barriers to efficient operation of ADA paratransit service, RTA Operations Manager, Judylynn Gries offers many. She first cites the diversity of the service area, which is characterized by rural areas with “gravel, single-lane, [and] unpaved roads” as well as metropolitan areas with often-congested “surface streets and freeways [that are] subject to gridlock.” Moreover, there are “climatic extremes” that include summer “temperatures into the low-100s,” “seasonal high winds [of] 50-90mph gusts,” periodic “dust storms,” and “heavy [morning] fog.”

RTA must contend with a climate similar to that seen within the Tri Delta Transit service area; the extreme heat, fog, and dust could have significant impacts on the frequency of vehicle breakdowns and accidents, not only for paratransit services but also for all services. The presence of both unimproved roads and congested freeways within the RTA service area could hinder paratransit service efficiency, productivity, and service quality. Given the labor- and vehicle-intensive nature of demand response service, the provision of ADA complementary paratransit over such a vast service area could further contribute to lower productivity and higher costs.

During FY 2001, RTA provided a total of 6,827,549 unlinked passenger trips through a mix of “fixed route (including local circulators and shuttles), local and intercity ADA complementary paratransit, [and] general [public] and senior citizen dial-a-ride.” RTA furnished this service by using 146 vehicles (97 fixed route and 49 paratransit) in maximum service. Though the number of RTA vehicles in maximum service significantly exceeds the APTA standard for a small operator, the agency is being included in this research for two reasons: given the number of vehicles operated in maximum service as balanced against the size and population density of the service area, RTA is somewhat similar to other “small operators”; further, at the passage of the ADA, and through FY 1997, RTA was considered a small operator. Thus, it follows that an examination of the agency’s operating conditions might uncover some unique challenges faced by smaller transit agencies that are rapidly growing into larger ones.

RTA’s fleet consists of a mix of fixed route transit buses, minivans, and includes by extension “a user-side subsidy taxi program to augment ADA and senior/disabled paratransit”; this taxi program involves a customer co-pay to the taxi company, with the RTA making up the remainder of the transportation cost. The organization is a sort of hybrid organized by both function and geographic region. It includes for “Marketing […] Planning, Information Technology, Finance […] Purchasing and Materials Management […] Operations, and Human Resources.” RTA also has two vehicle maintenance divisions, one in Riverside and one in Hemet.

**ADA PARATRANSIT IMPLEMENTATION**

Before the passage of the ADA, RTA had several years of experience in demand response operations, and implemented ADA complementary paratransit quickly. According to Gries, “RTA provided local general public, senior, and disabled dial-a-ride in most communities prior to implementation of ADA service.” The FTA approved RTA’s initial ADA paratransit plan in “January 1992.” According to Gries, upon the passage of the ADA “significant portions of the fixed route intercity services were not […] covered under the ADA ¾ mile rule.” To bring RTA’s intercity service into full ADA compliance, paratransit “coverage was phased in over a two-year period.” This implementation period was marked by extensive “coordination and collaboration with other regional transit operators.” No undue financial burden waiver or implementation extensions were requested from the FTA.
PARATRANSIT SERVICE CHARACTERISTICS

RTA currently offers “curb-to-curb” paratransit to ADA-eligible customers, senior citizens, and the general public. Gries explains, “intercity paratransit services are available to ADA-certified passengers only, [and] ADA passengers receive priority on local dial-a-ride services.” Further, “several cities and rural communities receive service beyond the ¾-mile parameter,” and “extended hours of ADA complementary paratransit are provided.” For local dial-a-ride service, RTA sets its fare at $2, which is twice the comparable fixed route fare of $1.

Groups eligible to use RTA paratransit services follow different eligibility and registration procedures. According to Gries, seniors follow “no formal registration process.” They must provide “verbal verification of age [...] during the initial step of inputting individuals’ information into the ridership scheduling database.” From there, seniors need only show the provided identification card or other proof of age when boarding a dial-a-ride vehicle. General public riders must only give basic identifying information the first time they request a trip, and need not present any identification when boarding a paratransit vehicle. Non-ADA persons with disabilities must complete an application, which “requires a medical practitioner’s certification”, and when boarding a dial-a-ride vehicle must present the provided identification card or some other proof of their disability.

ADA-eligible persons follow a much different process. No paper application is required, but, according to Gries, prospective riders must “undergo an oral interview and functional testing through our contracted medical certification team (Orthopedic Hospital of Los Angeles).” This team travels throughout the service area on a rotating basis to conduct assessments, and “in-home certification is available if required.” In contracting with medical professionals to perform the functional testing process, RTA minimizes their own required level of effort in determining eligibility and infuses their eligibility determination process with a very high level of expertise; on the other hand, they also give up some measure of control over the eligibility process. Therefore, contractor integrity is critical. Moreover, this contracted service requires the investment of scarce operating funds; accordingly, such an arrangement must exhibit a favorable cost-benefit ratio when compared to the evaluation of clients in-house.

Once eligibility is determined by any of these varied methods, a standard trip reservation process is used. A customer can call from “one to seven days in advance” to schedule a trip reservation. Reservations are accepted “from 7am to 6pm, Monday through Friday,” and “from 8am to 5pm, Saturday and Sunday.” According to Gries, same day service is “available, space permitting.” Trip reservations must be cancelled at least “2 hours prior to travel time,” or the customer is charged with a no-show. Gries explains, “three such events occurring within a rolling thirty-day period triggers a warning letter to the passenger.” Further, “a second warning is issued on the fourth event, and upon the fifth event, service is suspended for seven days.” Customers so sanctioned “may opt to pay a $5.00 fine that will cause reinstatement of the service within the suspension period.” Though this policy certainly seems to give customers the benefit of the doubt, only the most negligent riders are likely to accrue five no shows within a thirty-day period. Thus, the policy doesn’t really seem to do much to encourage responsible trip scheduling and cancellation. Moreover, the level of the fine does not begin cover the cost of five missed trips to the transit agency. RTA might be able to improve the efficiency and productivity of its paratransit system through a revision of its cancellation policies.
PARATRANSIT OPERATING ARRANGEMENTS

According to Gries, all paratransit services “are contracted, with the following caveat: reservation and scheduling services are operated by RTA, but these functions will be turned over to a contract operator in May 2004.” She further explains, “19% of paratransit trips are completed by user-side subsidy taxi.” This particular service, however, excludes general public riders. As a rationale for the outsourcing of paratransit services, Gries cites “operating and administration cost savings,” as well as “loss control benefits.”

PARATRANSIT FUNDING

RTA operates its paratransit service using a mix of federal, state, local, and directly generated funding sources. Currently, the service is funded as follows:

- State of California TDA/LTF (¼-cent sales tax): 75%
- Federal Section 5307 funds: 18%
- Farebox revenues: 4%
- Federal Section 5311 funds: 2%
- Other operating revenues: 1%

The diversity of RTA’s service area is reflected in its wide range of funding sources. Given both the densely populated urban and sparsely populated rural portions of the service area, the agency is eligible to receive both Section 5307 and 5311 funds. Although RTA uses a significant allocation of federal transit funding to help operate its paratransit services, when asked about flexible funding as initiated by ISTEA and continued under TEA-21, Gries replies, “we have not been a recipient of these funds.”

OPERATING STATISTICS AND PERFORMANCE TRENDS

In terms of annual unlinked passenger trips, RTA’s paratransit service is growing dramatically in the years following the enactment of the ADA. Beginning in FY 1992, paratransit ridership rises from 126,900, to 225,573 during FY 2001. This represents an increase of about 78% over the nine-year period. Moreover, according to Gries, the ADA component of this ridership is significant, and increasing rapidly in recent years. Gries attributes these trends to several factors. First, RTA is marketing its paratransit service by actually “targeting [the] ADA-eligible population.” Also, RTA has undertaken “fixed route intercity expansion, [which leads to] corresponding implementation of complementary paratransit for those routes.” Finally, RTA is granting ADA certification to many of its former dial-a-ride clients who “were being bumped in favor of ADA priority passengers.”

Total annual operating costs, expressed in 2001 dollars, increase quite sharply over the period between FY 1992 and 2001 – from a little over $670,000 in FY 1992 to about $3.48 million in FY 2001, a total increase of about 310%. Likewise, operating costs per passenger trip, also in terms of real dollars, rise greatly over the same period – from almost $7 during FY 1992 (actually quite low for demand response service) to almost $15.50 during FY 2001, a total increase of about 131%. RTA’s FY 2001 per-trip operating cost is slightly below the national average. Still, the rapid increases suggest that RTA is experiencing difficulty controlling costs.
RTA’s paratransit capital costs vary widely, in terms of 2001 dollars, over the period from FY 1992 to 2001, ranging from $220,908 during FY 1994, to $1,941,010 during FY 2001, to no capital expenses during several years. The overwhelming majority of these expenses are related to rolling stock, with a much smaller amount dedicated to facilities and other capital infrastructure. This suggests not only typical vehicle replacement over the period, but also the significant paratransit fleet growth RTA has undertaken since implementing its ADA paratransit.

Over the ten-year period between FY 1992 and 2001, RTA’s revenue miles of paratransit service increase sharply, from almost 441,000 during FY 1992 to a little over 1.6 million during FY 2001 – total growth of about 367%. Gries attributes this trend not only to the “increase in ADA passenger trips,” but also to the “commencement of ADA intercity service, which constitutes nearly 60% of all paratransit service currently.” She further explains, “intercity trips may run 12-55 miles, compared to less than 3 miles for local dial-a-ride trips.”

Likewise, revenue hours of service also increase sharply, from just over 28,000 in FY 1992 to almost 102,000 during FY 2001 – a smaller rise of about 260%. Gries cites not only the overall “increase in ADA priority travel”, but also the increase in intercity ADA services, which “average 63-72 minutes compared to 10-25 minutes for local trips.” She further points to a “17% increase in the number of ADA passengers with wheelchairs, scooters, or other mobility devices” over the past two years, which “reduce the number of available seats on the paratransit vehicle and generally require additional travel time.” That the number of revenue miles of service is growing much more rapidly than the number of revenue hours of service, however, implies that the average speed of RTA’s paratransit vehicles in revenue service is increasing significantly. This phenomenon would be consistent with the rapid increase of ADA intercity service, where vehicles can travel at highway speed between points of origin and destination.

Although RTA’s paratransit ridership it growing, this growth is not nearly as significant as that seen in revenue hours and miles of service. Accordingly, the agency’s paratransit productivity decreases by about 52% in terms of passengers per revenue mile (from .288 to .139), and by about 51% in terms of passengers per revenue hour (from 4.48 to 2.21). This trend really highlights the struggles RTA faces in its growth from a smaller system to a larger one in the years following the implementation of its ADA complementary paratransit services. In RTA’s case, rapid growth in service area population and the level of transit service provided, as well as the size of the service area, clearly preclude a more measured approach to paratransit implementation, and contribute to declining productivity.

ADA PARATRANSIT CHALLENGES

According to Gries, RTA faces several primary challenges in delivering ADA complementary paratransit service. The first is geography. As noted earlier in this assessment, RTA operates within one of the largest service areas in the nation in terms of land area. Gries further explains, “population bases are also separated geographically, with relatively long distances between
origin[s] and destinations that make it difficult for transit service effectiveness.” Moreover, “a significant portion of RTA’s base operation is in providing lifeline service to and between these outlying rural areas.” As the agency provides for increasing intercity mobility needs with fixed routes, it faces larger ADA complementary paratransit requirements and challenges. In this regard, despite the enormous difference in operating environments between the RTA and the Palo Verde Valley Transit Agency, the two agencies seem to face similar emerging challenges.

Gries also cites “cost containment,” relative to revenue generation, as another challenge. She explains, “due to the regulatory constraints on the ADA fare structure, RTA is able to achieve less than 4% farebox recovery on its paratransit operations.” As the State of California imposes minimum farebox recovery requirements on transit properties, “this jeopardizes the system’s eligibility for state operating dollars.” Losing state paratransit operating funds would further compound the difficulties RTA is currently experiencing. Gries further points out that paratransit accounts “for 3.1% of total system ridership”, but “16.2% of the total annual operating budget.”

Finally, Gries cites “capacity constraints on the system.” RTA has for a number of years provided for not only the needs of ADA-eligible clients, but for those of other persons with disabilities, seniors, and the general public using its paratransit system. Lately, however, “travel opportunities for general public, senior, and non-ADA disabled passengers have been dramatically reduced.” To continue providing for the travel needs of these other groups, RTA is implementing more “local circulators and shuttles.” Nevertheless, the agency’s decision to extend service to other deserving groups of passengers outside of the provisions of the ADA, while certainly well intentioned, seems to be more and more problematic as the agency continues to grow.

When asked about any changes to fixed route planning principles as a result of the ADA paratransit requirement, Gries explains, “while not changing the service planning methodology, the impact of ADA complementary paratransit has definitely taken a more prominent position in the overall system planning process.” She offers RTA’s decision to implement more shuttles and circulators as just one example. Further, she explains, “some of our newer […] interjurisdictional services operate as normal fixed route service and then transition to commuter express service when crossing over service areas.” Though commuter services do not require ADA complementary paratransit, and thus can help in keeping demand response investment down, Gries says this “was not a primary consideration in the development of such hybrid services.”

When questioned as to the effect of the ADA requirements on the operation, fares, and administrative staff of fixed route and other services, Gries replies, “we have not reduced fixed route or paratransit services”. RTA does not seem to have raised fares as a result of the complementary paratransit requirements either. With regard to staff, though, Gries explains “the paratransit administrative staff was folded into fixed route operations, thereby eliminating a dedicated paratransit director and several subordinate administrative and operations staff.” While this administrative restructuring almost certainly helps to conserve scarce financial and human resources, it may also leave RTA’s paratransit operation without the dedicated means to reorganize and improve efficiency and productivity of services at a time when these actions are needed most.
ADA PARATRANSIT SOLUTIONS

Due to the increasing costs and declining productivity of RTA’s paratransit service, the agency is taking several steps to make the system more efficient and effective.

RTA works with three local taxi companies to provide a portion of its paratransit service to ADA-eligible ridership, persons with disabilities who are not ADA-eligible, and senior citizens. Though RTA’s paratransit operating costs have climbed dramatically, Gries explains that these agreements for purchased taxi transportation services help to keep total operating costs in check and allow RTA to continue to provide paratransit service to groups falling outside of the ADA mandate. This cost containment involves several elements. First, a paratransit trip using a taxi costs RTA about 50% less than a comparable trip operated by RTA’s contractor using their own transit vehicle. This is because paratransit vehicles are generally “less fuel efficient and more expensive to maintain and insure” than passenger sedans; because RTA has negotiated low per-trip rates with the taxi companies, who are willing to reduce their prices in exchange for higher trip volumes and the prospect of earning additional revenue during idle periods; and because several taxi companies compete with one another to provide services to the RTA, which helps to keep per-trip prices down.416

Moreover, RTA typically uses taxis to provide “very, very long trips to sparsely populated areas”, effectively reserving its van fleet for “trips in local areas with greater passenger density” and trips which require the use of a wheelchair-accessible vehicle. Typically, therefore, the most vehicle- and labor-intensive – and least productive in terms of cost recovery – trips are shifted to the more economical taxi option. Finally, the local transportation commission acts as an ADA paratransit “broker”, making decisions as to whether to assign each trip directly to the RTA’s contractor or to a taxi contractor.411 This lessens the direct administrative involvement of RTA operations staff, and therefore reduces operating costs, but at the expense of direct control over the system.

Though brokering services to taxi companies seems to have enabled RTA to keep paratransit operating costs in check, the arrangement is not without its challenges. RTA must be able to ensure that trips subcontracted to taxi companies meet the strict legal and regulatory requirements of the ADA, particularly with regard to scheduling on relatively short notice, the limited window for negotiating pick-up times, and the need for reasonable travel times. They accomplish this by including ever more strict and precise standards in their operating agreements with each taxi company, and by including consequences for non-performance within each agreement. In order for a private taxi company to continue to do business with the RTA, the company must clearly demonstrate that it is meeting its contractual obligations.412

Moreover, in some service areas where taxis provide ADA paratransit services, there can be concerns of fraud and of customers being “shaken down” for additional fare revenue, which is directly pocketed by the driver. These concerns have not materialized through RTA’s financial auditing and customer complaint processes, however, like most of the other transit properties studied as part of this research. RTA uses Trapeze® paratransit scheduling software to help reconcile expected and actual operating revenue so as to identify potential occurrences of fraud. RTA continues to examine other methods by which they can improve their financial auditing practices.413
Risk management can also be a challenge; if an accident should happen to injure an RTA customer, the transit agency will ultimately be held accountable regardless of the entity providing the trip. It is important, therefore, for both the transit agency and its contractors to modify their insurance policies to provide for these contingencies, and it becomes critical for RTA to include safety-related provisions in its operating agreements with each contractor.

Finally, private taxi companies are not immune to the rising costs of fuel and labor. Though Gries expects the cost of providing paratransit trips using taxi services to rise accordingly, she still feels this arrangement will be cost-favorable when compared to trips operated using a paratransit van. In fact, based on the success of RTA’s taxi demonstration program, the agency plans to shift up to 25% of its existing paratransit van service to private taxi companies. Two more taxi companies will be added to RTA’s list of contractors, which will not only increase competition and help to keep costs down, but will also allow the agency to subcontract paratransit trips over a larger geographic area.

RTA does not limit its practice of brokering paratransit trips solely to private taxi companies. The transit agency also works closely with nonprofit agencies in the service area that operate their own fleet of accessible vehicles. Under certain circumstances, RTA will barter trips with these agencies, taking on non-RTA trips and giving ADA and senior trips to other agencies as appropriate. This works to the mutual benefit of both parties, allowing both RTA and the human service agency to fill their vehicle downtime during non-peak periods, and build passenger density to as to increase the efficiency, effectiveness, and quality of the service. Moreover, many of these human service agencies bring an existing body of knowledge and experience regarding the special needs of persons with disabilities into the arrangement, which allows RTA to loosen their level of oversight to some degree. The transit agency, however, as with private taxi companies, must still actively ensure that the strict legal and regulatory requirements of the ADA are being fulfilled.

With respect to driver/dispatcher communications, RTA has added more dedicated paratransit radio channels. This is due to the “high volume of air traffic required for ADA service.” Gries explains that this action has the effect of reducing “driver [and] dispatcher air standby time.” A greater number of available radio channels can allow cancellations and route and schedule changes to be communicated in a timely manner, thus contributing somewhat to improved system efficiency. Moreover, dedicated radio channels can allow paratransit communication to take place absent outside interference, though this arrangement may hinder connections between paratransit and fixed route services if a means of communication does not exist between the two systems. Gries further notes that RTA “has been unable to commit resources for advanced communications”, such as an AVL system or MDTs within paratransit vehicles, “that would assist in the process of improving real-time efficiencies.”

In the area of personnel and training, Gries explains, “the contractors have expanded driver and dispatch training specific to ADA rights and passenger assistance, mobility device securement, sensitivity, etc.” This has the effect of improving service quality and customer relations. Further, a transit agency would be well advised to concentrate on this type of training for all drivers, both fixed route and paratransit, so as to increase the user-friendliness of the fixed route system and help to transform paratransit a true complementary service.

Based on the difficulties RTA is experiencing in paratransit farebox recovery, the agency “is preparing for a fare structure study to determine what, if any, changes in fixed route and
paratransit fares are required.” The results of this study might possibly include a fixed route fare increase, designed to bring about not only increased fixed route revenue, but also a corresponding increase in paratransit fares. Clearly, such an effort can be effective, but must be undertaken with due care so as not to erode fixed route ridership.

RTA aggressively ensures the wheelchair-accessibility of its fixed route bus stops. According to Gries, “all new stop design and placement must meet full ADA [requirements], including pass-through accessibility for persons using mobility devices.” This requires a high degree of coordination, as well as financial negotiation, with other local agencies. Gries explains, “RTA continues to work diligently with the various cities and county roads and public works departments to make its 3,687 existing stops accessible.” If they are successful in this effort, and can couple that success with a corresponding restriction of trip-by-trip eligibility determination for ADA complementary paratransit services, RTA should be able to encourage increased fixed route utilization by persons with disabilities and effect a shift away from paratransit services.

As mentioned earlier in this case study, RTA does give serious consideration to ADA complementary paratransit requirements when planning fixed route services. According to Gries:

the agency has implemented several local fixed route circulators and shuttles targeting communities with high concentrations of senior citizens and persons with disabilities, providing convenient and responsive alternatives to the more expensive ADA paratransit services.

Using direct consultation with the local disabled community, RTA successfully restructured one particular fixed route, “thereby affording [persons with mobility impairments] direct line access to a local community center.” There is an important lesson for all transit agencies in this action: by asking the local ADA-eligible population for input in designing services, the agency may find that the local disabled community does in fact not prefer paratransit, and the access needs of all people, irrespective of disability, may be well served by a better fixed route design.

RTA develops and maintains strong partnerships with other local agencies. This is evident not only from RTA’s efforts to make fixed route bus stops accessible, as well as its practice of brokering trips, but also through other projects. RTA has established “memorandums of understanding” (MOUs) that allow the agency to cross political boundaries in order to provide both fixed route and paratransit services. Such agreements are encouraged, but not required, by the text of the ADA and succeeding regulations. “Fare transfer policies” are also in place to ensure connectivity between regional systems, thus facilitating trips where the customer finds it necessary to use RTA and another transit system. Moreover, as ADA ridership constitutes a ever-larger proportion of overall paratransit ridership, the agency

is looking to expand coordination, and/or implement consolidation activities, with nonprofit and other regional transportation providers to ensure non-ADA […] travel opportunities continue to exist for seniors and other transit dependent individuals in the region.
Given RTA’s increasing difficulty in providing these trips in a cost-effective manner, such coordination will be absolutely essential if the current level of mobility is to be maintained within and around Riverside County.

As previously mentioned in this case study, RTA recently folded its paratransit operations in with its fixed route operations. This has actually had a beneficial effect, according to Gries, as previous “efforts to integrate paratransit and fixed route services were at times hampered due to [...] segregation of service modes.” Consequently, the consolidated operations department has been able to “focus on the broader community goal of offering safe and efficient services to our community.”

THE FUTURE OF ADA COMPLEMENTARY PARATRANSIT

In addition to the upcoming study of fixed route and paratransit fares, RTA is considering the strict reduction of ADA complementary paratransit service “to the ¾-mile corridor parameter.” Though this might increase the efficiency and cost-effectiveness of RTA’s paratransit service, it would do so at the expense of service to other transit-dependent groups. Therefore, it is imperative that RTA develops some other strategy, involving a high level of public involvement and coordination with other local agencies, to provide for these mobility needs.

With respect to needed changes in current laws and regulations, Gries first calls for “federal operating assistance for ADA complementary paratransit services.” She explains, “paratransit operating funds are still not available” for properties in larger urbanized areas “12 years following the implementation of the federal mandate.” Increased federal funding “would help constrain the financial burden resulting from this unfunded federal mandate and permit public transit to grow.”

This statement would imply one of two things: that RTA is unaware of the federal legal and regulatory provisions which allow transit properties in larger urbanized areas to use up to ten percent of their federal formula allocation toward the operation of ADA complementary paratransit services, or that the local MPO has not permitted RTA to take this action, leaving the agency short of its required level of operating funds.

Gries also recognizes a need for “change in the state [of California] farebox recovery requirements, which “do not recognize the magnitude of this cost disparity [in paratransit],” thereby forcing “transit operators to reduce service and/or increase fares on both fixed route and complementary paratransit” to be able to meet these requirements. By extension, Gries also seems to be questioning the appropriateness and practicality of the legal and regulatory cap on complementary paratransit fares.

OTHER CONCERNS

Gries attributes some of the problems RTA is facing in the provision of ADA complementary paratransit service to their “original 1992 ADA Implementation Plan design,” which maintained a high level of service to non-ADA eligible passengers and included generous extensions of complementary paratransit corridors and hours. In light of the tremendous growth of both service area population and ADA paratransit registrations, coupled with this generosity, RTA has not been able to slowly grow its system and add service where appropriate. Rather, they are faced with the prospect of taking valuable service away from deserving groups who have had access to it for over twelve years.
Central Oklahoma Transportation and Parking Authority

AGENCY INFORMATION

The Central Oklahoma Transportation and Parking Authority (COTPA), more commonly known as “Metro Transit,” was founded in 1966. Based in Oklahoma City, Metro Transit serves a generally “urban” community, including “Oklahoma City and the surrounding metropolitan area.” This includes Norman in neighboring Cleveland County. The service area spans 1,265 square miles and, according to the 2000 U.S. Census, is home to 803,078 people – which yields a population density of almost 635 persons per square mile. The service area population is generally decreasing.

When asked about any geographic, climatic, or topographic barriers to the efficient operation of ADA paratransit services, COTPA Assistant Administrator, Rick Cain, offers none that are remarkable.

During FY 2000 (good data was not readily available for FY 2001), Metro Transit provided a total of 4,485,152 unlinked passenger trips through a mix of fixed route bus and paratransit service.” The transit agency furnished this level of service by using 99 vehicles (60 fixed route and 39 paratransit) in maximum service. Metro Transit’s fleet consists of a mix of fixed route transit buses, “rubber tire trolleys,” and “paratransit vans.” The organization is arranged by functional area, including departments for “Administration, Planning, Maintenance, and Operations.”

ADA PARATRANSIT IMPLEMENTATION

Metro Transit had very little experience providing demand response services prior to the passage of the ADA and succeeding regulations, yet implemented its complementary paratransit service quickly. According to Cain, “just prior to ADA, COTPA operated a small [demand response] fleet providing service to citizens of […] Oklahoma City.” The FTA approved COTPA’s initial ADA paratransit plan in 1992. The service itself was also implemented in 1992.

During the implementation process, Metro Transit did not request any undue financial burden waiver or implementation extension from the FTA.

PARATRANSIT SERVICE CHARACTERISTICS

Metro Transit currently offers “curb-to-curb” paratransit, commonly referred to as MetroLift, to its ADA-eligible customers. The agency also administers a variety of programs that provide for demand response service to senior citizens, as well as a taxi service for senior citizens and non-ADA eligible persons with disabilities. A separate program referred to as MetroLink provides paratransit service for members of the general public; this is available “when and where the fixed route service is not.” Metro Transit’s ADA paratransit service is offered according to a graduated fare structure, with a one-zone ride offered for a fare of $2.50 and a two-zone ride offered at $5.00. These are exactly twice Metro Transit’s fixed route fares of $1.25 and $2.50, respectively.

All paratransit service for seniors and persons with disabilities, excluding general public service as offered by MetroLink, uses the same application form and procedures for eligibility determination. To secure eligibility, a customer first completes an application and submits it to Metro Transit. The transit agency then, in turn, submits the application to a doctor for review
and certification. Once eligibility is determined, a customer must call at least one day in advance, “before 5pm” to schedule a trip reservation. According to Cain, “service will be considered on a same day basis pending space available.” Trip reservations must be cancelled “at least 2 hours before the scheduled pick up time,” or the customer is charged with a no-show. A three-week suspension of service can be imposed for more than three no-shows in any two-month period. As with many of the other transit agencies studied as part of this research, it seems that Metro Transit’s no-show policy could be strengthened somewhat to curtail the late cancellation of trips and improve the efficiency of the service.

**PARATRANSIT OPERATING ARRANGEMENTS**

According to Cain, ADA paratransit service is operated directly by Metro Transit. He explains, “the labor agreement [with the transit employee union] does not allow subcontracting of any work [currently or] previously done by the Union.” Therefore, “inasmuch as the Union provided paratransit service prior to ADA legislation, the Union continues to operate the service.” This arrangement seems to be unique among demand response providers; every other transit agency studied as part of this research purchases the operation of their paratransit services from an outside company or agency, and the amount of purchased transportation costs expressed as a percentage of total demand response operating costs on a national level suggests that contracting is the predominant method of paratransit service delivery. When asked if Metro Transit would purchase paratransit services from a private contractor if the labor agreement allowed it, Cain replies, “it is likely we would consider outside service based upon labor rates and the expectation that service cost might be less expensive using a contractor.”

**PARATRANSIT FUNDING**

Metro Transit operates its paratransit service using a mix of federal, state, and local funding sources. The service is currently funded as follows:

- City of Oklahoma City: 94%
- Local funds from two communities within the service area: 1%
- Passenger Fares: 5%

Cain explains that as an urban property, “COTPA has depended upon the allowable FTA allocation of formula money”, and he estimates that the flexible funding programs initiated by ISTEA and continued under TEA-21 have contributed to the support of ADA paratransit services. He further explains that the federal allocation “helps pay for service which would otherwise be reduced due to overall limited funding for transit services.”

**OPERATING STATISTICS AND PERFORMANCE TRENDS**

In terms of annual unlinked passenger trips, Metro Transit’s paratransit seems to be generally flat to slightly shrinking in the years following the passage of the ADA. Beginning in FY 1992, paratransit ridership grows from 159,500, peaks during FY 1995 at 170,475, and settles at 153,907 during FY 2000. This represents a total decline of about 4% over the nine-year period. Cain notes, however, that the ADA portion of paratransit service exhibits a “very slight increase over the last several years” as “other options [for persons with disabilities are] not readily available.” Therefore, it seems that a decline in the other services Metro Transit offers to non-ADA eligible persons with disabilities, seniors, and the general public may be responsible for keeping overall paratransit growth in check.
Total annual operating costs, expressed in 2001 dollars, increase over the period between FY 1992 and 2000 – from almost $1.4 million in FY 1992 to just over $2.11 million in FY 2000, a total upsurge of about 58%. Cain attributes this expansion to “rising labor rates” and “slightly more hours of [ADA] service.” Likewise, operating costs per passenger trip, also in terms of real dollars, increase over the same period – from almost $9 during FY 1992 to just over $14 during FY 2000, a total upsurge of about 64%. When one looks at the year-by-year trend in Metro Transit’s per-trip operating costs, one can detect a higher rate of growth in recent years. Considering that ADA complementary paratransit trips increase over the same period, but overall paratransit trips decrease, the rise in per-trip operating costs would seem to be indicative of the higher costs and reduced efficiency involved in providing more service according to the strict legal and regulatory requirements of the ADA.

Metro Transit’s capital costs vary widely in terms of 2001 dollars over the period between FY 1992 and 2000, ranging anywhere from $64,110 (during FY 1994) to $252,015 (during FY 1993), with no capital expenses indicated during most of the years within the period. The majority of Metro Transit’s capital expenses are dedicated to the purchase of rolling stock, especially early in the period; this would seem to indicate the purchase of a substantial number of additional vehicles as a result of the ADA complementary paratransit mandate.

Over the nine-year period between FY 1992 and 2000, the productivity of the agency’s paratransit service (as measured by both passengers per revenue mile and passengers per revenue hour) rises, with some fluctuation. Over the same period, both revenue miles and revenue hours of overall paratransit service decline, but according to Cain, revenue miles and hours of ADA service exhibit a “slight increase” in recent years. Accordingly, with less overall paratransit service provided, but with a greater percentage of that service coming as a direct result of the ADA, Metro Transit’s productivity has actually increased by about 2% in terms of passengers per revenue mile, and by about 25% in terms of passengers per revenue hour. This would imply that Metro Transit has been able to increase productivity by increasing the average speed of their vehicles in revenue service.

ADA PARATRANSIT CHALLENGES

According to Cain, the primary challenge faced by Metro Transit in operating ADA paratransit service is “funding.” He explains “transit does not have a dedicated fund [and] higher priorities within the City of Oklahoma City impose funding constraints that limit the amount of service on the street.”

When asked about the effect of the ADA paratransit requirement on fixed route planning, Cain indicates that “in general […] as far as routes in Oklahoma City” there have been no significant impacts. He notes, however, that in “smaller cities in the metro area […] the overall cost for fixed route and paratransit service combined have exceeded available budgets.”

With respect to reductions in other fixed route or paratransit services, higher fares, or reductions in administrative staff, Cain explains “reductions in service and staffing, and increased fares have occurred” but he cautions that “to attribute it solely to ADA service would be unfair.”
ADA PARATRANSIT SOLUTIONS

Metro Transit employs a few techniques to more effectively manage its ADA complementary paratransit service. Like many other systems discussed in this research, the agency has “expanded use of passes to simplify the need for patrons to handle money.”

As the only agency in this study that directly operates its paratransit, Metro Transit has the potential to effect significant change in its operating condition through labor negotiations. In this respect, the agency has been able to keep labor costs in check by winning “lower labor rates for new hire van operators.” When the agency initiated new late-night and Sunday paratransit services, not previously operated by the Union, it was able to purchase this service from a “private operator” – Airport Express. Airport Express uses their own vehicles to operate this service, which likely increases the hourly contract rate, but saves the agency some capital and maintenance costs.

Again, like many of the other agencies included in this research, Metro Transit has deployed Trapeze® paratransit scheduling software to optimize routes and schedules and enhance data collection for reporting requirements. They further plan to install “mobile data terminals on paratransit vans to enhance reporting and communications.” This will allow routing and schedule changes to be dispatched to vehicle operators on the fly, thus enabling continuous adjustments throughout the service day that optimize the efficiency, productivity, and quality of Metro Transit’s paratransit service.
SUMMARY AND ANALYSIS

An examination of the history of public transit accessibility in the United States, the concerns expressed by transit managers, officials, and persons with disabilities during the development of the ADA, paratransit-related provisions as contained in the ADA and succeeding regulations, the current and historical operating conditions of paratransit agencies nationwide, the funding available for paratransit services at the federal, state, and local levels, and the practical experiences of several smaller transit agencies in providing complementary paratransit service reveals key pieces of information and trends with respect to the following:

- The process by which the accessibility of public transit service has evolved over time and culminated in the adoption of comprehensive and firm legal and regulatory standards
- Attitudes of persons with disabilities, transit officials, and transit managers with respect to accessible public transportation, specifically complementary paratransit
- Expected and actual outcomes resulting from the implementation of ADA complementary paratransit
- Methods by which transit agencies provide for the additional costs of accessibility
- Ongoing and emerging challenges faced by smaller public transit agencies in the delivery of ADA paratransit services
- The wide range of techniques employed by these agencies to meet, or at least help to minimize, these challenges

Accessible Transit as a Lengthy Process of Evolution

The right of transit accessibility, as provided for within the ADA and succeeding regulations (49 CFR 37) is the result of years of emerging transit and civil rights policy at the federal level. From the passage of the Civil Rights Act of 1964 to the adoption of the ADA in 1991, the struggle to make public transportation equally available to all persons, irrespective of physical or mental ability, is one that has played out over a period of almost thirty years.

Progress toward this right has been slow and incremental, but generally oriented in a positive direction. The Civil Rights Act of 1964 cleared the way for government protection of the rights and opportunities of disenfranchised minority groups. The Urban Mass Transportation Act of 1964 helped to reinforce this policy of inclusion as a condition of federal funding. Succeeding legislation and regulations firmly fixed the accessibility of buildings owned and operated by public transportation agencies, the involvement of persons with disabilities in the transit planning process, a link between public transit properties and other nonprofit agencies in the delivery of transportation services to persons with disabilities, further study of accessibility needs with respect to public transit, the construction of curb cuts to ensure the ease of use of fixed route transit stops, reduced fixed route transit fares for persons with disabilities, and, perhaps most importantly, a blanket policy strictly prohibiting discrimination against persons with disabilities in all aspects of all federally-funded programs.

Despite these large measures of progress, however, there remained a clear need for further improvement in securing the rights of persons with disabilities, not only with respect to transit accessibility but over all facets of life that true equality entails. Prior to the enactment of the Rehabilitation Act of 1973, legal and regulatory provisions protecting persons with disabilities were scattered throughout numerous disparate chapters of the USC, CFR, and various state laws. It became increasingly apparent that the accessibility of public transportation was closely linked
to that of employment, housing, public accommodations, and social services. With specific regard to public transit, the regulations fashioned by the United States DOT to implement the provisions of Section 504 of the Rehabilitation Act of 1973 were well-intentioned, but rather weak and flawed, and came under court challenge almost immediately. In *American Public Transportation Association v. Lewis*, the United States Court of Appeals for the District of Columbia Circuit questioned both the authority of the FTA to enforce such stringent regulations, and the high costs of compliance with these regulations borne by each transit agency.

Accordingly, the clear and comprehensive legal and regulatory provisions of the ADA and succeeding regulations were necessary for several reasons: to consolidate the advances made in accessible public transportation between the mid-1960s and the late 1980s, to bring outmoded provisions up-to-date where necessary, to correct flawed policies as contained in prior legislation and regulation, to strengthen other policies as needed so as to ensure true equality for persons with disabilities, to integrate the accessibility of public transportation with accessibility in other key aspects of life, to characterize in no uncertain terms the expectations placed upon public transit agencies with respect to accessible services, and to clearly define the statutory authority of the FTA to mandate and enforce the outcomes resulting from these expectations.

Persons with disabilities derive equality and accessibility of public transit from a struggle hard-fought and hard-won. This is evident from the testimony offered to Congress during the development of the ADA. Disabled persons have had to endure blatant discrimination; more insidious forms of prejudice manifested in the form of transit capacity constraints, trip denials, and the unavailability of lift-equipped vehicles; and unfortunate convergences of circumstance, for example, where a wheelchair lift breaks down in the middle of a rainstorm; to be able to enjoy the rights they do today. Thousands of advocates – some persons with disabilities themselves and others merely sympathetic parties – struggled by their side. But this effort does not seem to be over. Where fixed route and paratransit systems do not offer the full level of access for which they are intended, or where inefficient or underfunded services sap the resources of public transit agencies, further action needs to be taken. Such challenges and solutions are the impetus behind this research.

**Attitudes with Respect to Accessible Public Transportation**

**PERSONS WITH DISABILITIES**

The Developmental Disabilities Services and Facilities Construction Amendments of 1970 recognized transportation as a key element in the provision of all other human services. Moreover, during Congressional hearings to draft the provisions of the ADA, persons with disabilities testified to the importance of transportation in securing employment, maintaining a household, and enjoying recreation. Given the intense effort on the part of persons with disabilities and advocates to secure accessible fixed route transit and complementary paratransit as part of the ADA, as well as the ensuing increase in the utilization of accessible services, there can be little doubt that the provisions of the ADA are an advantage, providing a greater level of mobility and contributing to increased independence. Between FY 1990 and 2001, the number of unlinked demand response passenger trips grew by over 50%, with a significant, and growing, majority of those trips provided under the complementary paratransit requirement of the ADA. More importantly, trips utilizing accessible fixed route transit services are growing as well, evidenced by the trends observed by transit managers in many smaller transit agency service areas, particularly Eugene, Duluth, and La Crosse. Persons with disabilities continue to be very
active in shaping and improving the accessible services offered by their local transit agency, often participating in policy advisory committees.

**TRANSIT OFFICIALS**

APTA’s attitude toward accessible transportation can best be characterized as one supporting measured progress coupled with adequate financial and technical support from federal, state, and local governments. Based on Section 504 of the Rehabilitation Act of 1973, the FTA promulgated comprehensive regulations with respect to equal employment opportunity for persons with disabilities in the public transit industry, accessibility of transit facilities, the printing of schedules and related information in alternative formats, vehicle accessibility, required levels of accessible services, and the implementation of safety and sensitivity policies and procedures. APTA challenged these regulations in court almost immediately and secured a legal victory at the Appellate Court level.

This action could be construed as hostile towards the progression of accessible public transportation specifically, and toward persons with disabilities in general, but in discerning the group’s true position on the issue one must consider two important points.

First, APTA is the preeminent industry advocate, founded and empowered to advance policy issues important to transit agencies. By challenging the Section 504 regulations in court, APTA succeeded in raising several important matters that needed to be addressed by legislators and the FTA – chief among them the significant burden placed upon transit agencies in terms of reconfiguring their entire service offering, from facilities to vehicles to schedules, and the high costs of conformity with the regulations. The Section 504 regulations, much like the ADA and succeeding regulations, imposed strict compliance standards but did not include federal appropriations to help transit agencies meet the expectations placed upon them. Consistent with their role as an advocate, APTA would raise these arguments again – albeit without a great deal of success – in later years, even after the passage of the ADA.

Second, the APTA court challenge, though temporarily halting the momentum of the industry toward full transit accessibility, actually assisted the implementation of accessible fixed route transit and complementary paratransit as defined by the ADA in several critical ways. The ruling handed down by the Appellate Court in *American Public Transportation Association v. Lewis* forced the FTA to promulgate new regulations initiating the policy of local option. Although the accessible transit services offered under this policy were in no way comprehensive, their development did require transit agencies to build stronger relationships with their local disabled population. These close relationships continue today, as demonstrated by many of the smaller agencies studied as part of this research – most notably the Palo Verde Valley Transit Agency, the Lane Transit District, and the Riverside Transit Agency. Moreover, the paratransit services designed by many agencies under the local option policy served as the foundation for complementary paratransit under the ADA, providing these agencies with valuable experience and allowing them to implement ADA service more rapidly; again, this impact is clearly evident in many of the smaller agencies studied as part of this research. Perhaps most importantly, APTA’s court challenge forced legislators and the FTA to develop stronger standards and more strict oversight mechanisms as part the ADA, which ultimately serve to better protect the rights of persons with disabilities and provide them greater freedom of mobility.
During Congressional hearings to draft the transit-related provisions of the ADA, APTA’s position on transit accessibility and complementary paratransit was clearly stated. Dennis Louwerse, member of the APTA Elderly and Disabled Persons Task Force, implored Congress to “provide financial assistance to ensure that its mandates can be carried out.” As it was during the early 1990s, APTA continues to be at the forefront of advocacy, shaping policy, and sharing information to support transit services that are efficient, effective, and strongly supported by federal, state, and local government. This is clear from the great deal of information and advice lent by APTA staff and members of the APTA Small Operator and Accessibility Committees to this research.

**TRANSIT MANAGERS**

The attitude of the transit manager toward the accessibility requirements contained in the ADA is somewhat more difficult to characterize, varying over time and by geographic area. The unresponsiveness of transit agencies toward persons with disabilities, both real and perceived, gave rise to the comprehensive and strict nature of the Section 504 regulations as well as the ADA and succeeding regulations. Certainly some transit managers viewed these requirements and standards with skepticism. There exists ample evidence, however, of transit agencies greatly exceeding present legal and regulatory requirements even before the ADA was passed. During Congressional hearings to draft the ADA, Robert C. Lanier of Houston METRO testified proudly to his agency’s purchase of wheelchair-accessible fixed route buses and implementation of an extensive demand response system. As discovered in this research, Lane Transit District achieved a fully accessible fixed route bus fleet by the mid-1980s. Systems like these provided an ideal for those who drafted the ADA, as well as a model for the transit agencies required to implement service according to the resulting legal and regulatory provisions.

One might assume that smaller transit agency managers would take a position of some resentment toward the transit-related requirements of the ADA, based on the costs and challenges that naturally follow from these provisions. In conducting studies of eight smaller transit agencies as part of this research, however, the author found quite the opposite to be true. To a person, representatives from each of these smaller transit agencies seem to believe strongly in the importance of accessible public transportation as provided by their agency. Though some agencies clearly provide more productive paratransit services, or do so at a lower cost or with a higher level of partnership than other agencies, all approach the expectations put upon them with a strong sense of purpose, as made clear by the numerous and varied actions taken to make both their fixed route and complementary paratransit services more efficient, responsive, and of higher quality. This offers some hope that the methods by which public transit managers meet the challenges presented by the ADA complementary paratransit requirement can be further refined in the coming years, to the mutual benefit of both the agency and customer.

**Expected and Actual Outcomes of the ADA Complementary Paratransit Mandate**

During Congressional hearings to draft the ADA, transit managers, officials, and persons with disabilities predicted many potential outcomes that might arise from a complementary paratransit mandate; this research does not bear out all of these predictions.
UTILIZATION OF THE UNDUE FINANCIAL BURDEN WAIVER

The broad scope and stringent requirements included in drafts of the ADA and succeeding regulations caused concern on the part of transit managers and officials with respect to the high costs inherent in providing accessible fixed route transit and complementary paratransit service. The federal government addressed this concern by offering an undue financial burden waiver of ADA requirements. Upon demonstrating financial hardship of a nature and scope that would preclude implementation of complementary paratransit by the January 1997 deadline, transit agencies were given the option of deferring ADA complementary paratransit implementation, deploying complementary paratransit within only a portion of their service area, or implementing a makeshift form of paratransit.

One might reasonably deduce that, given concern about the high costs of paratransit service, coupled with the scarcity of available funding with which to operate these new services, many transit managers would have elected and been permitted by the FTA to take an undue financial burden waiver. But it would seem that few agencies could justify this action. None of the eight smaller agencies studied as part of this research opted to delay their implementation by taking a waiver. Moreover, the number of demand response transit agencies increased rapidly between FY 1993 and 1994 – from 3,917 to 5,214 – fully three years before the January 1997 deadline for the implementation of complementary paratransit services. In fact, between the January 1997 deadline and FY 2001, only fifteen new demand response agencies came into existence nationwide.

Several of the smaller transit agencies examined as part of this research – including Tri Delta Transit, Duluth Transit Authority, La Crosse Municipal Transit Utility, and the Riverside Transit Agency – elected to phase ADA complementary paratransit implementation in over a period of two or more years to allow themselves time to fine-tune their service offering, but did so prior to the January 1997 deadline. Trends in demand response passenger trips, vehicle miles, vehicle hours, operating costs, capital costs, fleet size, and workforce between FY 1990 and 2001 all indicate significant, but remarkably steady, expansion over the period. This is a sign that such a model of rapid initial implementation, but measured extension, of ADA complementary paratransit programs was typical nationwide.

EFFECT OF EXPERIENCE LEVEL ON SPEED OF IMPLEMENTATION

In a similar tone, during Congressional hearings to draft the ADA, transit managers and officials implied a certain lack of experience with paratransit operations that might potentially hinder effective implementation of complementary paratransit. There can be little doubt that transit agencies faced a significant learning curve in creating new paratransit services, or adapting existing ones, to the strict requirements contained in the ADA and succeeding regulations. But the concept of paratransit was not a new one to many of the agencies impacted by the ADA’s legal and regulatory requirements. A significant number of these agencies provided demand response transit service to populations in need – senior citizens, persons with disabilities, inhabitants of sparsely populated areas, and the like – well before the passage of the ADA. During FY 1990, there were 3,893 agencies nationwide offering demand response transit services; the number of new demand response transit agencies coming into existence after the passage of the ADA constituted less than half of the number of existing systems. Agencies providing paratransit prior to the passage of the ADA include all but one of the smaller transit properties (La Crosse Municipal Transit Utility) examined in this research. A longer record of
experience seems to have given these agencies a certain level of comfort, focus, and direction in developing new complementary paratransit programs, leading to rapid implementation of the service. Conversely, La Crosse Municipal Transit Utility took longer than the other agencies examined in this research to attain full compliance with the complementary paratransit mandate.

COOPERATION BETWEEN TRANSIT AND HUMAN SERVICE AGENCIES

Before the ADA was passed, transit managers and officials expressed concern that mandatory complementary paratransit would break down the cooperative relationship between transit agencies and other human service agencies offering their own means of transportation, potentially resulting in a wholesale shedding of human service agency clients onto the paratransit services of transit agencies ill-equipped to handle the influx. This outcome has not been realized to quite the extent predicted. Between FY 1990 and 2001, demand response trips, vehicle miles, vehicle hours, operating costs, capital costs, fleet size, and workforce have expanded significantly, but have done so at a steady rate; especially given the rapid implementation of ADA complementary paratransit services by most agencies, this indicates that human service agencies did, in fact, not refer their clients in excessively large numbers to local paratransit services. Moreover, every smaller transit agency studied as part of this research cites strong and continuing relationships with the other agencies in their service area as follows:

- Tri Delta Transit – establishment of regional eligibility criteria and a standard certification process with other Bay Area transit providers, absorption of a local senior transit service to improve the productivity of paratransit services, and performance of contracted maintenance work on human service agency vehicles
- Duluth Transit Authority – decentralization of disability certification to local health care professionals, participation in joint vehicle procurement with other Minnesota transit providers, and coordination with other local agencies that together operate four times as many paratransit vehicles as DTA
- Palo Verde Valley Transit Agency – joint administration of the Desert RoadTRIP program with the Partnership to Preserve Independent Living for Seniors and Persons with Disabilities, initiation of a franchise agreement with Greyhound Lines, Inc. to improve mobility and secure additional operating revenue, decentralization of disability certification to local doctors, and coordination of paratransit services with SunLine Transit
- Lane Transit District – negotiation of payment agreements with local human service agencies for paratransit trips provided, subcontracting of the operation of all paratransit services to a local nonprofit agency, offering of travel training through special education classes in area high schools, recruitment of local volunteers to operate paratransit services, and involvement of University of Oregon students in mapping paratransit trip patterns
- City of Modesto Transit – decentralization of disability certification to local human service agencies, distribution of paratransit eligibility applications in public buildings, joint development of a travel training video with the county transit office, service and schedule coordination with other regional transit providers, membership on the local human service agency transit committee, and human service agency representation on the MAX ADA Advisory Committee
- La Crosse Municipal Transit Utility – integration of complementary paratransit with La Crosse County Human Service transportation, decentralization of eligibility determination to local agencies and professionals, cooperative travel training with local human service
agencies, issuance of a coordinated RFP for paratransit services with La Crosse County Human Services, and proposed coordination with the La Crosse County Aging Unit

- Riverside Transit Agency – subcontracting of ADA and non-ADA paratransit trips to local taxi companies, coordinated implementation of complementary paratransit services with other regional transit agencies, subcontracted functional testing of ADA paratransit applicants, coordination with public works departments to ensure fixed route bus stop accessibility, drafting of memoranda of understanding which govern fare transfer policies and the crossing of political boundaries to provide services, and bartering paratransit trips with local human service agencies to the mutual benefit of both parties

- Central Oklahoma Transit and Parking Authority – decentralization of disability certification to local health care professionals.

Indeed, given the increasingly important role accessible transportation plays within the larger public transit service offering, as well as the reality of limits on resources with which to provide accessible transportation, such local and regional coordination will become even more important to further the goals of mobility and efficiency. Toward this end, the federal government has initiated a program called “United We Ride” to facilitate a higher degree of coordination between agencies and improve mobility for groups in need, including persons with disabilities. The thrust of this initiative, through increased coordination, is to:

- improve overall mobility within a community, particularly when human service agencies are each providing transportation to their own clients. It works to wring inefficiencies out of the disparate operations and service patterns that often result from a multiplicity of providers. Greater efficiency helps to stretch the limited (and often insufficient) funding and personnel resources of these agencies. Appropriately applied, coordination can lead to significant reductions in per trip operating costs for transportation providers. People in need of transportation often benefit from the greater transportation available plus higher quality services when transportation providers coordinate their operations.459

“United We Ride” brings together several federal departments – Transportation, Health and Human Services, Labor, and Education – to streamline the numerous and varied transportation programs initiated by such pieces of legislation as the Urban Mass Transportation Act of 1964, Urban Mass Transportation Assistance Act of 1970, Developmental Disabilities Services and Facilities Construction Amendments of 1970, Federal-Aid Highway Act of 1973, National Mass Transportation Assistance Act of 1974, and the ADA. This initiative employs five strategies to improve coordination, including:

- Development of a guidebook to assist transportation providers in identifying opportunities for increased coordination
- Public recognition of leading agencies that have taken significant action to advance coordination of human service transportation
- A “leadership conference” to build support for coordination among federal and state decisionmakers
- Grants to assist localities in integrating transit services with transportation provided by human service agencies
Technical assistance to facilitate coordination

**Dialysis Patients and ADA Complementary Paratransit**

Despite significant efforts on the part of complementary paratransit providers, local human service agencies, and government agencies to maintain, and even build upon, pre-ADA levels of coordination, there is still some cause for concern as to the state of balance between ADA complementary paratransit and human service transportation. As illustrated by the experiences of City of Modesto Transit, coordination seems to be breaking down with respect to dialysis patients, who are being dumped into the MAX paratransit system in ever-increasing numbers.

Because their disability limits one or more major life activities, dialysis patients are certainly eligible to utilize ADA complementary paratransit. Although City of Modesto Transit grapples with the increasingly far-flung locations of dialysis clinics, a rapid increase in the number of dialysis passengers, and difficulty in effectively scheduling group paratransit trips, the delivery of dialysis patients to clinics falls well within the responsibilities of the transit agency under the ADA and succeeding regulations. It is in the delivery of these customers from the clinics back to their homes, following treatment, where the situation becomes much more complex. The frequent need for vehicles to wait, sometimes for long periods of time, to board a dialysis patient following the completion of treatment takes away the limited right of the transit agency under the ADA and succeeding regulations to schedule trips in the most efficient and effective manner possible, and erodes the quality of service for other passengers who might happen to be on board the vehicle. Moreover, the fragile physical state of dialysis patients following treatment forces the transit agency to make a difficult choice: preempt the needs of other passengers to provide a direct trip home for the dialysis patient, or risk a potential medical emergency and resulting negative publicity. Again, this eliminates the limited freedom transit agencies have under the ADA and succeeding regulations to schedule their trips in the most efficient and effective manner possible.

The delivery of dialysis patients from treatment to their homes more closely fits the profile of critical medical transportation rather than ADA complementary paratransit. Yet, the shrinking number of nonprofit dialysis clinics and the tenuous existence of funding for non-emergency medical transportation under Medicaid – as provided by better-equipped but more costly ambulance, taxi, and wheelchair van services – point to the continued erosion of coordination between dialysis clinics, federal health care programs, and local transit agencies. This emerging challenge, if allowed to continue unabated, will lead to a situation where all affected parties – transit agencies, ADA complementary paratransit passengers, and eventually dialysis patients themselves – lose out, as resources are stretched thin and paratransit service becomes less efficient and less effective at meeting the mobility needs of the entire community. Therefore, dialysis transportation and the role of ADA complementary paratransit in providing that transportation needs to be clarified, and indeed, because of both the potential for decline in overall mobility and the opportunity for positive change, this situation presents one of the most compelling cases for cooperation between local transit agencies, human service agencies, for-profit dialysis clinics, and federal, state, and local transportation decisionmakers to develop appropriate solutions.
IMPACT OF ADA PARATRANSLIT ON FIXED ROUTE LEVEL OF SERVICE, FARES, AND ADMINISTRATIVE STAFFING

Given the broad scope and strict nature of the ADA and succeeding regulations, as well as the scarcity of funds at the federal, state, and local level with which to carry out the resulting mandates, one might assume that pre-existing levels of fixed route service, low fixed route fares, or administrative staffing would suffer as resources are increasingly dedicated to operating complementary paratransit. For the most part, this assumption has not been realized. The level of transit service and staffing for most modes of transit, including demand response, have increased steadily between FY 1990 and 2001. Moreover, none of the smaller transit agencies examined as part of this research reported cutting fixed route service, dramatically raising fares, or eliminating staff as a direct result of the ADA paratransit mandate. Tri Delta Transit and Palo Verde Valley Transit Agency report proposed increases in paratransit fares, within the guidelines specified by the ADA, to generate additional operating revenue and increase cost recovery. Duluth Transit Authority, City of Modesto Transit, and the Central Oklahoma Transportation and Parking Authority indicate that they have taken action to cut fixed route services, increase fixed route fares, and/or reduce staffing levels, but generally cite the overall operating condition of their agency, including in many cases the inability to obtain sufficient local funding, as the reason for these actions.

ADA CONSIDERATIONS IN FIXED ROUTE SERVICE EXPANSION

Although fixed route services have generally not been cut as a direct result of ADA paratransit, based on the significant level of operating and capital funds, fleet requirements, and staffing involved in providing complementary paratransit as mandated by the ADA and succeeding regulations, as well as the resources required to make fixed route services fully accessible, one might reasonably deduce that transit agencies would at least curtail fixed route service expansion as a result of the ADA paratransit mandate. As fixed route services are expanded, except in the case of commuter express services, the transit agency’s obligation to provide complementary paratransit grows accordingly; thus the scope of any service expansion is actually much larger than it outwardly appears.

But, according to operating statistics provided by both APTA and the NTD, as well as the experiences of transit managers at the smaller agencies examined as part of this research, this deduction is not categorically correct. As the level of paratransit service on the street continues to grow, so too does the level of fixed route bus and rail service; much of this expansion, of course, takes place in areas of rapidly increasing population, where holding back transit expansion is simply not a practical option. Moreover, transit managers at Tri Delta Transit, Duluth Transit Authority, Lane Transit District, and City of Modesto Transit report little to no significant impact on fixed route planning as a result of the ADA complementary paratransit requirement.

On the other hand, some systems have realized this effect. Both Palo Verde Valley Transit Agency and the La Crosse Municipal Transit Utility have implemented deviated fixed route services as a hybrid solution to both fixed route and paratransit needs. The Central Oklahoma Transportation and Parking Authority has curtailed fixed route expansion, but done so only in outlying areas where the combination of fixed route and complementary paratransit services cannot be adequately funded. Riverside Transit Agency does assign paratransit considerations a
more prominent role in fixed route planning decisions, but indeed has experienced declining paratransit efficiency and effectiveness as a direct result of rapid fixed route expansion.

In addition, it is important to note that both City of Modesto Transit and the Riverside Transit Agency cite the decreasing availability of paratransit services to riders not eligible under the ADA; as ADA ridership increases, these other rider groups are being squeezed out of the system due to overall demand response capacity constraints. Transit managers and officials did accurately identify this potential consequence of complementary paratransit in the years before the adoption of the ADA.

POTENTIAL FOR DUPLICATED, INEFFICIENT SERVICES

During Congressional hearings to draft the ADA, transit managers and officials questioned the requirement of complementary paratransit, citing the potential for duplicated, inefficient services. They reasoned that persons with disabilities would prefer more personalized paratransit services to accessible fixed route services, resulting in wasted effort and financial resources on the part of the transit agency to make their fixed route systems accessible. Logic and fact do not bear this expectation out. The basic thrust of the ADA is to, in the case of public transit, provide the same opportunity for mobility to persons with disabilities as to any other passenger group. In fact, during the drafting of the ADA many persons with disabilities and advocates expressed a desire for better accessible fixed route services, while railing against “separate but unequal” paratransit services. The Duluth Transit Authority, Lane Transit District, and La Crosse Municipal Transit Utility cite a significant, and increasing, preference for accessible fixed route services as they become more widely available.

Simply put, accessible fixed route services provide greater mobility at a better value than complementary paratransit. Pick-up and drop-off times cannot be negotiated by the transit agency on fixed route services like they can be on complementary paratransit, and fixed routes provide for much more direct and timely trips. Moreover, according to the provisions of law and regulation, transit agencies can charge up to twice the comparable fixed route fare for a complementary paratransit trip. But the National Mass Transportation Assistance Act of 1974 mandated reduced fixed route fares for persons with disabilities during non-peak periods, meaning that at most times of day, an accessible fixed route trip can be taken at about one-quarter of the cost of a complementary paratransit trip.

Based on the scope and structure of the ADA and succeeding regulations, some duplication of fixed route and paratransit services is inevitable. Each transit agency will always have certain ADA-eligible customers within the service area that, for one reason or another, simply cannot utilize accessible fixed route services irrespective of the type and level of assistance available to do so. But, given the experiences of the smaller transit agencies studied as part of this research, in many cases inefficiency and duplication arise between fixed route and ADA complementary paratransit because the transit agency fails, due to political pressure, public sentiment, or some other reason, to take the appropriate policy and procedural measures as afforded them by the ADA and succeeding regulations to minimize the role of complementary paratransit and shift disabled riders to more efficient and responsive fixed route services.

For example, some of the agencies studied as part of this research do not do as much as they can to ensure fixed route bus stop accessibility, do not adhere to more strict eligibility standards for ADA complementary paratransit, subcontract eligibility determination to outside entities who
may or may not be properly motivated to enforce strict standards, do not offer travel training, employ weak standards and penalties for improper trip cancellation, and offer paratransit according to ADA standards and requirements to populations who are not ADA-eligible. By contrast, the Lane Transit District takes action to, as clearly as possible, delineate between its accessible fixed route and complementary paratransit services in the following ways:

- Early adoption of accessible fixed route vehicles, well before the passage of the ADA, to acclimate disabled customers to the fixed route system
- Strict interpretation of eligibility standards, granting full eligibility only when necessary
- Conducting secondary eligibility reviews as needed, which function as a check and balance against decentralized eligibility determinations
- Employing ADA complementary paratransit as a feeder service to accessible fixed routes where appropriate
- In some cases, making completion of a highly developed travel training program a condition of paratransit eligibility
- Providing attendants to assist persons with disabilities in the use of accessible fixed route services
- Ensuring full accessibility of virtually all fixed route bus stops
- Active engagement of the local disabled community in an advisory capacity to help improve fixed route services
- Employing more frequent negotiation of pick-up and drop-off times when dealing with customer groups not eligible for ADA complementary paratransit

By using these techniques, the Lane Transit District has managed to keep per-trip paratransit operating costs relatively low, and minimize productivity losses in the face of steep increases in service area population, paratransit trips provided, and miles and hours of paratransit service provided. Though the agency could undoubtedly find additional ways to improve the efficiency and effectiveness of its service, it has done a great deal to ensure that paratransit remains truly complementary to fixed route service.

**Funding Mechanisms for ADA Complementary Paratransit**

One concern raised by transit managers and officials during the drafting of the ADA that has particular merit is that regarding the availability of funding for ADA complementary paratransit. When Congress passed the ADA, they did not appropriate dedicated funds to enable public transit agencies to carry out the provisions of the law and succeeding regulations. Accordingly, transit managers tend to refer to the ADA complementary paratransit mandate as one that is unfunded. This assertion is not entirely accurate; although an appropriations bill did not accompany the ADA, transit agencies *are* able to make use of a generally increasing pool of federal, state, local, and directly generated funds to purchase the capital equipment and take the operational actions necessary to provide ADA complementary paratransit services. Moreover, no smaller transit agency examined as part of this research found it necessary to curtail fixed route services, raise fixed route fares, or eliminate administrative staff positions as a direct result of the legal and regulatory provisions of the ADA. These agencies seem have the necessary funding for their paratransit services to at least exist, if not for much else.

Several of the agencies studied as part of this research, however, have become more judicious in their approach when planning for expanded fixed route services, fully cognizant of the additional
costs and effort involved in providing complementary paratransit services within a new fixed route corridor. The availability of funding for ADA complementary paratransit is indeed a legitimate concern. Five of the eight agencies studied as part of this research – Duluth Transit Authority, City of Modesto Transit, La Crosse Municipal Transit Utility, Riverside Transit Agency, and the Central Oklahoma Transportation and Parking Authority – make either direct or strongly inferred references to funding as a persistent challenge to the operation of their paratransit services. But based on the attributes of federal, state, and local funding programs, the level of such funding commitments, the operating conditions of demand response agencies, the experiences of all eight smaller transit agencies examined as part of this research, and the funding needs of such agencies, the ADA complementary paratransit mandate is more accurately characterized as one that is underfunded, with gaps of significant size and of critical importance in the funding that is available.

CAPITAL FUNDS

The availability of capital funding is not quite as critical a concern to transit agencies offering complementary paratransit under the auspices of the ADA. Demand response transit services are only a fraction as capital-intensive as fixed route bus and rail modes. Paratransit does not generally require costly dedicated facilities; these facilities tend to be either constructed and used primarily for fixed route bus operations, leased, or provided by the subcontractor operating the service. Almost 78% of paratransit capital expenditures are dedicated to vehicle purchases. ADA complementary paratransit is quite vehicle-intensive, as it exhibits much lower productivity in terms of passengers per vehicle hour and passengers per vehicle mile than fixed route bus and rail modes. Moreover, the ADA complementary paratransit mandate imposed new vehicle requirements on transit providers, causing agencies to supplement their fleet with additional paratransit vehicles, or, in some cases, build an entirely new fleet of paratransit vehicles. But the vehicle-intensive nature of this mode of service does not necessarily translate into remarkable capital funding needs; a paratransit vehicle can be acquired at far less expense than a fixed route bus or rail vehicle, and the required wheelchair lift accounts for only about 10% of the total vehicle cost.

More importantly, since the adoption of the ADA, necessary capital expenditures are met with significant, and growing, sources of capital funding. Local and directly generated sources provide about 40% of transit capital funding, and grow almost 150% in real dollars between FY 1990 and 2001. Federal sources provide about 51% of transit capital funding, and grow about 48% in real dollars between FY 1990 and 2001. State sources provide a much smaller, and – with respect to growth since the passage of the ADA – flatter portion of transit capital funding. This is important, as it shows that the federal government is providing fairly strong support toward the purchase of accessible vehicles following the passage of the ADA, even absent a dedicated appropriations bill.

The level of demand response capital costs is, however, rising at a slightly higher rate than overall transit capital funding, and this is cause for some concern that, in coming years, ADA complementary paratransit providers may face a tighter capital funding situation. But, as paratransit services are not especially capital-intensive, and as investments in accessible fixed route bus and rail vehicles can help to minimize the need for complementary paratransit, this scenario is one that implies the need for close monitoring rather than imminent panic.
Federal transit capital funding programs also tend to come with fewer restrictions than do operating programs. Most of the major federal funding programs – including Section 5307, Section 5309, Section 5310, Section 5311, STP, and CMAQ – can be used to offset capital expenses regardless of the size of the agency or the urbanized area in which it operates.

Of the eight smaller transit agencies studied as part of this research, only one, Tri Delta Transit, listed capital expenses during all ten years included in the study. Most allowed a period of two or more years to elapse without listing any capital expenses. Moreover, none of the smaller agencies examined directly stated any concerns with respect to securing the necessary funds to expand their paratransit fleet or replace aging vehicles. It is important to note, however, that capital funds can be used toward other types of equipment that may play a critical role in providing efficient, effective, and high-quality ADA complementary paratransit services – especially technological improvements. Riverside Transit Agency cites difficulty in being able to dedicate capital resources to procuring an AVL system or MDTs for their paratransit vehicles; used in conjunction with robust paratransit scheduling software, these two types of equipment could enhance the ability of the agency to schedule and dispatch paratransit trips on the fly in the most efficient manner possible. Thus, it seems clear that where transit agencies must make the difficult choice between using capital funds to purchase new and/or additional vehicles, and using these funds to procure further enhancements for their paratransit system, they will likely decide to forgo improvements such as technology.

**OPERATING FUNDS**

**Federal Funds**

Securing adequate funds for the operation of ADA complementary paratransit services is of exceedingly critical importance to the transit manager. A demand response transit agency’s operating needs are far greater than its capital needs; currently, demand response agencies spend about $11 in operating funds for every $1 spent in capital funds. Moreover, paratransit entails a significant level of operating resources relative to other modes. Demand response operating costs per passenger trip are several times higher than the per-trip operating costs of all other modes. And since the passage of the ADA, paratransit per-trip and overall operating costs exhibit a much higher rate of increase in real dollars than the per-trip and overall operating costs of other modes. But the legal and regulatory requirements of the ADA constrain the means of transit agencies to meet these challenges in two key ways: by imposing strict service delivery standards that, by their nature, tend to depress efficiency and increase costs, and by creating an artificial cap on the fare that can be charged for complementary paratransit, thereby limiting the return transit agencies can receive on their investment of operating resources. These dynamics place a higher importance on subsidies from federal, state, and local governments to make up the difference between actual operating costs and revenue.

Since the passage of the ADA, the level of federal transit operating funding, unlike capital funding, has not risen to meet the increasing need. In fact, between FY 1990 and 2001 federal transit operating funding declines by about 14% in terms of real dollars. Currently, though federal transit operating funding is in excess of $1 billion per year, these sources account for only about 4.5% of total transit operating funds. Moreover, federal operating funds cannot be utilized, or are not utilized, by all transit agencies. For example, Section 5307 funds cannot be used to offset operating expenses in urbanized areas with a population exceeding 200,000; therefore flexible allocations under the STP and CMAQ also follow these same rules in larger
urbanized areas. Section 5310 funds are generally not to be used to offset operating expenses, except where transportation services are purchased from a contractor.

The individual operating conditions of each of the eight smaller transit agencies examined as part of this research, as well as both the availability of and the restrictions placed upon federal sources of transit operating funds, yield an inconsistent picture of federal transit operating assistance as follows:

- **Tri Delta Transit** – Operates in an urbanized area with a population over 200,000, but makes use of federal transit operating assistance by rededicating a portion of their federal transit capital assistance
- **Duluth Transit Authority** – Operates in an urbanized area with a population under 200,000, but makes use of only minimal amounts of federal transit operating assistance due to the higher priority of highway projects as decided by the local MPO
- **Palo Verde Valley Transit Agency** – Operates in an urbanized area with a population under 200,000, and is eligible for federal operating assistance, but heretofore has been able to meet all operating needs through state, local, and directly generated funding sources
- **Lane Transit District** – Operates in an urbanized area with a population over 200,000, and makes use of only minimal amounts of federal operating assistance, which comes from a non-transit funding stream
- **City of Modesto Transit** – Operates in an urbanized area with a population over 200,000, and does not make use of any federal operating assistance
- **La Crosse Municipal Transit Utility** – Operates in an urbanized area with a population under 200,000 and does make use of federal operating assistance
- **Riverside Transit Agency** – Operates in an urbanized area with a population over 200,000, but also provides service outside of the urbanized area, and therefore makes use of federal operating assistance to provide service to these smaller urbanized and non-urbanized areas
- **Central Oklahoma Transportation and Parking Authority** – Operates in an urbanized area with a population over 200,000, and does not make use of any federal operating assistance

It is clear that most of the smaller transit agencies studied as part of this research, when operating in smaller urbanized areas, are eligible for and do receive federal operating assistance. The case of Palo Verde Valley Transit Agency is somewhat unique in that the agency is so small, and so new, that it has excess eligibility for state operating funds to cushion against rising operating costs. On the other hand, even though Duluth Transit Authority is eligible to receive federal operating assistance, the actual level of assistance falls short of the needs of the agency. In this case, the local MPO has made the decision to allocate the majority of its federal funds toward highway projects. Therefore, eligibility to receive federal transit operating funding does not constitute a guarantee that an agency will actually benefit from these funds; rather, that judgment is ultimately left to regional decisionmakers as part of the transportation programming process.

With the exception of Duluth Transit Authority, most of the agencies completely or partially left out of the federal funding picture are those operating in larger urbanized areas. This includes agencies such as Tri Delta Transit, a small transit agency providing service to portions of a very large urbanized area, in this case the heavily-developed and densely-populated East Bay region of the San Francisco/San Jose/Oakland metroplex. Congress and the FTA created a potentially useful, if not unsteady, solution for such agencies upon the passage of TEA-21. FTA Circular 9030.1C allows agencies operating in larger urbanized areas to capitalize a portion of ADA
complementary paratransit operating expenses and offset them with up to 10% of the urbanized area’s federal formula funding. Tri Delta Transit will be taking this action in the current fiscal year, but many of the other smaller transit agencies examined as part of this research did not seem to be aware of this option.

There are two critical implications that arise from the capitalization of ADA complementary paratransit operating expenses. First, the final decision of whether to allow transit agencies to capitalize such expenses, and to what extent, rests with the local MPO. The MPO can restrict the ability of the transit agency to capitalize their paratransit operating expenses, can authorize capitalization at less than the 10% level provided for under law and regulation, or, where two or more transit agencies operate within the same urbanized area, can decide the extent to which each agency is authorized to capitalize expenses. Accordingly, as in the case of the Duluth Transit Authority, eligibility to benefit from federal funds does not guarantee the actual availability of those funds. Second, the ability to capitalize ADA complementary paratransit operating expenses does not constitute a new source of federal funding, but rather represents borrowing from an existing pool of funding. Each dollar of operating expense capitalized pulls one dollar from funding available to meet capital expenses. By borrowing too heavily in this manner, a transit agency may restrict its own ability to purchase additional or replacement vehicles, invest in facilities, or procure technological enhancements – in some cases this may impact the capital equipment replacement schedule for years into the future. Therefore, the decision to capitalize ADA complementary paratransit operating expenses is not one to be taken lightly.

**State, Local, and Directly Generated Funds**

Where federal operating funds are not available, or where they are insufficient to make up the difference between actual operating costs and revenue, state, local, and directly generated operating funds assume increased importance. Between FY 1990 and 2001, state transit operating funds grow by about 42%, which helps to meet the increasing need for operating assistance resulting from the ADA complementary paratransit mandate, but local and directly generated sources, which provide by far the largest share of transit operating assistance, grow by only 12% over the same period.

State, local, and directly generated funding sources play a prominent, and increasing, role in enabling smaller transit agencies to operate ADA complementary paratransit services effectively; consideration of the funding mix for each of the eight smaller transit agencies studied as part of this research reveals significant state and local investment where federal funds are not made available or are not fully utilized. But this investment is often inconsistently applied according to geographic area and local preferences and politics – a situation not unlike that observed with respect to federal operating assistance.

The Central Oklahoma Transportation and Parking Authority does not seem to have access to a pool of funding from the state, and relies solely on local funding and farebox revenue to cover the costs of operating its ADA complementary paratransit service. The Palo Verde Valley and Riverside Transit Agencies, both operating in and around Riverside County, CA, enjoy significant state support but do not have access to a local stream of operating funds. Tri Delta Transit and City of Modesto Transit, also operating in California, receive both state and local funding to operate their ADA complementary paratransit services. Even where state and local operating assistance exists, it may be increasingly difficult to obtain. The Duluth Transit Agency
cites concern over the ability to secure adequate funding from the State of Minnesota, given the heavily subsidized nature of ADA complementary paratransit services. Thus, some agencies get the funding they need to comply with the ADA paratransit mandate while others, based on the unique characteristics of their service area, do not.

**FLEXIBLE FUNDS**

The availability of flexible federal transportation funds, as initiated by ISTEA and continued under TEA-21, has not had a significant positive impact on the ability of transit agencies to operate ADA complementary paratransit services effectively. Not all agencies are eligible to use their federal allocation to offset operating expenses. Two agencies – the Duluth Transit Authority and the Lane Transit District – have been successful in securing some capital funds from the STP. The Central Oklahoma Transportation and Parking Authority perceives a benefit to their ADA complementary paratransit services as a result of federal flexible funding, but cannot provide tangible evidence of this benefit. The La Crosse Municipal Transit Utility seemed unsure of the impact. The remaining four agencies examined as part of this research indicated no positive result from the initiation of federal flexible funding. It is important to note that federal flexible funds allow the local MPO to shift allocations based on local priorities. Where accessible transit, or public transit in general, is not perceived as a local priority, agencies operating ADA complementary paratransit will not realize a benefit from flexible funds.

**Challenges Faced by Smaller Transit Agencies**

Many of the negative outcomes expected as a result of the ADA complementary paratransit mandate did not come to pass, or have not harmfully impacted smaller transit agencies to quite the degree predicted. Moreover, persons with disabilities enjoy increased mobility as a result of the mandate, and the attitudes of transit officials and managers with respect to the provision of complementary paratransit services have generally become more positive and committed over time. None of this, however, is to imply that smaller transit agencies do not face real and significant challenges in complying with the mandate. As discussed in the preceding section, the securement of adequate and predictable funding to offset operating costs is one such challenge – but there are many others. The specific requirements of the ADA and succeeding regulations, the practical experiences of the smaller transit agencies examined as part of this research, and the nationwide trends in demand response operating conditions clearly show paratransit operations as marked by uncertainty, rapid expansion, high costs, extensive vehicle and labor requirements, a sensitive and involved constituency, close legislative and regulatory oversight, possible misuse of services, and the potential for inefficiency and failure to fulfill organizational goals.

**CHALLENGES AS A DIRECT RESULT OF LEGAL AND REGULATORY REQUIREMENTS**

**Fixed Route Accessibility**

The ADA mandated the full accessibility of fixed route bus and rail vehicles, as well as bus stops, transit centers, and key rail stations. This presents a dual challenge for smaller transit properties. First, accessibility represents a significant capital investment for the transit agency. The extra costs resulting from the addition of a wheelchair lift to a bus, of “flip seats” to a rail car to provide space for a wheelchair-bound passenger, or of ramps and accessible restrooms within a transit center, may be marginal, but the costs involved in ensuring access to all fixed route bus stops and key rail stations can be quite extensive. Moreover, these latter projects often
include complex negotiations with local governments and agencies to determine the location, scope, and funding for the improvement.

Full fixed route accessibility can stretch the limited capital funding of a smaller agency, but failure to provide this accessibility effects a shift of persons with disabilities toward more costly and less efficient paratransit services, and creates duplication of services within the system. Thus, the smaller transit agency faces a difficult choice regarding the manner in which to most effectively use its resources.

Moreover, once investments in fixed route accessibility are made, they must be protected and maintained. Failure to do so ultimately yields the same results as not making the improvements, but at a much higher cost. It makes little sense to invest in quality wheelchair lifts for fixed route vehicles, for example, if the transit agency does not guard this investment with strong preventive maintenance practices to keep the lifts operational. In a similar manner, improving a bus stop with a shelter and a concrete pad of ample size to turn and park a motorized scooter becomes wasted effort if access to the stop is hindered by a broken curb cut. Making progress in fixed route accessibility, and protecting this progress over the long term, requires money, administrative effort, and relationship building – but may well save significant capital and operating investments in paratransit.

**Eligibility Determination**

49 CFR 37 directs transit properties to develop complementary paratransit eligibility guidelines in strict accordance with the provisions of the ADA and all other succeeding regulations. The agency has twenty-one days, upon receipt of an application for paratransit, to make a determination of eligible, not eligible, or conditionally eligible – the latter indicating need for paratransit in specific locations or given specific circumstances. If found eligible, the client is immediately issued identification and permitted to ride according to the conditions, if any, placed on that eligibility. If a determination cannot be made within twenty-one days, the client is granted interim eligibility, which can be revoked if an ultimate finding of ineligible is made.

While these procedures are certainly reasonable, they can be testing for transit agencies on several levels. First, the regulations emphasize an expedient eligibility determination rather than a correct one. The presence of a complex medical condition, combined with the unique travel needs of the customer and the nuances of the service area, may entail a more thorough evaluation and development of specific conditions of eligibility if fixed route and paratransit systems are to remain truly complementary to one another. But if the final decision is not made within twenty-one days, the customer is granted full interim eligibility to use the less efficient and more costly paratransit system.

Second, eligibility determinations stretch the resources of the transit agency, and push the agency well outside its core competencies. Evaluating the justification for using paratransit services, especially in a very subtle case as described above, consumes administrative resources; this ultimately makes such services more costly to operate. Moreover, most paratransit administrative staff members are generally regarded as having expertise in transit operations, not medical evaluations. As such, a seemingly simple determination can be drawn out or a wrong decision made, consuming even more administrative staff time and further adding to the cost of paratransit services.
Transit agencies have the option of bringing a medical professional on staff, or subcontracting eligibility determination to other local experts, to guard against these issues. But in the latter case, professional medical advice can be quite costly, and if eligibility determinations are too widely decentralized, problems with reliability and objectivity can result, opening the paratransit system up to misuse. While paratransit operations staff members seldom possess medical expertise, local doctors and human agency staff in turn may not be knowledgeable in the workings of the local transit system. It is the challenge of the transit agency to find a solution that combines both types of skills.

Last, the consequences of a faulty eligibility decision are significant. As discussed above, if a determination cannot be made during the twenty-one day window, full paratransit eligibility is granted on an interim basis. Not only does this increase the utilization and cost of the system, it may also create a situation where the transit agency later encounters difficulty in enforcing an ultimate decision of conditional eligibility or ineligibility. A similar situation results from a faulty determination of eligible or conditionally eligible – this decision can be difficult to take back later upon further review. If a faulty determination of ineligible is made, the transit agency exposes itself to litigation, negative public relations, and the possibility of a customer being granted full eligibility, whether truly warranted or not, through court injunction or regulatory decision.

The ¾-Mile Rule
The generally accepted industry standard for transit access is ¼-mile. That is, though customers can and do ride a bike, drive, or carpool over longer distances to access transit routes, agencies accept that most customers will not choose to walk more than ¼-mile to a fixed route bus stop or rail station, and typically design these fixed routes accordingly.

But the ADA and succeeding regulations afford qualified persons with disabilities the opportunity to use complementary paratransit services within ¾-mile of any fixed bus route corridor, not just within ¾-mile of a fixed route bus stop, plus small areas wholly surrounded by established ADA paratransit corridors. This is not an arbitrary measurement. Congress and the FTA ostensibly afforded this right in recognition of two critical factors, both of which indicate the need for a larger transit service area – that many persons with disabilities exhibit mobility impairments which preclude them from traveling even short distances to access transit services, and that persons with disabilities tend to be without their own means of transportation, and therefore more dependent on transit than the general population.

Nevertheless, this legal and regulatory requirement presents challenges to the transit agency. Where fixed routes serve a generally densely populated, narrow corridor, and do so quite effectively, paratransit serves a more sparsely populated and broad corridor. Combining a smaller and less dense customer base with a wider service area patently yields lower productivity and efficiency. As paratransit vehicles crisscross the service area, vehicle miles of service, number of vehicles in service, labor requirements, and operating and capital costs all rise relative to comparable fixed route service. In turn, productivity in terms of passengers per vehicle hour, passengers per vehicle mile, and operating cost recovery decline relative to comparable fixed routes. The quality of the service, in terms of average trip length and trip duration, can decline as well.

Therefore, given the service area strictly prescribed by law and regulation, smaller transit agencies are pressed to schedule trips in the very best manner possible so as to conserve scarce
operating and capital resources; in doing so, if these agencies have one factor working in their favor, it is that demand response vehicles are typically smaller than fixed route buses, and better able to navigate shorter routes through side streets, off the main roads typically traveled by fixed route services.

**Trip Scheduling**

Despite the clear need for transit agencies to schedule paratransit trips in the most efficient and effective manner possible, the ADA and succeeding regulations prescribe three strict requirements – next-day scheduling, limited negotiation of travel time, and limited subscription service – on transit agencies that present challenges in doing so.

Legal and regulatory requirements direct transit agencies to allow for the scheduling of complementary paratransit trips anywhere from one to fourteen in advance. Though next-day scheduling allows customers greater freedom and independence of mobility by closely approximating spontaneous travel, the requirement gives rise to two distinct tests for the agency. First, next-day scheduling can, in some cases, impose significant administrative requirements on smaller transit agencies. All eight smaller transit agencies studied as part of this research provide at least some level of fixed route service on Sundays; however, some smaller agencies do not. Where an agency does not operate Sunday service, it must still set aside designated hours during which reservations for Monday trips can be recorded. This requires the administrative offices to be opened, and at least one paratransit staff person to be available, which increases the cost of labor and utilities, and in turn increases the costs of operating paratransit service.

Second, next-day scheduling imposes a tight timeline for optimizing paratransit schedules to increase efficiency and productivity, particularly in the case of a transit agency that does not offer Sunday service; in this case, the availability of robust paratransit scheduling software is critical, as trips must be entered into the system and be made ready for the next day, without the benefit of a full paratransit operating staff on hand. Though the transit agency is given some discretion in setting the cutoff point for next-day scheduling, this is rarely done before mid-afternoon. Accordingly, the transit agency may have as few as twelve hours during the evening and night to ensure that the schedules generated are as efficient and responsive as possible. This could have the effect of increasing the working hours of the paratransit staff. Moreover, all eight smaller transit agencies examined as part of this research offer same-day scheduling, space and time permitting. Though this policy is commendable, as it further allows complementary paratransit to approximate spontaneous travel for persons with disabilities, it further magnifies the challenge of being able to place trips on the most logical runs and in the correct order.

The ADA and succeeding regulations grant the transit agency only very limited latitude in negotiating travel times with an ADA complementary paratransit customer. The agency is permitted to negotiate within a two-hour window (one hour before and one hour after) with respect to pick-up and drop-off times. If a paratransit customer, for example, places a request for a 10am pick-up time, the scheduled pick-up time can be no earlier than 9am and no later than 11am. Like the provision for next-day scheduling, this limited window for trip negotiation allows complementary paratransit to closely approximate the spontaneity afforded by fixed route transit, but the requirement emphasizes responsiveness over productivity and efficiency. The transit agency has very little room in which to shuffle the order of trips to achieve the best possible schedule, and an instance where the transit agency is required to dispatch one vehicle and driver to provide for a single trip is not outside the realm of possibility. Such instances can
sharply drive up both operating and capital costs in terms of fuel, labor, vehicle maintenance, and fleet requirements. Moreover, once the transit agency negotiates and sets pick-up and drop-off times, it had better be reasonably certain that these times can be met, as consistent failure to do so can result in legal or regulatory action or negative publicity.

Finally, the ADA and succeeding regulations cap the amount of subscription service provided within a complementary paratransit system. Subscription service is characterized by a consistent trip order requested by a customer, either every day or certain days of the week. These standing orders actually assist the transit agency in effectively managing paratransit service, by allowing the agency some advance notice with respect to the variety of trip times and locations it must schedule, thereby affording the opportunity to experiment with the system to find the most efficient and productive mix, and by providing a consistent backbone to which other trips can be added accordingly. But transit agencies are limited to scheduling 50% of their total daily paratransit capacity as subscription service; though regulations allow transit agencies to exceed this cap, the regulatory provisions are vaguely worded, requiring the availability of some amount of non-subscription capacity. The 50% cap allows the customer to be more impulsive in trip scheduling, again helping to approximate the responsiveness of fixed route transit, but it challenges the agency in several ways; both Tri Delta Transit and City of Modesto Transit cite concerns with their subscription service.

First, this provision limits the advance notice the agency has of trip requests, increasing the need to schedule trips quickly rather than efficiently and productively. Second, it imposes additional administrative requirements on the transit property; where the agency is at its limit for subscription service, customers must call in daily requests even if they have a consistent trip need. This repetition raises the volume of calls to the transit agency, increasing the operating costs of the service, and is quite inconvenient to the customer as well. Last, a 50% cap on subscription service leaves the remaining 50% of capacity open for next-day scheduling. But when this available capacity is not used, excess capacity necessarily remains. This situation promotes the inefficient use of labor and fleet resources, and may well result in the denial of transportation to other passengers, irrespective of ADA eligibility, who might otherwise be efficiently and effectively placed into the schedule.

**Revenue Constraints**

The ADA and succeeding regulations cap the fare that can be charged for complementary paratransit at no more than twice the comparable fixed route fare. Therefore, if a given fixed route bus or rail trip costs $2, the same trip using paratransit can cost no more than $4. This is ostensibly meant to allow eligible persons with disabilities to meet their travel needs using paratransit without incurring a significant penalty based solely on the fact that their disability precludes them from using available fixed route services. Moreover, one personal care attendant can, if needed, accompany a passenger without paying a fare, and at least one other companion must be allowed to accompany the passenger at the same fare the passenger pays; more companions must be permitted if space is available. This allows the assistance needs of the customer to be met while on board the vehicle – shifting some of the responsibility away from the vehicle operator – and allows a customer to take trips with friends and relatives, again without imposing too harsh a penalty on an individual solely because they have a qualified disability.
The prescribed fare constraints, however, present several challenges to the transit agency. First, fixed route services can, within reason, charge whatever fare the local market will bear. Moreover, these services can be routed and scheduled in a manner that will promote utilization and, coupled with the fare charged for the service, return a favorable level of its operating and capital investment in the form of operating revenue. Paratransit services, on the other hand, have no such freedom. They must operate in a wide corridor surrounding the fixed route system, and depending on the unique characteristics of the service area, most probably do not carry nearly the density of passengers served by comparable fixed route services.

But paratransit is more highly personalized, more vehicle- and labor-intensive, less efficient, and therefore more costly per trip provided than comparable fixed route services. On a per-trip basis, the investment in paratransit is likely very much more than twice the investment in fixed route services, yet the revenue is artificially capped at twice the comparable fixed route revenue, creating a huge gap between costs and revenues. Given limited and inconsistent funding for ADA complementary paratransit operation, this revenue cap is especially problematic. Moreover, at the time this research was conducted, three smaller transit agencies examined – Tri Delta Transit, Palo Verde Valley Transit Agency, and La Crosse Municipal Transit Utility – did not charge the full amount for complementary paratransit services or route deviation permitted by law and regulation, which further magnifies the revenue gap.

Second, the prescribed fare structure limits the actions transit agencies can take to correct this problem. Where agencies already impose the full premium allowed for complementary paratransit, any further increase in paratransit fares requires a corresponding increase in fixed route fares. This can be a risky proposition, as even modest fixed route fare increases can bring about decreases in ridership and therefore a decline in the overall operating condition of the agency. It is generally not feasible to sufficiently raise fixed route fares to allow paratransit fares to better cover the costs of providing the service; to achieve a respectable 50% operating cost recovery ratio for average ADA complementary paratransit services, fixed route fares would need to be raised to a level of $3-$4, a level only acceptable for long-haul commuter services. Moreover, the prescribed complementary paratransit fare requirements hinder the ability of the transit agency to improve their fixed route fare structure. Where fixed route operating conditions may warrant a lower base fare or a simplified fare structure, the transit agency may be reluctant to implement these strategies based on concerns about increasing the gap between paratransit costs and revenue.

Last, limits on paratransit fares reverse some of the potential benefits of scheduling group trips. Such trips, which share common pick-up and/or drop-off points, can be helpful in improving the efficiency, productivity, and cost recovery of paratransit services. But the required elimination of fares for personal care attendants, and mandatory capping of companion fares at the same fare level paid by the disabled passenger, minimizes the ability of the transit authority to recover its operating costs. For example, consider the case of a person with a disability, a personal care attendant, and a spouse all traveling between an apartment and a medical facility to seek a diagnosis from a doctor. Based on the operating conditions of demand response agencies nationwide, as well as those of the eight smaller agencies examined as part of this research, the operating costs of such a trip would amount to about $15. And because three people are taking the exact same trip, the transit agency has a chance to recoup a significant portion of those costs. But based on the legal and regulatory requirements of the ADA, the agency might be expected to collect no more than a total of $6 for all three passengers – $3 for the ADA-eligible passenger,
nothing for the personal care attendant, and another $3 for the spouse. This scenario represents a cost recovery ratio of 40% – a respectable measure, but one that is still artificially depressed.

**Higher Service Standards**

Fixed route bus or rail service must conform to certain standards of operation, typically including elements such as on-time performance, vehicle cleanliness and reliability, fare value and equity, safety, courtesy and customer service, and responsiveness of routes and schedules to the needs of the local community. A diverse group of stakeholders, including customers, employees, directors, local and regional elected officials, interested citizens, human service agencies, and the local MPO tend to hold fixed route transit services to these standards. The benchmarks for fixed route services are set and enforced by these stakeholders, as part of the natural dynamics of the local market, but, with some exceptions, are generally not enforceable from a legal or regulatory standpoint. This is not to argue that such standards are any less important, but merely that there are many actions which the FTA and the courts cannot force a transit agency to take with respect to fixed route services.

Complementary paratransit services, by contrast, must not only comply with the local standards and preferences described above, but must also conform to legal and regulatory standards as written directly into the ADA and succeeding regulations. Both provide for strict adherence to benchmarks with respect to the on-time performance, trip lengths, and trip times of complementary paratransit. For example, if the on-time performance of fixed route services declines markedly, the transit agency risks the backlash of local stakeholders and decreasing ridership. Where paratransit on-time performance declines, and the agency is responsible for the circumstances leading to that decline, the FTA and the courts can take action to bring the agency back into compliance.

Moreover, public involvement is a critical feature in the planning and operation of any public transit service, be it fixed route bus, rail, or demand response. ISTEA and TEA-21 provide for increased public involvement, but with respect to transit accessibility, the DOT Section 504 final regulations, the ADA, and 49 CFR 37 raise the required level of public involvement even higher. Specifically, 49 CFR 37 requires continuing and regular consultation with the local disabled community, even after the approval of an agency’s paratransit plan by the FTA. Higher standards and a more engaged public involvement process can be quite beneficial to a complementary paratransit provider in terms of service quality, but place more pressure on such agencies to deliver quality services while holding an unrealistic line on costs and productivity.

**CHALLENGES AS INFLUENCED BY SERVICE AREA CHARACTERISTICS AND TRANSIT AGENCY PRACTICES**

**Collection of Data and Statistics**

One of the most significant challenges the author needed to work around in conducting this research, and one that faces transit managers and policymakers in the present and future, is a considerable lack of operating data and statistics specifically related to ADA complementary paratransit services, as a subset of the larger demand response mode. APTA publishes very limited information related to ADA complementary paratransit in its annual *Public Transportation Fact Book*, and most of the statistical data contained therein comes directly from the NTD. The NTD, in turn, did not require the reporting of specific ADA complementary paratransit statistics until FY 1996. Moreover, the NTD currently requires agencies to report only three relevant pieces of information: the amount of ADA complementary paratransit
operating expenses (only as a lump sum, not split into the typical operations, maintenance, and administrative sub-categories), the number of ADA complementary paratransit passenger trips, and the number of ADA-accessible vehicles operating in each mode.

As of FY 2001, many transit systems still failed to report this information even though the NTD requires it. This is because many agencies do not have the accurate, detailed information to provide; most of the smaller transit agencies examined as part of this research could not give specific figures for ADA complementary paratransit passenger trips, operating and capital costs, and revenue miles and hours, or could not provide those figures over the entire length of time their complementary paratransit program has been in existence. All of the agencies were able to furnish aggregate statistics for their entire range of demand response services, and many could speak in general terms regarding ADA-related trends in ridership, costs, and miles and hours of service.

Accordingly, the author had to make the assumption that the ADA complementary paratransit mandate exerts significant influence over the demand response operating conditions of each individual agency, and attempt to understand what was happening in each of the eight sample agencies as well as nationwide based on that information. This is reasonable, as ADA paratransit shares many operating similarities with other types of demand response services, but it uncovers several problems.

First, even though, in most cases, the majority of demand response activity is comprised of ADA complementary paratransit, the lack of separate recordkeeping makes it difficult to net out operating characteristics and statistics resulting solely from the legal and regulatory requirements of the ADA. Second, given a lack of complete and specific data, it is exceedingly complicated for the transit manager to understand exactly what is occurring in his or her complementary paratransit program and make the necessary changes to operating policies and procedures so as to increase efficiency, productivity, and service quality. And it is equally difficult for the transit manager to use this incomplete information as a basis for asking legislators and regulators for policy changes, and in turn tough for policymakers to act on data that does not clearly indicate a problem. Although most state-of-the-art paratransit scheduling software packages allow for this type of detailed recordkeeping and analysis, the smaller transit agencies studied as part of this research have either not acquired such software, have not had the software customized to produce the needed data, or have not trained their personnel to discern more subtle, but important, operating trends.

**Population Density**

The population density of the service area can create operational challenges with respect to ADA complementary paratransit in several distinct ways. Tri Delta Transit, Palo Verde Valley Transit Agency, and Riverside Transit Agency all report service areas characterized at least in part by sparsely populated areas toward the edges of principal cities and towns. Where such areas are included in the ADA paratransit corridor, passenger density, and therefore productivity with respect to passengers per vehicle hour and per vehicle mile, tends to decline. Excess vehicle capacity is present in the system, and because the transit agency collects a lower amount of fare revenue for the miles and hours spent operating at the fringes of the service area, operating cost recovery tends to decrease as well.

The Lane Transit District and Riverside Transit Agency both report very long distances between dense population centers within portions of their respective service areas. In this situation, the
transit agency is likely to fill more of their available vehicle capacity between the two population centers, but must transport these passengers over comparatively long distances, often not stopping to pick up or drop off clients while en route. Not only does this cause some duplication between fixed route and ADA complementary paratransit services, it negates the generally positive effect of passenger density on paratransit services, leading to an increase in vehicle miles and hours and operating costs, and lowering productivity and operating cost recovery.

The Riverside Transit Agency also reports the presence of extremely dense population centers within its service area. Where paratransit vehicles must enter these areas, their travel can be hindered by traffic congestion. Congestion not only increases vehicle hours and operating costs, and lowers productivity in terms of passengers per vehicle hour, it also lengthens the trip times of individual customers, encumbers the ability of the transit agency to adhere to its planned paratransit schedule, and can create safety hazards.

That noted, there is very little a transit agency can do to control these dynamics of its service area. The agency can, however, take these considerations into careful account when developing its network of fixed route services, from which the ADA paratransit corridors are determined.

**Population Growth**

A high rate of population growth within the service area can create challenges in the operation of ADA complementary paratransit services for the smaller transit agency. Tri Delta Transit, Palo Verde Valley Transit Agency, Lane Transit District, City of Modesto Transit, and Riverside Transit Agency all cite significant population growth since the passage of the ADA, as well as projected future population growth. This can effect a pronounced increase in the potential customer base of ADA complementary paratransit services, as well as accessible fixed route services for both persons with disabilities and the general public. Accordingly, the transit agency may find itself faced with rapidly increasing needs in terms of vehicles, fuel, and labor resources, and may not be adequately prepared to meet these needs. The Riverside Transit Agency service area has been marked by extreme population growth since the passage of the ADA, which in turn ushered the transformation of the agency from a smaller one to a much larger one. RTA has struggled, and continues to struggle, mightily in the face of rapidly increasing demands for fixed route services, particularly those of the intercity variety, and the corresponding requirement to expand ADA complementary paratransit. The projected future growth of RTA’s service area suggests that the agency will continue to be challenged in the coming years.

As in the case of population density, the transit agency exerts no control over the population growth of the service area. Therefore, it is critical for the agency to be abreast of not only the projected population growth trends within the service area, but also of the locations where this growth is expected to occur, if they are to adequately plan for future fixed route and paratransit service needs and proceed with a measured implementation of these services.

**Climate**

Three smaller transit agencies examined as part of this research – Tri Delta Transit, Duluth Transit Authority, and Riverside Transit Agency – cite challenges with respect to local climate conditions. Three other agencies – Palo Verde Valley Transit Agency, La Crosse Municipal Transit Utility, and City of Modesto Transit – also operate within seasonally harsh climates, but do not mention this as a specific challenge.
Extreme heat, as observed in the Tri Delta Transit, Riverside Transit Agency, Palo Verde Valley Transit Agency, and City of Modesto Transit service areas, can lead to vehicle maintenance problems with respect to the air conditioning and engine cooling systems. Seasonal fog, as observed in the Tri Delta Transit, Riverside Transit Agency, Palo Verde Valley Transit Agency, and City of Modesto Transit service areas, can bring about accidents and traffic congestion. Snow, ice, and extreme cold, as present in the Duluth Transit Authority and La Crosse Municipal Transit Utility services areas, can lead to vehicle maintenance problems with respect to the electrical charging system, and can bring about accidents and traffic congestion. These latter climatic conditions are especially problematic, as they can increase the likelihood of slip and fall accidents that subject the transit agency to increased liability concerns. Moreover, snow and ice can raise the need for passenger assistance between the vehicle and either the pick-up or drop-off points, resulting in longer vehicle dwell times and lower productivity in terms of passengers per vehicle hour.

No action on the part of the transit agency can change the local climate. But vehicle breakdowns, accidents, congestion, and an increased need for passenger assistance can effect a decrease in service quality and productivity, and substantially raise operating costs, especially with respect to liability. Accordingly, it is important for the transit agency to implement sound preventive maintenance practices, train vehicle operators with an emphasis on safety, and purchase the appropriate level and type of insurance to guard as effectively as possible against these contingencies.

**Natural and Built Barriers**

Two smaller transit agencies studied as part of this research – Duluth Transit Authority and Lane Transit District – point to natural and built barriers and a corresponding lack of access-facilitating infrastructure as significant tests within their respective service areas. Natural barriers, including mountains, canyons, rivers, and streams, are bound to be present to some degree in almost any transit service area. Moreover, freeways and dead-end streets can also serve as man-made barriers. Problems arise when these obstacles are not easily crossable due to a lack of bridges, tunnels, or through streets. In these types of situations, the inefficiencies inherent in the ¾-mile rule for ADA paratransit are greatly magnified. The ADA and succeeding regulations prescribe a ¾-mile paratransit corridor surrounding fixed route services. This corridor is measured in air miles, irrespective of any natural or constructed barriers, or any improvements that might facilitate their crossing.

In the case of a fixed route running roughly parallel to a river, for example, the corresponding ADA corridor may very well extend across that river. In his example, if bridge access is provided along the river roughly every seven miles, a paratransit vehicle must travel at most fourteen miles to deliver an ADA-eligible passenger from their home on one side of the river to a commercial area on the other side. In this manner, vehicle miles of service, vehicles hours of service, number of vehicles in service, labor requirements, and operating and capital costs all rise sharply relative to comparable fixed route services – to deliver a passenger who would likely not consider that fixed route service across the river to be accessible to them.

**Political Boundaries**

The Duluth Transit Authority, Palo Verde Valley Transit Agency, and La Crosse Municipal Transit Utility all operate transit services across two states. DTA and MTU serve portions of both Minnesota and Wisconsin, and PVVTA operates within California and a small portion of
Arizona. Only Duluth Transit Authority receives operating funds from both states; therefore, DTA must satisfy two sets of state transportation officials who provide capital and operating funds to support transit services. But in any case, transit agencies operating service across two or more states must face the challenge of satisfying two or more distinct sets of stakeholders – including local and state elected officials – as well as potentially conflicting laws, regulations, and local preferences.

**Trip Cancellations and No-Shows**

Agencies providing ADA complementary paratransit are tested regularly by the late, absent, or otherwise improper cancellation of scheduled trips. The ADA and succeeding regulations allow transit agencies to sanction customers who exhibit excessive or patterned cancellation of trips in an irresponsible manner, but, unlike the provisions for next-day trip scheduling, they are conspicuously silent in setting firm cutoff points for trip cancellation. The ultimate decision with respect to this policy is left up to the individual agency, though it is inferred that the agency will set its deadline for trip cancellation in such a way that will approximate the spontaneous travel afforded by fixed route services.

Late cancellations and no-shows challenge the agency in several ways. First, they inhibit the ability of the agency to route and schedule paratransit runs in the most efficient and effective manner possible. When a late cancellation is called into the transit agency, that action creates a tight timeline in which the agency must attempt to shift passengers between runs and reroute vehicles – if the technological tools utilized in the provision of paratransit service even allow those types of changes on short notice. Second, they result in the denial of travel opportunity to other passengers, irrespective of ADA eligibility; all eight smaller transit agencies examined as part of this research only allow same-day trip scheduling where space and time permits, and it is unlikely that a newly-created gap in the schedule, caused by a late cancellation or no-show, could be filled with latent demand in a timely and effective manner. Last, very late cancellations or no-shows result in wasted vehicle and labor resources; vehicle miles and hours of service, fuel consumption, and labor costs all increase, and productivity in terms of passengers per vehicle mile and hour, as well as cost recovery, decline, as the vehicle travels to the pick-up point only to be denied the opportunity to transport a passenger and collect the appropriate fare.

Only one smaller transit agency examined as part of this research – City of Modesto Transit – specifically cites late cancellations and no-shows as a problem. Currently, no-shows alone cost MAX almost $20,000 per year, not counting the real and opportunity costs incurred as a result of 1,300 additional late cancellations. Most of smaller agencies studied seemed to lack the firm guidelines and policies – in terms of a cutoff point for trip cancellation, number of no-shows and time frame necessary to trigger a sanction, length of suspension imposed as a sanction, and fine imposed as a sanction – necessary to deter improper trip cancellation and minimize this inefficient use of resources. A summary of these policies as observed in the eight sample agencies is as follows:

- **Cutoff point for trip cancellation** – ranging from fifteen minutes to three hours before the scheduled time, with an average of about one and one-half hours
- **Number of no-shows and time frame triggering a sanction** – ranging from five no-shows in a one-month period to three no-shows over any time period, with an average of about four no-shows in a six-month period
• Length of suspension imposed – ranging from seven days to an indefinite period, with an average of just under one month
• Fine imposed – ranging from none to the full cost (not the fare) of one paratransit trip, with most agencies imposing no fine

Moreover, no agency reported the use of any kind of incentive for customers who regularly schedule and cancel trips in a responsible manner. Though the specific methods used to control improper trip cancellation must satisfy both the needs of the agency and the needs of local stakeholders, it is clear that agencies could do more to encourage efficient use of its resources, by showing compassion in allowing for occasional and inevitable unforeseen circumstances while taking a firm stand against those customers who chronically abuse the system.

Close Proximity and Group Trips
Most of the eight smaller transit agencies examined as part of this research offered paratransit services outside of the provisions of the ADA. The operation of this type of demand response service affords the transit agency greater flexibility in scheduling its resources in an efficient and productive manner, as it is not bound by the next-day scheduling, pick-up and drop-off time negotiation, and service level requirements prescribed by the ADA and succeeding regulations. Moreover, in terms of ADA complementary paratransit, the presence of group trips – those sharing a common point of origin and/or destination – can present similar opportunities for the transit agency to increase efficiency, productivity, and cost recovery. These potential benefits are easily visible when examining the operating conditions of Tri Delta Transit. During the late 1990s, Tri Delta Transit absorbed into its paratransit system a non-ADA senior bus service, previously operated by a city within the service area. The agency’s productivity trends clearly demonstrate how the agency was able to schedule the trips so as to increase the overall performance of its paratransit service, despite a strong increase in the number of trips taken and the vehicle hours and miles of service provided.

But close proximity and group trips can also present a challenge for the smaller transit agency. During the mid-1990s, Duluth Transit Authority began providing ADA paratransit service, over much longer distances, to the Wisconsin portion of its service area. Then, during the late-1990s, the DTA service area lost a sheltered workshop for persons with disabilities – a major group trip generator with respect to paratransit services. Following each event, DTA’s productivity in terms of both passengers per vehicle mile and vehicle hour decline markedly. For this type of agency, the challenge lies in securing the appropriate number of group trips and trips of close proximity, in the appropriate locations, so as to effectively fill available vehicle capacity and promote efficiency and productivity without significantly raising the overall level of paratransit service provided in terms of vehicle miles and hours.

On the other hand, group paratransit trips within the context of a very small transit agency may not always be desirable. Palo Verde Valley Transit Agency cites difficulty in providing a large number of group trips to and from the Inland Regional Center, a sheltered workshop and major group trip generator within its service area. In PVVTA’s case, group trips stretch available paratransit capacity to its limit and result in the denial of trips to other needy and deserving customers. Accordingly, the challenge for PVVTA is not to add more group trips during these time periods, but rather to secure additional trip capacity or develop an appropriate method of staggering demand during AM and PM peak periods.
Revenue Control
As discussed earlier in this section, the cost recovery of ADA complementary paratransit services can be quite low relative to comparable fixed route bus and rail services, or even paratransit services provided outside of the requirements prescribed by the ADA and succeeding regulations. Low cost recovery can be based on one or more of the following factors that challenge the smaller transit agency in providing ADA complementary paratransit services: the ¾-mile rule, next-day scheduling, artificial revenue constraints, higher service standards, population density, climate, natural or built barriers to travel, improper trip cancellation, and the number and type of group trips present within the system.

Given the challenges inherent in returning an acceptable percentage of paratransit operating costs in the form of passenger fares, as well as the tendency to use outside contractors to provide paratransit service, strong fiscal auditing and control procedures are critical. Where these procedures do not exist, or are not strictly applied, cost recovery can be unnecessarily depressed, as already low levels of revenue are further depleted through fraud, theft, and human error. Accordingly, both Duluth Transit Authority and Palo Verde Valley Transit Agency cite the importance of detailed recordkeeping and strong revenue control in maximizing operating revenue and cost recovery.

Farebox Recovery Standards
Though the ADA and succeeding regulations mandate a high level of paratransit service quality in terms of scheduling responsiveness, on-time performance, and reasonable trip lengths and times, they do not define standards of productivity or cost recovery. This is ostensibly because the productivity and operating cost recovery of ADA paratransit services are dependent on many factors – including, but not limited to, population distribution, climate, distribution of development within the service area, and demand for complementary paratransit services – that are completely or partially outside of the control of the transit agency.

But within the State of California, transit funding under the Transportation Development Act is contingent upon each individual transit agency being able to meet a certain level of operating cost recovery. Currently this standard is set at 10% for operators of senior and disabled paratransit services. Though the standard is generally on par with the average level of operating cost recovery exhibited by demand response transit agencies nationwide, it fails to account for circumstances which may be beyond the agency’s control; accordingly, both City of Modesto Transit and Riverside Transit Agency cite difficulty meeting the prescribed standard. Where the 10% level of cost recovery cannot be met, California transit agencies must take action in the form of cutting fixed route service or raising fixed route fares so as to effect corresponding improvements in the efficiency and productivity of its complementary paratransit service, or make changes solely to its paratransit operating practices that do not involve fare or service area changes. But based on the numerous factors in paratransit productivity that are outside the control of the transit agency, such actions may not necessarily guarantee an increase in paratransit cost recovery.

Fares for Non-ADA Paratransit Services
In providing paratransit service to clients who are not eligible under the conditions set by the ADA and succeeding regulations, a transit agency has a much larger degree of freedom to assess an appropriate fare that reflects the tolerance of the local market and better covers the gap between the actual cost of providing the service and the revenue realized through the collection
of passenger fares. In many cases, state and local governments, or human service agencies, will subsidize the actual cost of providing paratransit service to a non-ADA client, less a nominal passenger co-pay. This allows the customer an opportunity to utilize highly personalized and more expensive paratransit services at a cost comparable to fixed route services, and does so with a minimum of negative impact to the transit agency.

Although most of the smaller transit agencies studied as part of this research charge at least a slightly higher fare for paratransit services provided to the general public, senior citizens, and persons with disabilities not eligible under the provisions of the ADA, two do not. Palo Verde Valley Transit Agency does not assess a premium for route deviation, and City of Modesto Transit charges the same flat fare for all paratransit services, irrespective of ADA eligibility. Though these two agencies certainly succeed at providing a low-cost mobility option for many various sub-groups of their service area population, they fail to use the combination of greater flexibility in scheduling trips, coupled with the freedom to charge a higher fare, as a means to improve their level of operating cost recovery. A real challenge for the smaller transit agency lies in setting an appropriate fare for non-ADA paratransit services so as to provide for increased mobility within the service area while also taking advantage of greater flexibility to maximize the overall performance of the paratransit system.

**Extent of the Non-ADA Paratransit Service Offering**

As with non-ADA paratransit fares, a transit agency enjoys a larger degree of freedom in setting the geographic and temporal *bounds* of paratransit service offered to the general public, senior citizens, and persons with disabilities not eligible under the provisions of the ADA and succeeding regulations. In this situation, an agency is not subject to strict guidelines with respect to service area, days, and hours. Accordingly, the transit agency can use this freedom to set guidelines for its non-ADA paratransit service that provide regional mobility and meet the needs of the local market while firmly fixing opportunities to integrate ADA and non-ADA paratransit service so as to increase the overall efficiency and productivity of its demand response system.

The Riverside Transit Agency is one smaller transit agency studied as part of this research that has been challenged – as it has grown from a smaller agency into a much larger one – by its decision to be particularly generous in terms of its non-ADA paratransit service offering. Dating back to its original ADA paratransit plan, the agency elected to extend complementary paratransit beyond the required ¾-mile corridor, lengthen the hours of complementary paratransit beyond those mandated by the ADA, and grant complementary paratransit eligibility to passengers who would not typically be eligible under a strict interpretation of the law and succeeding regulations. In doing so, as the population of the service area rapidly increases, the agency quickly finds itself responsible for a greater level of obligation to clients falling outside the auspices of the ADA than it can comfortably handle. The real challenge for RTA will be to manage this obligation for non-ADA paratransit in a responsible manner as the population continues to build; once service has been extended, it is not entirely feasible from a public relations standpoint, and indeed not entirely fair to the customers involved, to pull it back.

For all smaller transit agencies, the challenge in this type of situation is to provide for non-ADA paratransit service in a judicious manner, allowing for measured increases in service as operating conditions allow, so as to improve overall demand response productivity and efficiency and avoid discontinuing services to certain areas and populations at a later date as a result of a funding crisis.
CHALLENGES AS OBSERVED IN OPERATING STATISTICS AND TRENDS

The influence of numerous complementary paratransit challenges described in this section, both those as a direct result of the provisions of the ADA and succeeding regulations, and those observed in the service area and operational practices of individual smaller transit agencies, are reflected in nationwide and smaller transit agency operating statistics and trends.

**Passenger Trips**
The number of ADA complementary paratransit trips provided is dependent on many factors, including:

- Size and distribution of the disabled population nationwide and within individual transit service areas
- Rate of population growth within individual transit service areas
- Extent of fixed route expansion since the passage of the ADA
- Level of accessibility of fixed route transit services within individual transit service areas, and the competence of the local populace in using those services
- Days and hours ADA complementary paratransit service is available
- Individual travel needs of ADA-eligible persons with disabilities
- Degree of strict adherence to the legal and regulatory requirements of the ADA employed by each transit agency in making complementary paratransit eligibility determinations

Nationwide, the number of demand response trips provided increases by about 54% between FY 1990 and 2001, with ADA complementary paratransit trips accounting for a significant, and increasing, majority of those trips. Of the eight smaller transit agencies examined as part of this research, six observe an increase in the number of ADA complementary paratransit trips taken since the implementation of service. The trends in most of these six service areas can be attributed to two factors: population growth, which brings about an increase in the potential customer base for ADA complementary paratransit services, and corresponding fixed route expansion, which increases the size of the ADA complementary paratransit service area.

Conversely, the two agencies that observe a decline in ADA complementary paratransit trips taken since the initial implementation of services – Duluth Transit Authority and La Crosse Municipal Transit Utility – are both located in areas of flat to slightly decreasing population. Moreover, both agencies cite the increasing accessibility of their fixed route systems as a critical factor in the decline of ADA complementary paratransit trips.

**Operating Costs per Passenger Trip**
The level of ADA complementary paratransit operating costs per trip provided is dependent on all of the same determining factors as is the number of passenger trips, plus the following:

- Local market costs of fuel, labor, and fringe benefits
- Decision to subcontract or directly operate paratransit services
- Degree of partnership with human service agencies located in the service area
- Presence of population centers separated by comparatively long distances within each individual transit service area
- Ability of the transit agency to schedule ADA complementary paratransit trips in an efficient and effective manner
- Presence of close proximity and group trips within the system
Level of late cancellations and no-shows within the system
Presence of natural and built barriers within the service area

Nationwide, the level of demand response operating costs per trip provided increases by 62% between FY 1990 and 2001, with an average demand response trip costing $16.32 during FY 2001. Of the eight smaller transit agencies examined as part of this research, most observe an increase in per-trip paratransit operating costs, but, somewhat surprisingly, only one of these agencies experiences growth significantly higher than the national average during the same time frame – Riverside Transit Agency. This can be largely attributed to both the rapid expansion in intercity ADA trips provided, as well as the generous, but entirely optional, extensions of ADA complementary service provided by the agency. Moreover, during FY 2001 none of the eight smaller agencies studied exhibited a per-trip operating cost significantly above average.

Productivity
The level of productivity, in terms of passengers per revenue mile, of ADA paratransit services is dependent on the same factors as is the number of passenger trips, plus the following:

- Presence of population centers separated by comparatively long distances within each individual transit service area
- Ability of the transit agency to schedule ADA complementary paratransit trips in an efficient and effective manner
- Presence of close proximity and group trips within the system
- Level of late cancellations and no-shows within the system
- Presence of natural and built barriers within the service area
- Effectiveness of integration between ADA and non-ADA paratransit services

The productivity of demand response services nationwide, in terms of passengers per revenue hour, decreases by about 42% between FY 1990 and 2001. During FY 2001, these services transported 3.18 passengers per revenue hour. Of the eight smaller transit agencies examined as part of this research, only one – Riverside Transit Agency – exhibits a percentage decline in productivity larger than the national average. Again, this is likely caused by the large increase in intercity ADA paratransit services over the period, as well as the generous extensions of ADA complementary paratransit services given. None of the sample agencies, however, currently exhibit a level of productivity above the national average. This shows that while smaller transit agencies may have been successful in developing ways to increase productivity, or at least minimize productivity losses, operating services in a more efficient manner remains a challenge.

Other Trends and Statistics
Though they were collected only on a nationwide basis for the purposes of this research, other demand response operating statistics and trends reflect the paratransit challenges inherent in the legal and regulatory requirements of the ADA and observed within the context of individual smaller transit agency service areas.

First, ADA complementary paratransit currently accounts for over 60% of total demand response passenger trips, and over 70% of total demand response operating costs. This figure reflects not only the high degree of influence exerted by the ADA complementary paratransit mandate over the operating conditions of smaller paratransit agencies, but also the more costly nature of complementary paratransit as compared to other types of demand response services.
Second, since the passage of the ADA, the numbers of demand response vehicles and demand response operating employees increase by 110% and 145%, respectively. Moreover, productivity in terms of passenger trips per demand response operating employee declines by 37%. These trends reflect the increasingly vehicle- and labor-intensive nature of the service, and the challenges smaller transit agencies face in managing these increased fleet and workforce requirements.

Next, given that ADA complementary paratransit services are more vehicle- and labor-intensive than other types of demand response services, and indeed all other transit services, fringe benefits, wages, and fuel are the three categories of paratransit operating costs that exhibit the most rapid growth over time. A primary challenge incumbent upon the smaller transit agency manager is to implement strategies that improve paratransit efficiency and productivity so as to control these costs, not only because they are growing naturally as a result of declining service productivity, but also because the incremental costs of fuel and health insurance are growing irrespective of their involvement in the provision of transit services.

Last, since the passage of the ADA, demand response cost recovery and average fare collected are relatively low, and falling. These trends reflect the increasing difficulty smaller transit agency managers face in generating sufficient operating revenue to cover the costs inherent in providing ADA complementary paratransit service.

**Solutions Employed by Smaller Transit Agencies**

An examination of the operating practices and conditions of eight smaller transit agencies reveals a variety of techniques employed to effectively manage the ADA complementary requirement in several categories, including technology, eligibility determination, operating arrangements, funding and revenue enhancement, alternative service delivery methods, fixed route accessibility, and coordination and planning.

**TECHNOLOGY**

**Automated Scheduling Software**

Six of the smaller transit agencies examined as part of this research – Tri Delta Transit, Duluth Transit Authority, Palo Verde Valley Transit Agency, City of Modesto Transit, Riverside Transit Agency, and Central Oklahoma Transportation and Parking Authority – indicated the use of an automated scheduling software package to facilitate the routing and scheduling of demand response trips, including those provided under the ADA complementary paratransit mandate. Of those, four agencies deploy Trapeze® and Palo Verde Valley Transit Agency utilizes Schedule Pro®. City of Modesto Transit does not indicate the type of program used by their agency.

Paratransit scheduling software helps to improve the efficiency and productivity of demand response services, and lower operating costs, in several ways. First, the software uses distance and time algorithms to assemble daily trip requests and standing reservations into a system of paratransit runs, optimized to conserve vehicle time and mileage where possible, and re-optimized on short notice as needed. Moreover, the software can be programmed to account for the strict legal and regulatory requirements of the ADA, including the ¾-mile rule, limited negotiation of pick-up and drop-off times, reasonable trip lengths and durations, and others. Such software can be used to archive, display, and manipulate a wide range of paratransit operating and financial data, so that it may be used for both reporting and planning purposes. Last, scheduling software can store detailed information regarding each customer, and this
information is made instantly available to administrative staff members when processing trip requests; if a certain customer requires the use of a wheelchair, for example, the software can alert the reservationist to ensure that particular customer is scheduled to ride aboard a lift-equipped vehicle.

The utility of scheduling software packages such as Trapeze® or Schedule Pro® can be of benefit to all smaller paratransit agencies, from the extremely small (Palo Verde Valley Transit Agency) to the larger and growing (Riverside Transit Agency), but for somewhat different reasons. In a very small system, scheduling software helps to assist a proportionally small workforce effectively manage the tasks associated with accepting, processing and scheduling trips on a daily basis. In a larger system, a capable software package can help to form the best pattern out of hundreds or even thousands of trip requests – a task that is virtually impossible to accomplish by hand. Moreover, it can assist the transit manager in discerning and analyzing critical trends from copious amounts of raw operating data.

Several important considerations exist for the transit manager when making a decision to purchase paratransit scheduling software, if the deployment is to provide the highest possible benefit. First, such software is a significant capital investment, often involving the same level of funds as the purchase of several paratransit vehicles. Care needs to be taken so as not to inhibit the ability of the agency to obtain additional or replacement vehicles as needed. Second, the utility of paratransit software is contingent upon the ability of the transit agency to accurately and comprehensively describe its needs in terms of data and functionality. These should be determined before the agency begins the procurement process so as to be of use during product and vendor evaluation. Third, the software package needs to be compatible with all other current and planned technological enhancements so as to facilitate successful integration. Last, the operation of the software should be intuitive so that training can be more easily accomplished and competency more quickly obtained.

**Proprietary Scheduling Databases**

After carefully analyzing the potential costs and benefits associated with the purchase of a paratransit scheduling software package, the Lane Transit District opted to forgo such a purchase and proceed with the development of a proprietary scheduling database in-house. Such an enhancement can be developed by using any one of several commercial database programs (e.g. Microsoft Access®, dBase®, or Oracle®) in conjunction with an interface developer such as Visual Basic.

When developed properly, a proprietary database can potentially offer many of the same benefits as a paratransit scheduling software package developed commercially, including the ability to optimize schedules, account for the strict paratransit service requirements contained in the ADA and succeeding regulations, archive and manipulate operating data, and store identifying data with respect to individual customers. For some smaller paratransit systems, a proprietary database may offer a more responsive customized alternative to a commercially developed paratransit scheduling software package.

Unlike a proprietary database, however, software packages such as Trapeze® or Schedule Pro® have been refined over a period of some years and through deployment across numerous transit systems, and offer a turn-key solution to paratransit routing and scheduling concerns. Proprietary databases involve significant and costly development efforts on the part of the transit agency, particularly to approach the level of capability of a commercially developed software
package. For such an undertaking to be successful, the smaller transit agency must identify programming skills within its own organization, or contract to receive those services from another organization, then combine that knowledge of programming with a keen sense of the service area. Moreover, as commercially developed software packages benefit from years of refinement and deployment experience, proprietary databases will not likely be as successfully or smoothly integrated with other current and planned technological enhancements.

**Interactive Voice Response**

Tri Delta Transit enhances its Trapeze® paratransit scheduling software package with interactive voice response (IVR). IVR is a popular emerging technology, particularly in the financial sector, and can assist a smaller transit agency in cutting paratransit operating costs by allowing a customer to request, confirm, and/or cancel paratransit trips directly over the telephone, as well as to quickly and consistently receive frequently-requested information such as hours of operation, destinations, and fare information. Customers interact with an IVR system by selecting options with their telephone keypad, or by giving voice commands that are directly processed by a module capable of recognizing human speech. Accordingly, IVR can minimize the need for personal assistance, allowing a smaller transit agency to carry fewer paratransit administrative staff members, or redirect those staff members away from trip scheduling and passenger information activities to other tasks.

IVR can only be useful in terms of trip scheduling if it is successfully integrated with a paratransit scheduling software package; integration with a proprietary scheduling database seems unlikely. Moreover, for the investment to be cost-effective, IVR must have a high probability of shifting significant call volume away from paratransit administrative staff members. This means that the composition of the customer base must exhibit both a propensity to make a large number of calls to the transit agency in search of routine information, and a high percentage of ADA-eligible persons with disabilities, and other paratransit customers, who would be functionally capable of properly using such a system. To maximize the benefit-to-cost ratio of IVR, it might also feature information regarding fixed route transit accessibility, perhaps as part of an “Accessible Services Hotline.”

There also exists an important service quality consideration with respect to IVR. Some customers will require or will desire the security of speaking to an actual, live representative of the transit agency when calling. Moreover, IVR is not suitable for all types of information; the nature of certain requests requires a personal exchange between the transit agency and the customer. It is important that customers are given the option of speaking to a representative, and equally important that this option is prominently broadcast within the IVR system.

**Automatic Vehicle Location / Mobile Data Terminals**

Five of the smaller agencies studied as part of this research – Tri Delta Transit, Duluth Transit Authority, Palo Verde Valley Transit Agency, City of Modesto Transit, and Central Oklahoma Transportation and Parking Authority – currently employ, or plan to employ in the very near future, an automatic vehicle location system to better manage their paratransit fleet. AVL, used with a GIS, gives transit agencies the ability to pinpoint vehicle location on a computer-generated map in real time.

Real time vehicle tracking helps to improve the efficiency, productivity, and quality of paratransit service in several ways. First, it allows dispatchers to intervene quickly in an unusual situation. In the event of a vehicle breakdown or accident, a replacement vehicle and driver
and/or the proper authorities can be quickly sent to the precise location of the incident. This helps to improve schedule adherence as well as emergency response time. Next, it allows for alternate routing of vehicles in the event of traffic congestion; a dispatcher can look at the map display and give directions to the driver to get him or her around a traffic blockage, improving schedule adherence as well as productivity in terms of passengers per revenue hour. Last, the actual travel of a given vehicle can be played back at a future point in time so as to more thoroughly examine patterns for planning purposes.

An AVL system can be further enhanced with mobile data terminals. Several of the agencies examined as part of this research that use AVL have opted for this enhancement. MDTs allow trip information to be instantly sent to a driver and displayed on a small computer screen inside each individual vehicle. When integrated with a robust paratransit scheduling software package, an AVL and MDTs allow for dispatching of trips on the fly as the total number of daily paratransit trips are periodically re-optimized and assigned to individual drivers. This helps to improve the routing and scheduling of the vehicles so as to maximize efficiency, productivity, and schedule adherence. Using MDTs, text messages can also be sent between the driver and dispatcher, which can help to speed communication and keep radio channels clear. MDTs also work in tandem with the vehicle odometer and a central clock to record information regarding actual pick-up and drop-off times and mileage. Accordingly, they can function as an integral component with respect to the collection of comprehensive and accurate operating data for planning and reporting purposes, while freeing the driver from responsibility for recording this data by hand.

The key considerations with respect to AVL and MDTs are largely the same as those associated with the purchase of paratransit scheduling software: cost, procuring a system which best meets the needs of the agency, integration, and training. Its benefits are available to all agencies offering ADA complementary paratransit, but, as the incremental costs of outfitting each vehicle with the necessary equipment are low relative to the cost of the central hardware needed, it tends to be more economical – and, based on the nature of the benefits provided, probably more useful – as fleet size increases.

Website Development

All smaller transit agencies examined as part of this research provide access to critical service information through an agency website. But four of these agencies – Tri Delta Transit, Duluth Transit Authority, Palo Verde Valley Transit Agency, and City of Modesto Transit – have taken extra measures to ensure that their website is especially useful to ADA-eligible persons with disabilities. By making such features as a printable ADA complementary paratransit application, days and hours of service, trip scheduling procedures, and other policies and rules available online, the transit agency can lower operating costs by shifting existing and potential customers away from its phone system and enabling these customers to access information on their own time and on their own terms through the internet. As with IVR, administrative paratransit staffing levels can be lowered, or staff shifted towards other tasks, as reliance on live help decreases. Moreover, the smaller transit agency can use its website to highlight the features of its accessible fixed route services, thereby helping to move people towards these services and away from more costly and less productive complementary paratransit services.

Website improvement can be undertaken with a relatively small level of investment, and therefore the potential benefit-to-cost ratio is very high. The key considerations with respect to
website development, as with any public information project, are to make the information as comprehensive and clear as is practical for the customer. Also, the information should be presented in plain text format where possible, so that customers with visual impairments can utilize screen readers to facilitate access to the information.

**Additional Radio Channels**
Based on the high level of two-way radio activity within their respective paratransit systems, two smaller agencies studied as part of this research – Tri Delta Transit and Riverside Transit Agency – have elected to establish a second or subsequent paratransit radio channel. This speeds up communication between the driver and dispatcher; if the driver has a question or problem, and one channel is in use, they can switch to one or several alternate channels, thereby resolving their issue more quickly and increasing the speed of the vehicle in revenue service, which improves schedule adherence and productivity in terms of passengers per revenue hour.

Though the addition of a second or subsequent radio channel is a relatively inexpensive investment, where MDTs can be used effectively to handle some of the driver-dispatcher communication load, radio channel expansion is also largely an unnecessary investment.

**ELIGIBILITY DETERMINATION**

**Regional Eligibility Standards**
During the initial planning and implementation process for ADA complementary paratransit services, Tri Delta Transit elected to partner with other regional transit agencies to adopt eligibility criteria and a means of identification for ADA-eligible paratransit passengers on a regional basis. This helps to improve the quality of complementary paratransit service by subjecting disabled customers to only one standardized eligibility process, and facilitating regional trips across multiple transit systems for eligible customers.

The practice also helps to improve the operating condition of the individual smaller transit agency, as, in this scenario, many regional agencies split the administrative burden of evaluating and registering paratransit passengers. Accordingly, staffing levels can be lowered, or staff redirected to other tasks.

There exist, however, some significant concerns with respect to the adoption of regional eligibility criteria. The practice would yield the most benefit for a smaller agency in a crowded field of larger regional agencies, as most of the regional burden for determining eligibility would fall on the larger agencies that carry sufficient staff to handle the workload. This type of operating environment closely matches that exhibited by Tri Delta Transit. Moreover, reaching consensus as to what the specific eligibility criteria should be can require a significant level of effort, and the smaller transit agency must be sure that the terms closely fit their own preferences. If these criteria do not closely fit the preferences of the smaller agency, that agency could be subject to providing an impractical or otherwise unacceptable number of paratransit trips. Last, there must be some mechanism in place to ensure that all of the regional agencies appropriately follow and enforce the eligibility guidelines, as a failure to do so could again result in additional, and possibly unjustified, paratransit trips imposed upon the smaller agency.

**Granting of Full Eligibility to All Passengers**
Once a potential passenger has been found at least conditionally eligible to utilize ADA complementary paratransit services, Tri Delta Transit categorically offers full eligibility to that passenger. This practice eliminates customer concerns over whether a specific trip will be
eligible for paratransit service under the standards prescribed by the ADA and succeeding regulations. It also lessens the amount of administrative time paratransit staff must spend considering an ADA-eligible customer’s specific disability relative to the context in which that customer needs to use paratransit services. This lowers operating costs by minimizing staff involvement, or allows the smaller transit agency to shift administrative personnel to other tasks.

ADA complementary paratransit trips, however, are quite costly, and unjustified trips will not only increase the smaller transit agency’s operating costs, they may also result in the denial of transportation to other deserving passengers. The granting of full paratransit eligibility also results in unnecessary duplication between the accessible fixed route and paratransit systems, and can only produce a favorable benefit-to-cost ratio if the administrative time spent to root unjustified paratransit trips out of the system costs more than the fuel, vehicle, and labor resources required to provide those unjustified trips. Moreover, the practice can set a dangerous precedent from which the transit agency will encounter difficulty in backing away if the desire or need to cut costs and increase productivity should arise in the future.

**Strict Interpretation of Eligibility Standards**

In contrast to the techniques employed by Tri Delta Transit, the Lane Transit District enforces very strict eligibility standards for ADA complementary paratransit, granting full eligibility only when absolutely warranted. Not only does this practice help to reserve capacity on paratransit vehicles for those customers who most need it, it helps to shift ADA-eligible customers from more costly and less efficient paratransit services to more responsive and cost-effective accessible fixed route services. By doing so, strict enforcement of complementary paratransit eligibility standards promotes the use of fewer vehicle miles and hours, lowers operating costs, and can increase efficiency, productivity, and cost recovery. There is a cost, however, in enforcing strict standards, as administrative paratransit staff must place extra effort into considering the nature of a customer’s disability against their specific travel needs. Accordingly, the cost of this extra effort must balance favorably against the potential cost of any unjustified trips that are being eliminated from the system.

An analysis of Lane Transit District’s demand response operating conditions shows that the enforcement of strict eligibility standards is a contributing factor in the agency’s ability to minimize the growth of their paratransit system. There is, however, an underlying reason for the agency’s success – the full accessibility of their fixed route system. Strict standards cannot be used effectively to shift ADA-eligible persons with disabilities to the fixed route system if that system is not fully accessible. Moreover, LTD adopted the strategy of strict enforcement from the very beginning of their complementary paratransit service. Given the highly charged attitude surrounding complementary paratransit eligibility, strict enforcement of criteria is a practice probably best implemented at the initiation of service, or for new customers coming into the system.

**Decentralized Certification of Disability**

Six of the smaller transit agencies examined as part of this research – Tri Delta Transit, Duluth Transit Authority, Palo Verde Valley Transit Agency, Lane Transit District, City of Modesto Transit, and La Crosse Municipal Transit Utility – decentralize all or a portion of their ADA paratransit disability certifications to outside agencies and medical professionals. This allows the customer to obtain verification at a location convenient to them, and helps to relieve the administrative burden on smaller transit agencies, lowering operating costs or allowing
administrative personnel to be shifted to other functions. Moreover, as medical assessments generally fall outside of the core competencies of a transit agency, such a practice places responsibility and judgment in the hands of fully qualified professionals.

Both human service agencies and medical professionals can bring extensive knowledge to a relationship with a smaller transit agency, potentially being able to identify a wide range of physical, mental, and cognitive disabilities and determine how these conditions might impact an individual’s ability to use transit. Most of these arrangements appear to be informal; in some cases the customer can receive verification from his or her family doctor. A few of the agencies authorize a designated list of agencies and professionals to verify disabilities for the purpose of an ADA complementary paratransit eligibility determination. Only one agency, however, formally contracts with an external team of medical professionals for the verification of disabilities – Riverside Transit Agency.

By insisting on a formal written contract for decentralized disability verification, Riverside Transit Agency is better able to control the reliability and objectivity of the verification process, through the ability to write specific performance standards and enforcement mechanisms directly into the contract. The agency is paying to receive a service; therefore they are entitled to receive that service as agreed upon by both parties in the contract. Whether an agency is paying for disability verification or not, that is the key to effective decentralization – being able to set and enforce unambiguous standards. Verification processes that are too widely or too loosely decentralized subject the paratransit system to potential misuse. The cost involved in securing reliability and objectivity in verification may well be defended if it eliminates a sufficient amount of unjustified trips from the system.

Toward that end, professionally contracted verification of disabilities is most effective when accompanied by a strict enforcement of trip eligibility standards by the smaller transit agency. The practice is of little use to standardize and improve the disability verification process if paratransit trips are granted indiscriminately once conditional eligibility of a person has been decided.

**Functional Testing**

Three smaller transit agencies studied as part of this research – Tri Delta Transit, Lane Transit District, and Riverside Transit Agency – employ functional testing as an additional means of determining person and/or trip eligibility. Functional testing involves the completion of certain tasks by a person with a qualified disability, in order to assess actual motor and cognitive skills in transit-related situations. An applicant might be asked, for example, to count out a given amount of money, board a transit vehicle, or use signs to navigate location or direction. Functional testing may be unnecessary once the specific nature of disability has been established, but can be instrumental in issuing a more nuanced determination of conditionally eligible.

Functional testing benefits the smaller transit agency by helping to clarify what aspects of the disability inhibit fixed route travel, and to what degree. The practice infuses the eligibility determination process with a better balance between medical knowledge and transit knowledge. As such, it can help to make more accurate person and trip eligibility determinations, shift persons with disabilities from paratransit to accessible fixed route services, eliminate duplication between the two systems, lower costs, and increase efficiency and productivity.
There are real costs and concerns associated with this practice. Functional testing requires that a person within the transit organization acquire the skills necessary to accurately test an applicant; this can be a relatively small investment. Moreover, this person will spend administrative staff time performing the actual tests, which will raise operating costs to some degree. As an alternative, the testing can be subcontracted to an outside entity, which will certainly raise operating costs. But, as with a thorough disability verification process, the extra cost can be defended if it eliminates a sufficient amount of unjustifiable trips within the system. Also, like a thorough disability verification process, and perhaps more so because it involves real-life situations, functional testing can only be of value if it is accompanied by the strict enforcement of trip eligibility standards.

**OPERATING ARRANGEMENTS**

**Purchased Transportation**

To help effectively manage the ADA complementary paratransit requirement, many smaller transit agencies, including all eight agencies examined as part of this research, purchase at least a portion of their paratransit services from an outside contractor. The proportion of demand response operating funds dedicated to the purchase of transportation services on a national level clearly demonstrates that contracting is a very popular method of managing the ADA complementary paratransit requirement.

Most of the eight smaller transit agencies included in this research cite the reason for contracting as cost containment. An agency that contracts for the provision of paratransit services typically carries a paratransit administrator on its own staff, but the rest of the organizational structure necessary to operate the services – including drivers, dispatchers, and supervisors – generally falls under the contractor’s responsibility and control. Accordingly, the decision to purchase paratransit services from an outside contractor can save the transit agency the costs associated with hiring, training, and retaining a large staff of operations employees. Where the transit agency negotiates a competitive rate for services, and can lock that rate in with a contract spanning several years, they can insulate themselves, to some degree, from the rising costs of fuel, labor, and fringe benefits.

Moreover, the eight smaller transit agencies cite other benefits associated with contracting for paratransit services. In a very small agency with limited administrative staff – such as the Palo Verde Valley Transit Agency – where paratransit service is to be implemented over a relatively short time frame, contracting can provide a ready-made organizational structure with a minimal amount of required start-up time or agency expertise.

The contractor can also bring the benefit of years of experience operating on behalf of other transit systems, and may be able to point out operational deficiencies that, if corrected, will lower operating costs for both the contractor and the agency. Transit agency management and staff can observe the practices of the contractor and use them in the processes of evaluating and transitioning to direct operation of paratransit services. Lane Transit District employs a local nonprofit agency as their paratransit contractor, which can further lower costs and provide a unique brand of expertise with respect to persons with disabilities and the characteristics of the service area.

Contractors may bring their own fleet of paratransit vehicles to the agreement. In the case of La Crosse Municipal Transit Utility, the selected contractor is willing and able to bring in additional
vehicles when trip demand exceeds the vehicle capacity on hand. This is a unique ability not typically possessed by a smaller transit agency that owns and maintains their own fleet; it helps the agency avoid trip denials, and ensures that it can meet the strict standards of service delivery contained in the ADA and succeeding regulations. Moreover, by selecting a contractor that brings a fleet of vehicles to the agreement, MTU successfully avoids the costs associated with building their own paratransit fleet, and minimizes its facility needs as demand overruns are handled with vehicles from other remote locations.

The contractor selected by the Riverside Transit Agency assists in loss control; that is, they share with the transit agency some of the liability and, therefore, some of the costs of insurance for contingencies that could arise in the course of complementary paratransit service operation.

Purchasing paratransit services from either a private or nonprofit contractor, however, carries with it some real concerns. First, the contractor acts as a representative of the transit agency on the street; to the customers who use paratransit services, contracted employees are the transit agency. It is vitally important that the service be operated in a manner consistent with the needs of the public, all applicable laws and regulations, and the mission of the agency. Moreover, in purchasing transportation, the smaller transit agency gives up some measure of control with respect to service quality. If this quality is permitted to degrade under the operational practices of a contractor, the potential costs involved in fixing problems may outweigh the cost savings realized from the purchase of transportation services. Last, each service area is different, and no contractor will know the particular characteristics of the service area quite like transit agency staff.

Accordingly, in purchasing transportation, as in decentralizing paratransit eligibility determinations, the key to success is in setting clear standards, and being able to enforce those standards. This is accomplished through a strong, legally sound contract. For the undertaking to really succeed, however, the contractor and agency need to coordinate their operational goals and practices, and communicate to the best extent possible.

**Employment of Volunteer Drivers**

Both the Palo Verde Valley Transit Agency and Lane Transit District employ volunteer drivers to provide portions of their service to qualified persons with disabilities. This practice saves costs by cutting some amount of wages and fringe benefits out of the operation. Recruiting volunteer drivers seems to work best in smaller agencies that have earned high regard in the community and enjoy a very close relationship with the service area population. It may not be a practical option for many smaller agencies.

If a prospective volunteer does not come from a background of driving commercial vehicles, the transit agency will incur some extra operating costs to adequately provide for training and development needs. Moreover, to ensure service quality and safety, a volunteer driver needs to be thoroughly vetted by the transit agency in the same manner as any paid driver.

**Labor Negotiations**

Only one smaller transit agency studied as part of this research – Central Oklahoma Transportation and Parking Authority – directly operates a portion of its ADA complementary paratransit service. The agency adheres to this practice not so much out of choice but out of necessity, as the current labor contract does not allow responsibility for any existing work to be transferred to a subcontractor. COTPA has succeeded in negotiating with their union lower
wage rates for newly hired paratransit van operators. These lower wage rates contribute to lower operating costs.

Unlike a paratransit agency that employs a subcontractor, an agency directly operating its ADA complementary paratransit service must attempt to secure lower labor costs, specifically in the area of driver wages and fringe benefits, directly from its employees, or from the labor union that represents these employees. Once established in a union environment, wage rates are often very difficult to roll back; in instances where they can be reduced, the union membership is often compensated with a higher level of fringe benefits, such as an increased pension or health insurance contribution – so the net effect on operating costs is minimal. Accordingly, a paratransit agency directly operating its service in a union environment may be better off looking at other aspects of the system to lower operating costs and improve cost recovery.

**FUNDING AND REVENUE ENHANCEMENT**

**Capitalized Federal Funding**

Of the eight smaller transit agencies examined as part of this research, only Tri Delta Transit has elected to capitalize a portion of its ADA complementary paratransit operating expenses under its federal formula allocation. As discussed earlier, this practice allows the smaller transit agency to subsidize a slightly larger portion of its operating budget, maintaining service levels without the benefit of increased state and local funding and passenger fares.

Capitalizing operating expenses, however, can only be accomplished where the population of the urbanized area falls above the 200,000-person threshold, beyond which a transit agency cannot normally use federal funding to offset operating expenses. The practice must be permitted by the local MPO, and should only be undertaken where the transit agency can safely operate without a portion of their capital allocation. Capitalizing complementary paratransit operating expenses to a great extent can inhibit the ability of the smaller transit agency to purchase additional or replacement vehicles in the future.

**Acting as a Maintenance Subcontractor**

Tri Delta Transit is party to a somewhat unique arrangement, under which they maintain the paratransit vehicles of a local human service agency. Such an agreement brings in extra operating revenue for the smaller transit agency, helping to offset the costs of operating ADA complementary paratransit and improve cost recovery. Moreover, the practice helps maintenance staff to build and reinforce their professional skills.

Such a practice is an excellent example of coordination between a smaller transit agency and a local human service agency. For the arrangement to succeed, however, the transit agency must have excess capacity available in their maintenance shop to handle the extra workload. It is of little benefit to the transit agency to take on extra outside maintenance work while allowing the state of repair of their own vehicles to decline; this will certainly result in lower service quality and increased operating costs in the long run. Moreover, the vehicles of the outside agency must be reasonably similar to the vehicles used by the transit agency, so as to minimize the need to incur additional training and equipment costs.

**Revenue Control**

Strong auditing and financial control practices are important for any business, but are especially important to a public transit agency, as such an agency is charged as a steward of public funds. Because ADA complementary paratransit exhibits such a low, and declining, level of return on
the operating investment required to provide the service, control over this limited amount of revenue is critical. Two of the smaller transit agencies studied as part of this research – Duluth Transit Authority and Palo Verde Valley Transit Agency – cite extra measures to control operating revenue.

Duluth Transit Authority holds its complementary paratransit contractor responsible for the revenue generated from the service by using the language of the contract. Their agreement stipulates that the contractor is liable for any fares not collected, and that these fares will be deducted directly from the contractor fee. Palo Verde Valley Transit Agency secures their revenue by recording the counting and reconciliation process with a video camera. Both practices cost the transit agency little to nothing and are advisable, but require detailed recordkeeping to facilitate accurate reconciliation of revenue. A paratransit scheduling software package or proprietary scheduling database, capable of accurately tracking actual paratransit trips taken and the required fare for each trip, really serves as the foundation for a strong revenue control process.

**On-Board Vehicle Advertising**

Palo Verde Valley Transit Agency sells advertising space on their paratransit vehicles to local businesses. This practice allows a smaller transit agency to generate additional operating revenue with which to offset the cost of providing service, and to improve cost recovery. Advertising can also open up interesting opportunities to provide free or low-cost public service announcements within the community and to barter with local businesses.

The practice of advertising on transit vehicles raises several concerns. First, the advertising must conform to the decency standards of the local community. Advertisements involving political campaigns, religion, or intoxicants are generally considered off-limits within a transit context; the transit agency must give priority to its own reputation and image within the host community. Moreover, the brand identity of the transit agency is very important, therefore advertising should generally not serve to prevent the vehicle from being easily recognizable to customers. Last, securing accounts and administering an advertising program can involve extensive staff effort and costs; to be effective, the advertising sold must obviously generate more revenue than the program costs to operate.

**Sales of Transit-Related Items**

Palo Verde Valley Transit Agency also generates a small amount of operating revenue through the sale of newspapers on its paratransit vehicles. Such an item would be an ideal fit in the transit environment, as would, for example, bottled water on a hot day; other food and drink items may best be avoided. The most appropriate items to sell on transit vehicles are ones that are relatively small, low cost, useful to transit riders, and would not facilitate an unsafe or untidy situation on board the vehicle. As with advertising, the item must generate more revenue than the costs involved in obtaining and selling it, and the sales must not hinder the timely and productive movement of the vehicle.

**Fines for Late Cancellations and No-Shows**

All eight smaller transit agencies examined as part of this research employ specific guidelines for the proper cancellation of ADA complementary paratransit trips. If these guidelines are not explicitly followed, the customer is assessed with a late cancellation or no-show; each agency generally allows several late cancellations or no-shows within a given time frame before
imposing a suspension of eligibility for complementary paratransit service. The average length of such a suspension is about one month.

Only two of the sample agencies – La Crosse Municipal Transit Utility and Riverside Transit Agency – impose fines after an unreasonable number of late cancellations and/or no-shows within a certain time frame. As discussed earlier, improper trip cancellations and no-shows degrade paratransit system productivity and increase operating costs by resulting in wasted vehicle and labor resources. Often the network of paratransit runs cannot be re-optimized quickly enough after a late cancellation to improve productivity and efficiency. Moreover, a no-show may result in one vehicle and one driver being dispatched to a trip origin or destination to pick up one passenger, only for that driver to learn through the dispatcher that there is no passenger to transport and no fare to be collected; this is a tremendous waste of agency resources. Strong cancellation and no-show policies help to encourage responsible trip scheduling and cancellation, and fines further assist the transit agency in curbing improper cancellation while bringing in some level of revenue to better cover the costs of the wasted resources.

Imposing fines carries with it several concerns. First, the level of the fine must be sufficient to serve as a deterrent to irresponsible trip cancellation, and must generate enough revenue to cover the a significant portion of the cost of the resources wasted as a result of improper trip cancellations, as well as to cover the costs of fine collection. Second, the fine should be considered mandatory for the reinstatement of service; if it is not, the monetary penalty fails to serve as a real deterrent, and the cost of wasted resources are less likely to be recouped by the transit agency. Most importantly, the fine is only really fair and effective when part of a progressive policy of discipline, following several warnings so as to give the rider an opportunity to correct their pattern or practice of improper trip cancellation; there may very well be legitimate reasons for late cancellations and no-shows, particularly where serious medical conditions are involved. The fine should not be set at a level that is too onerous, and its assessment needs to be accompanied by the opportunity for due process, so that the transit agency remains receptive to extenuating circumstances and is not looked upon as discriminatory.

**ALTERNATIVE SERVICE DELIVERY METHODS**

**Coordination and Bartering with Human Service Agencies**

Several of the smaller transit agencies studied as part of this research – Duluth Transit Authority, La Crosse Municipal Transit Utility, and Riverside Transit Agency – coordinate their paratransit activities closely with local human service agencies; by doing so, the paratransit services provided by a smaller transit agency function as a single part of a much larger range of mobility options for persons with disabilities and other human service agency clients.

Coordination with human service agencies can benefit the smaller transit agency in several ways. In the Duluth area, DTA does not have the required funding, labor resources, or vehicle capacity to provide demand response transit services to all persons who might need or desire it. In this example, the transit agency employs close coordination so as to avoid the dumping of human service agency clients onto DTA complementary paratransit services, though DTA’s relatively strict limitation of paratransit eligibility to those meeting the ADA and old Section 504 criteria helps to prevent dumping as well. Coordination between DTA and other local agencies helps to keep operating costs at a reasonable level, and facilitates the most effective use of all of the available vehicle capacity present within the service area.
La Crosse Municipal Transit Utility works closely with a single county human service agency. Moreover, MTU’s paratransit ridership growth can be directly attributed to growth in human service agency ridership, rather than ADA-eligible ridership. The paratransit service offered by La Crosse Municipal Transit Utility retains a stable level of productivity and returns a very high percentage of its operating costs in terms of passenger fares, clearly demonstrating that when agency trips – not subject to the stringent service criteria prescribed by the ADA and succeeding regulations – are integrated with complementary paratransit in an appropriate manner, productivity and cost recovery can increase appreciably. In MTU’s case, agency trips appear to be helping to subsidize the operation of complementary paratransit service.

Riverside Transit Agency utilizes yet another approach. The agency maintains its own paratransit fleet, as do several human service agencies located within the service area. Each of these agencies generally serves its own unique customer base. RTA, however, trades appropriate trips with these other human service agencies to the mutual benefit of each agency. The practice of trip bartering involves shifting trips between agencies to fill excess capacity in appropriate geographic areas during periods of slack demand; these periods vary by agency. Accordingly, each agency takes on trips that are a better fit with the other trips present within its system. When practiced effectively, trip bartering can lower per-trip operating costs (but slightly increase total operating costs), and improve productivity and cost recovery.

Depending on the specific strategy employed, coordination with human service agencies can be practiced with little extra cost involved, and can be a beneficial technique within any size or type of service area. Trip bartering, however, does carry with it some critical concerns. First, the partner agencies need to be able to meet the strict service delivery standards prescribed by the ADA and succeeding regulations. Moreover, all agencies involved in the bartering process need to be able to communicate with one another, and, unfortunately, if the transit agency deploys an AVL system it will be of no use in tracking the vehicles of other agencies. Third, the agencies need to cooperatively develop a means of properly identifying their vehicles and drivers so that customers do not become confused. Last, and perhaps most importantly, all partner agencies must employ sound recordkeeping and revenue control practices so as to collect data important to reporting and future planning, properly reconcile operating revenue, and maximize cost recovery.

**Deviated Fixed Route Service**

Palo Verde Valley Transit Agency, Lane Transit District, and La Crosse Municipal Transit Utility all operate deviated fixed route or flexible transit as a means of providing needed service to significant, but not necessarily large, groups of people while satisfying the requirements for responsive and accessible transportation prescribed by the ADA and succeeding regulations. Deviated fixed route service essentially serves what would be the entire fixed route and ADA complementary paratransit corridor. Especially when there is a relatively high fixed route ridership component, flexible service lowers costs and boosts both productivity in terms of passengers per revenue hour and per revenue mile, and cost recovery.

While Lane Transit District and La Crosse Municipal Transit Utility offer deviated fixed route service in only a portion of their respective service areas, Palo Verde Valley Transit Agency provides it as the majority of their service offering. All three smaller agencies also offer traditional paratransit service to various groups, including those eligible for complementary paratransit under the ADA and succeeding regulations.
The main concern associated with this type of alternative service offering is the prospect of system growth. If the fixed route portion of the service grows significantly, there will be less space on board the vehicle for ADA-eligible passengers, and trip denials will be the inevitable result; this would be unacceptable to both customers and the FTA. On the other hand, if the portion of the ridership requiring route deviation grows significantly, schedule adherence problems will arise and the quality of service will decline for fixed route customers, leading to ridership losses and the negation of the cost and productivity benefits inherent in this type of hybrid service. Moreover, Palo Verde Valley Transit Agency caps route deviations to three per trip, so an increase in this type of ridership could also result in trip denials for other needy and deserving customers.

Accordingly, deviated fixed route service can only really be considered a long-term solution in service areas, or portions of the service area, that are not expected to experience significant future growth in terms of fixed route ridership, ADA-eligible ridership, or the general population. It works best in areas where the transit agency desires to test the feasibility of regular fixed route transit service.

Agency-Initiated Grouping of Trips for ADA-Eligible Passengers
As discussed earlier, securing appropriate amounts of closely-spaced and group paratransit trips so as to improve productivity in terms of passengers per vehicle mile and hour, and to maximize operating cost recovery, can be a significant challenge to the smaller transit agency. Moreover, the strict service delivery standards prescribed the ADA and succeeding regulations make it difficult for the smaller transit agency to negotiate trip times so as to facilitate the grouping of trips according to space and time.

Lane Transit District has developed a method by which to pull disparate ADA complementary paratransit trips into more cohesive and productive runs. Their RideSource Shopper service operates in several neighborhoods within the service area, transporting ADA-eligible clients from their homes to a local grocery store and back again. For this service, LTD charges a fare lower than the maximum prescribed by the ADA and succeeding regulations. The agency, however, benefits because the service greatly raises productivity and efficiency, and, depending on the number of clients involved, can actually realize a higher level of cost recovery despite the lower fare. The customer can benefit from a lower fare and a relatively direct trip to a routine destination, but they must be somewhat flexible in their schedule to take advantage of the service.

This technique works best when split out according to a zone system. It makes little sense to force group trips by using this method if the paratransit vehicle must pull clients from far-flung locations throughout the service area. Accordingly, it is most appropriate in the presence of at least one major neighborhood trip generator of closely proximity – places like grocery stores, department stores, shopping malls, parks, restaurants, movie theaters, or larger employers with standard shift times. The transit agency, however, must exercise due caution when setting the fare level and selecting a vehicle size, carefully considering demand for the service so as to maximize fare revenue and improve cost recovery.

Subcontracting to Taxi Services
In addition to bartering a portion of its ADA complementary paratransit trips with local human service agencies, the Riverside Transit Agency also subcontracts some of these trips to local taxi
companies. Currently, three taxi companies provide subcontracted paratransit service within specific, individual portions of the RTA service area. Several local taxi companies compete with one another to provide these services to the transit agency, and RTA has negotiated lower-than-average rates with the three successful bidders. The trips subcontracted are generally trips for one or two customers between far-flung locations within the service area, and the local transportation commission acts as a broker, making the ultimate determination as to whether the paratransit trip should be carried by RTA or referred to one of the taxi companies.

Such an arrangement can be beneficial to the smaller transit agency in several ways. First, the favorable rates negotiated by Riverside Transit Agency allow subcontracted trips to be provided for about half of the cost of a comparable trip using an RTA paratransit vehicle, which lowers overall and per-trip operating costs. This is because taxi companies generally use smaller vehicles that can be operated more economically than can paratransit vans. Next, the trips subcontracted to the taxi companies are those consistent with intercity ADA service – trips over very long distances that are only patronized by one or two customers. Accordingly, the transit agency generally realizes the greatest operating cost savings with respect to the paratransit trips that cost the most, and are the least productive. Also, the practice allows RTA to reserve its larger paratransit vehicles for their highest and best use – the provision of well-utilized services within the core service area. Last, the arrangement benefits the local taxi companies as well, as they are able to fill excess capacity in their own systems and generate revenue, even if that revenue comes in at a reduced rate.

Subcontracting to taxi services works best where competition exists between several companies. This helps the smaller transit agency negotiate the best possible rates for services. Moreover, the taxi companies must have capacity available for sale at times and in geographic areas consistent with the needs of the smaller transit agency. And for the arrangement to be highly beneficial, a significant population of ADA-eligible customers whose disability would not preclude them from using a smaller taxi vehicle must be present within the service area. As taxi vehicles are not generally equipped with wheelchair lifts, a large number of ADA-eligible customers with serious mobility limitations, especially those requiring intercity travel, would prevent the smaller transit agency from realizing a significant level of cost savings as a result of subcontracting to these companies.

Despite the potential benefits, subcontracting paratransit trips to taxi companies can be risky for the smaller transit agency in several ways. First, the ADA and succeeding regulations prescribe strict service standards for ADA complementary paratransit with respect to pick-up and drop-off times, schedule adherence, and trip length and duration. As in the case of purchased transportation and bartering trips with human service agencies, the transit agency must ensure that the selected contractor is able to meet these requirements. Accordingly, a strong agreement and enforcement mechanisms are critical to the success of the arrangement. Second, the smaller transit agency will likely not be able to track taxi company vehicles by using an AVL system. Therefore, it is imperative that the agency be able to establish radio communications with taxi dispatchers and drivers. Next, because a contractor is involved, revenue control becomes a concern. The transit agency must be able to account for the fares charged for all subcontracted trips, and have an agreement that ensures that these fares can be collected and will be forwarded back to the agency. Last, subcontractor employees represent the transit agency when providing ADA complementary paratransit trips. Therefore, all contractor employees must be thoroughly
vetted before being permitted to transport transit agency clients. Because taxi drivers are generally independent contractors, this examination process can be especially difficult.

**Use of ADA Paratransit as a Feeder Service**
To lower operating costs, and improve the efficiency and productivity of its ADA complementary paratransit service, Lane Transit District uses paratransit as a feeder service to accessible fixed route services where possible. In cases where a passenger’s disability prevents them from accessing certain bus stops, perhaps due to natural and built barriers between the bus stop and the point of origin or destination, LTD will provide a paratransit trip, consistent with all legal and regulatory requirements, to the nearest accessible bus stop. The passenger is then able to board a fixed route bus for further travel, and can again be met at the other end of their trip with a paratransit vehicle if necessary. Moreover, assistance is provided to the customer in boarding and alighting from the fixed route vehicle, if needed.

This practice minimizes the duplication between fixed route and complementary paratransit services, in turn minimizing paratransit vehicle miles and hours of service, lowering operating costs, improving cost recovery, and promoting a greater level of independence for persons with disabilities. It is well within the rights of the transit agency under the ADA and succeeding regulations.

For the practice to be effective, however, the smaller transit agency needs to employ several companion techniques. First, the agency needs to enforce strict standards with respect to conditional paratransit eligibility, and must combine the use of functional testing, where necessary, with a keen sense of the service area. Using ADA paratransit to feed accessible fixed route services will not produce a significant benefit if the transit agency cannot accurately define an appropriate customer group and enforce standards as to who must be included in that customer group; preferably the service area will include an ADA-eligible population better-able than average to use fixed route services independently. Moreover, fixed route stops should be made as accessible as possible to facilitate the boarding and alighting process and minimize paratransit vehicle miles and hours.

Next, for the sake of maintaining service quality, the service area should either be characterized by a level of fixed route service sufficiently frequent, or an ability to schedule paratransit trips in “just-in-time” fashion, to minimize transfer wait time. An ADA-eligible passenger forced to wait an inordinately long time for a connecting fixed route bus may pursue legal or regulatory action or, worse, may decide not to use transit services in the future, or use them less frequently. Last, the transit agency should price transfers between fixed route and paratransit in an attractive manner so as to provide ADA-eligible passengers with a financial incentive to transfer to the fixed route.

**Increased Use of Commuter Express Services**
Riverside Transit Agency has increased their use of commuter express services following the passage of the ADA. Commuter express services are distinguished from other fixed route services by limited stops, longer distances traveled, and service primarily in one direction at one time of day, and in the opposite direction at other times of day. Such services are exempt from the ADA complementary paratransit requirement, though this was apparently not a factor in RTA’s service development strategy.
Such services, where appropriate, can obviously improve the operating condition of the smaller transit agency by taking paratransit out of a portion of the system, and they can, to some degree, be made accessible by using wheelchair lifts or low-floor buses. They will not, however, be accessible to the entire population of ADA-eligible customers. Smaller transit agencies owe it to themselves, based upon the productivity of both their fixed route and paratransit operations, to provide fixed route service on a commuter express basis where it is truly warranted; to do so improves the operating condition of the fixed route by deploying resources only where they are needed and can return an acceptable level of costs in the form of passenger fares. But smaller agencies must use commuter express services judiciously so as to provide the best possible level of service for both fixed route and paratransit passengers, and dispel any notion of discrimination against persons with disabilities.

**Use of Smaller Vehicles**

Several of the smaller transit agencies examined as part of this research – Tri Delta Transit, Duluth Transit Authority, Palo Verde Valley Transit Agency, and Lane Transit District – use smaller vehicles, specifically passenger vans and minivans, to provide a portion of their ADA complementary paratransit service. Such vehicles are less costly to procure and maintain, and are more fuel-efficient, than typical paratransit cutaways. Accordingly, their use can help the smaller transit agency conserve capital and operating funds, and improve cost recovery. Moreover, their operation does not generally require the possession of a commercial driver license and their maintenance does not necessitate the use of a highly skilled diesel mechanic. In this manner, the use of smaller paratransit vehicles can allow the transit agency to tap into a somewhat less qualified and less costly pool of labor, including volunteer drivers.

But smaller vehicles, while more cost-efficient than typical paratransit vehicles, are also less durable. Therefore, the cost savings inherent in the use of smaller vehicles can best be realized when these vehicles are not subject to constant operation. Their use is most appropriate in a service area characterized by longer trips that generally carry smaller passenger loads; in essence, they should be dispatched to work the fringes of the service area, but can provide for one- or two-passenger trips within the core service area as well. Moreover, as smaller vehicles are not always as accessible as typical paratransit vehicles, the trips they carry must exhibit a high probability that passengers will have a disability that does not include a mobility limitation. Also, effective use of smaller vehicles requires a capable scheduling method – be it through a paratransit scheduling software package or a proprietary database – that can assign these vehicles to the appropriate trips.

**FIXED ROUTE ACCESSIBILITY**

**Accessible Fixed Route Bus Stops**

Four smaller transit agencies studied as part of this research – Tri Delta Transit, Palo Verde Valley Transit Agency, Lane Transit District, and Riverside Transit Agency – help to manage the ADA complementary paratransit requirement by aggressively working to ensure the accessibility of their fixed route stops for persons with disabilities. The accessibility of fixed route bus stops is a critical factor in total fixed route accessibility, which helps the smaller agency to shift ADA-eligible passengers from complementary paratransit to less costly and more efficient fixed route services. Accordingly, ensuring the accessibility of fixed route stops can lower paratransit operating costs, reduce vehicle miles and hours of service, increase cost recovery, and improve productivity in terms of passengers per vehicle mile and hour. It can also help to reduce
duplication between the paratransit and fixed route systems, and promote greater flexibility and independence for persons with disabilities, who can travel less expensively and more spontaneously by using fixed route services.

Ensuring accessibility of fixed route stops can provide a benefit to all smaller transit agencies; generally a fixed route stop that is accessible is a requirement for persons with mobility limitations to use the system, but can be more appealing to non-disabled passengers as well. For example, a stop located along a wide sidewalk or accompanied by a concrete pad provides a much more comfortable place to wait for a bus than does a stop located on a gravel berm along the side of a highway. Fixed route stop accessibility can involve capital investment – especially where a bus shelter, concrete pad, or the installation or repair of a curb cut is required. But other stops can be made accessible quite inexpensively, by simply evaluating the area and moving stops a short distance to a more appropriate location.

For fixed route stop accessibility to be most beneficial, an ADA-eligible population that exhibits a high probability of being able to utilize the stops should be present within the service area. This would include persons with less serious mobility limitations, hearing impairments, and certain mental and cognitive disabilities as opposed to persons with more serious mobility, mental, or cognitive limitations, or persons who require a personal care attendant. Moreover, the smaller transit agency needs to have strong relationships in place with municipal governments and public works agencies, as more extensive work to make fixed route stops accessible often requires permits from and perhaps even construction activity completed at the municipal level. At the very least, fixed route stop accessibility will require close and effective coordination. Last, fixed route stop accessibility is most effective when accompanied by strict enforcement of ADA paratransit eligibility standards, including thoughtful determinations of conditionally eligible and functional testing where appropriate. It makes little sense to undertake a broad fixed route stop accessibility program if no mechanism exists to compel disabled customers to use the improved stops.

**Travel Training**

Travel training, the process of teaching customers to use transit services, can be a very effective technique in effectively managing ADA complementary paratransit services. Five agencies examined as part of this research – Tri Delta Transit, Palo Verde Valley Transit Agency, Lane Transit District, City of Modesto Transit, and La Crosse Municipal Transit Utility – currently employ or are developing a travel training program.

The sample agencies use this technique in several different ways. Tri Delta Transit requires travel training for non-ADA passengers who apply to use the paratransit system. This helps to control overall demand for paratransit services. Lane Transit District makes travel training mandatory for certain clients – both non-ADA and ADA-eligible – as a condition of paratransit use. They use strict eligibility criteria, conditional eligibility, functional testing, paratransit as a feeder service, and fixed route accessibility to strengthen their efforts. Palo Verde Valley Transit Agency and La Crosse Municipal Transit Utility do not require travel training, but offer the service to clients and agencies that are interested. City of Modesto Transit employs a somewhat more distant approach, by developing a travel instruction video and “How to Ride Guide” to walk customers through the process of using fixed route transit services without the use of one-on-one instruction.
Any of these strategies can be effective tools for the smaller transit agency. Travel training helps to increase the customer's comfort level with the fixed route system, enabling more independent and spontaneous travel where before none may have been possible. When applied correctly, travel training helps to filter unnecessary trips out of the complementary paratransit system and shift them towards more efficient and less costly fixed route services, thereby helping to control costs, reduce paratransit vehicle miles and hours, and increase system efficiency and productivity. It also provides the smaller transit agency with a base of knowledge from which to develop better customer information tools, facilitating travel not just for persons with disabilities but also for all customers. Depending on the level of assistance required by individual client, however, travel training can be quite labor-intensive and costly.

Like fixed route stop accessibility and several other solutions employed by the smaller transit agencies included in this research, travel training works best in a service area where the disabled population exhibits a high probability of being able to use fixed route services competently following the completion of training. The effort is ideally combined with other strategies – including strict interpretation of ADA paratransit eligibility criteria, granting of conditional eligibility, and functional testing where appropriate. The latter is especially important, as providing travel training services without an effective means to discern the customers who will actually benefit from those services constitutes, in many cases, wasted effort.

Travel training can be quite costly, but the cost can be justified if a significant number of paratransit trips can be shifted to the fixed route system. As described above, an effective screening mechanism can help to control the costs associated with travel training. Moreover, smaller transit agencies can minimize the costs of travel training by employing close coordination with local human service agencies. Where these human services agencies refer significant numbers of clients to the local paratransit services, the smaller transit agency may be able to provide travel training to agency representatives, utilizing a “train the trainer” approach so as to positively impact the same number of ADA-eligible clients, minimize costs, increase competency in using the transit system throughout the service area, and allow human service agencies to provide an important ancillary benefit to their own clients. Travel training in the form of a video or rider guide is an important component in promoting competent transit use, and can be deployed at a minimal cost, but as a stand alone method is not likely to be as effective as customized, intensive training.

**COORDINATION AND PLANNING**

**Joint Vehicle Procurement**

The Duluth Transit Authority participates in a joint vehicle procurement program administered by the State of Minnesota. Collective vehicle procurement helps the smaller transit agency to minimize operating costs by shifting the administrative burden of preparing an RFP and evaluating vendor proposals away from individual agencies and toward a central agency. Moreover, the practice minimizes smaller transit agency capital costs, or allows these agencies to obtain larger, better-equipped, or higher-quality vehicles, by combining the purchasing power of individual agencies. And because the selected vendor must deal with the collective group, customer service, warranty work, and responsiveness to other customer needs must be sufficient to retain future business. Finally, collective purchasing introduces a greater level of vehicle standardization into the marketplace, allowing the smaller transit agencies that participate in the
arrangement an opportunity to consult with one another with respect to maintenance practices, thereby building the base of maintenance knowledge.

Joint vehicle procurement need not be administered on an official basis by a state agency. Smaller transit agencies can band together on a more informal level to purchase vehicles collectively. Moreover, joint procurement need not be limited to vehicles; other services and equipment necessary to operate paratransit – such as insurance, radio equipment, fuel, and vehicle parts – can be purchased collectively by smaller transit agencies. It is vitally important, however, that the individual transit agencies build some consensus on the specifications of the product to be purchased. This can be more difficult when the collective group is larger or when the collective purchase takes place on an informal basis. Also, joint procurement tends to work best for the smallest of agencies that can manage to partner with other agencies, as these very small agencies stand to gain the most from increasing the size of the purchasing pool.

**Integration of Paratransit Service with Other Regional Providers**

Three of the smaller transit agencies examined as part of this research – Palo Verde Valley Transit Agency, City of Modesto Transit, and Riverside Transit Agency – cite significant efforts to coordinate their complementary paratransit service with the paratransit services of neighboring transit agencies. Such coordination serves largely as a method to improve the quality of a smaller transit agency’s complementary paratransit service, facilitating intra-regional trips for ADA-eligible persons with disabilities. This can also lower operating costs, and improve service efficiency, by minimizing the need for paratransit vehicles to travel long distances into the service area of a neighboring agency – but only if the services are coordinated properly, with each agency exercising its own strengths within its own service area. Integration with other regional providers works best when there are major trip generators located far into a neighboring service area; where such a trip generator lies just into the neighboring service area, coordination of the trip may not be worth the extra effort involved in terms of administration. The ability of the coordinating agencies to communicate effectively with each another is critical, and the presence of regional ADA paratransit eligibility standards preferable, to ensure as seamless a trip for the client as possible.

**Local Advisory Committees**

Both Lane Transit District and the Riverside Transit Agency maintain close relationships with their respective disabled communities by hosting regular persons with disabilities advisory committee meetings. In this manner, the local ADA-eligible population, and other persons with disabilities, are continuously involved in the planning process for accessible transit services. This method of coordination costs little, and can help the smaller agency to better understand the needs of the local disabled community as well as real and perceived operational problems from the perspective of the customer. In turn, local users of complementary paratransit service gain a more thorough awareness of some of the challenges inherent in the operation of the service. Promotion of a greater understanding between provider and user leads to collaborative, more creative solutions to local problems.

**Regular Evaluation and Re-Engineering of Paratransit Services**

Since the passage of the ADA and the implementation of complementary paratransit services, the Lane Transit District has already undertaken a significant evaluation and re-engineering of its paratransit services. The agency employed an outside consultant to compare LTD’s paratransit
operating practices and condition with several comparable peer agencies. It also employed a
group of students from the University of Oregon to map current trip patterns in a GIS.

Especially when the smaller transit agency does not possess a robust paratransit scheduling
software package to optimize daily trips and runs, periodic re-evaluation of paratransit services
can help the agency keep abreast of changes in the customer base, trip patterns, and the
availability of other accessible transportation within the service area. Moreover, a survey of
practices of other like agencies can yield strategies that may be adapted to fit the characteristics
of the service area. Accordingly, re-evaluation helps the smaller transit agency improve all areas
of complementary paratransit services, including cost, quality, and productivity. Though the
retention of an external consultant can itself represent a significant operational cost, this can
potentially be justified if it brings about positive change in the smaller paratransit agency’s
operating condition. And the effort need not necessarily be costly; a smaller transit agency with
highly knowledgeable staff may be able to complete the undertaking on its own, or may be able
to, as in LTD’s case, obtain free or low-cost assistance from the local academic community.

OTHER SOLUTIONS

Non-Cash Fare Media
Three of the smaller transit agencies examined as part of this research – City of Modesto Transit,
La Crosse Municipal Transit Utility, and Central Oklahoma Transportation and Parking
Authority – use non-cash fare media to improve the operation of ADA complementary
paratransit services. These passes and tickets can improve smaller paratransit operations in two
notable ways. First, they reduce the need for customers to spend time handling cash. This
increases boarding speed and reduces paratransit vehicle dwell time, lowering operating costs
and improving productivity in terms of passengers per vehicle hour as well as cost recovery.
Also, by eliminating the need to carry cash the agency can improve paratransit service quality,
allowing customers whose disability precludes them from carrying or handling cash to use the
service more independently.

The use of non-cash fare media need not be limited to paratransit services. Smaller transit
agencies can use this approach to improve the operations and quality of fixed route services as
well. Depending on the types of fare media used, the costs involved in offering passes and
tickets may be minimal. The fare media can be offered with or without a discount – when
offered with a discount to encourage utilization, passes and tickets work best when the amount of
operational costs saved as a result of reduced boarding and vehicle dwell time is greater than the
total amount of fare discount resulting from the use of the passes. Moreover, for non-cash fare
media to be effective, a customer base that is thoroughly competent in the use of passes and
tickets must characterize the service area. Therefore, non-cash fare media would be particularly
effective when used in conjunction with a highly developed travel training and customer
information program.
RECOMMENDATIONS

Almost fifteen years after the passage of the ADA, the provision of complementary paratransit service remains a significant challenge for smaller transit agencies. For complementary paratransit service to be sustained and improved, it is critical that transit managers, elected officials, and transit customers, including persons with disabilities, work cooperatively to evaluate and fix the complementary paratransit requirement itself, the financial resources provided to support the requirement, and the manner in which the requirement is carried out in individual service areas. Fortunately, the experiences of smaller transit agencies in providing paratransit service, including the specific challenges they face and the specific solutions they employ, suggest a model for positive change across several critical areas: policy, funding, data collection, demand management, and operational practices.

Policy Modifications

The main thrust of the complementary paratransit requirement, as prescribed by the ADA and succeeding regulations, is to provide a method for delivery of responsive, quick, and relatively spontaneous transit service, at a reasonable cost, to persons within the service area whose disability serves as a bona fide impediment to accessing available fixed route services. Most of the component legal and regulatory requirements clearly serve to support this goal, helping to improve mobility for persons with qualified disabilities. This is made evident through the increased utilization of both complementary paratransit and accessible fixed route services over the last thirteen years.

Moreover, providing both complementary paratransit and accessible fixed route services so as to improve mobility for persons with disabilities is an endeavor fully consistent with the mission of local public transit agencies that receive subsidies from federal, state, and local government. There are, however, two paratransit provisions contained in the ADA and succeeding regulations that do not seem to be logical, from the perspective of either the customer or the smaller transit agency. Amending these policies would require action on the part of Congress and the FTA.

LIFT THE 50% CAP ON SUBSCRIPTION SERVICE

The requirements of law and regulation state that no more than half of a transit agency’s daily paratransit capacity can be filled with subscription service – standing orders for trips taken every day or several times per week. This is to allow other eligible customers an opportunity to use the system on a spontaneous basis. Where a smaller transit agency is at its subscription service limit, however, the agency must dedicate additional staff resources to accepting, processing, and scheduling trip reservations – even regular ones – on a daily basis. Moreover, where the remaining half of daily paratransit capacity cannot be filled with latent demand, the smaller transit agency is left with excess capacity for which no revenue is generated.

The overarching concern here is to prevent trip denials to persons with disabilities who do not take certain trips on a regular basis. The ADA and succeeding regulations allow transit agencies to exceed the 50% cap on subscription service in certain circumstances, but the legal and regulatory language permitting them to do so is vaguely worded. Therefore, the law and regulations should be modified to clearly permit transit agencies to take on as much subscription service as they can handle, while still requiring the agencies to demonstrate that they do not issue trip denials based on capacity constraints. This would allow the smaller transit agency to schedule its vehicle and labor resources in the manner most suitable to the unique characteristics
of the service area, and maximize the advance notice the transit agency has with respect to potential demand, while protecting the right of an ADA-eligible customer to take a paratransit trip on short notice.

CHANGE THE ¾-MILE RULE

To provide responsive, quick, and relatively spontaneous travel for persons with disabilities, particularly those with mobility limitations and those dependent on public transportation for most or all of their travel needs, the ADA and succeeding regulations defined the complementary paratransit service area as corridors stretching ¾-mile on each side and each end of fixed bus and rail routes, plus small areas wholly surrounded by these corridors.

The problem with this provision is that the corridors are to be defined based on a measurement of ¾-mile by air, without regard for natural and built barriers within the service area. Where these barriers – rivers, streams, dead-end streets, mountains, canyons, etc. – are not accompanied by access points, paratransit vehicles must travel much longer distances to provide service within the entire corridor as defined by law and regulation, often without the passenger density necessary to make the service productive. These types of situations force the transit agency to operate paratransit services that are even less efficient and productive than normal.

Moreover, a customer facing such a barrier between themselves and the closest fixed route will likely not find that fixed route to be a viable option for travel, irrespective of disability. As the purpose of complementary paratransit is to provide a reasonable alternative to an otherwise accessible fixed route, the ADA and succeeding regulations should be amended to provide for complementary paratransit service within ¾-mile of fixed bus or rail routes by the nearest roads and streets. This action would provide for service within a more logically defined corridor, allow smaller transit agencies to operate more efficiently and productively, and impact a minimum of ADA-eligible customers. Corridors generated according to this new standard could be easily accounted for by paratransit scheduling software packages and proprietary scheduling databases. The transit agency could still elect to provide paratransit service beyond the new corridors as it sees fit, but would do so outside of the strict service delivery standards prescribed in the ADA and succeeding regulations.

Funding and Revenue Enhancement

When the ADA and succeeding regulations were adopted, they were not accompanied by a bill appropriating federal funding to help transit agencies defray the costs inherent in providing complementary paratransit service according to very strict standards of service delivery. Although the federal government has done much to provide increased capital funding to allow smaller transit agencies to purchase accessible vehicles and other types of equipment, it does not adequately provide for complementary paratransit operating expenses. Moreover, state and local funding sources are not consistently available.

All of this compels the smaller transit agency to operate fixed route and paratransit services as efficiently as possible so as to conserve scarce resources, but also forces such agencies to make very difficult choices with respect to the services they provide and the passenger groups that can benefit from those services. Given the rising cost of three primary components of transit service – fuel, wages, and fringe benefits – smaller public transit agencies require increased funding and revenue if they are to continue providing service at present levels. Especially with respect to complementary paratransit – which by its very nature realizes a much lower return on investment
than all other types of transit service – action is required on the part of federal, state, and local
governments, smaller transit agencies themselves, and the local population to adequately support
capital and operational needs.

**INCREASE FEDERAL FUNDING FOR COMPLEMENTARY PARATRANSIT**

Smaller transit agencies that operate in non-urbanized areas, or urbanized areas with less than
200,000 inhabitants, are permitted to use federal formula funds for both operating and capital
expenses through the Section 5307 and Section 5311 programs. Moreover, in these areas
flexible federal funds through the STP and CMAQ may be used to offset transit operating and
capital expenses. The problem is that even where smaller transit agencies are eligible to receive
these funds, there is no guarantee that they will actually receive them. Where an MPO exists,
much of the decision-making authority with respect to the allocation of federal funding rests with
that agency.

In these types of areas, three actions must to be taken. First, the upcoming reauthorization of the
federal surface transportation bill must include a level of appropriations sufficient to provide a
real increase in both transit and highway funding within all non-urbanized and urbanized areas,
thereby allowing the local MPO, where one exists, to meet a higher level of local transportation
needs, including an adequate allocation for fixed route and demand response transit services.

Second, MPOs should be legally bound to allocate federal funds to transit projects at certain
guaranteed minimum funding levels. Each urbanized area has a unique proportion of trips taken
using public transportation, using private automobiles, and using other non-motorized modes of
transportation. By mandating that the local MPO provide a transit allocation consistent with the
number of trips provided by transit within the urbanized area, and cognizant of the fact that
transit provides trips much more efficiently than private automobiles, Congress can assure that
transit agencies will receive a reasonable level of federal finding, including flexible funding
under the STP and CMAQ, while still allowing the local MPO wide latitude to tailor the
allocation to meet the unique transportation needs of the region.

Last, the disability community must become more active in advocating for increased federal
funding for accessible fixed route and complementary paratransit services, as well as fair
allocation of these funds to transit at the local level. Especially at the local level, the allocation
of federal transportation funds reflects the needs of the local community. Persons with
disabilities and advocates worked tirelessly to facilitate the passage of the ADA, and to ensure
that the law included a requirement for complementary paratransit services. Now that the
requirements for accessible transit services have been secured through law and regulation,
persons with disabilities and advocates must work cooperatively with transit agencies to stress
the importance of these services and help to stabilize them with adequate federal funding
sources.

In larger urbanized areas with over 200,000 inhabitants, federal transit funds can generally not be
used to cover operating expenses. For the smaller transit agency operating in one of these areas,
it can be exceedingly difficult to secure adequate federal funding through the local MPO, and
impossible to use these funds to offset the high operational costs inherent in providing
complementary paratransit service. The federal government and the FTA provided a solution for
these agencies as part of TEA-21, allowing them to take up to 10% of their federal allocation and
capitalize a portion of their ADA complementary paratransit operating expenses. But this
strategy depends on the approval of the local MPO, and forces the smaller transit agency to forgo limited capital resources to provide for paratransit operating needs.

In these areas – although increased federal transportation funding, minimum guaranteed funding allocations for transit at the local level, and advocacy by persons with disabilities can all be helpful in improving paratransit agency operating conditions – a dedicated federal funding source for the operation of ADA complementary paratransit is needed. The new program should be sufficient to cover 50% of the amount requested by eligible agencies, forcing state and local governments to make a significant investment of matching funds to secure the corresponding federal funds. Moreover, the program should be competitive, with a level of funding sufficient to cover the needs of most, but not all, of the applicable agencies. Funding would be contingent on each agency submitting a plan to improve the efficiency, productivity, and quality of their paratransit services within the bounds of the ADA and succeeding regulations; this plan must also include the establishment of paratransit performance standards. The agencies submitting the best plans would receive funding, and continued funding would be tied to the ability of each agency to implement the elements of their plan and meet their established standards of performance.

PROVIDE CONSISTENT STATE AND LOCAL TRANSIT FUNDING

In addition to the difficulties presented by inadequate and inconsistently applied federal transit funding, smaller transit agencies that provide ADA complementary paratransit services are further challenged by their inability to secure state and local funding with which to provide for capital equipment needs and operate accessible services. State and local funding is not available to all smaller transit agencies; where it is available, it may not be sufficient to sustain a level of fixed route and paratransit services commensurate with the needs of the community.

Public transportation, including ADA complementary paratransit service, represents an investment in local communities and people. This investment bolsters the local economy by providing access to employment and educational opportunities, and connecting consumers with local businesses. It ensures access to medical care and all other manner of human services. Specifically, with respect to complementary paratransit, it allows persons with disabilities to travel more independently and fully participate in their community. In short, transit improves the quality of life at the local level. Therefore, the responsibility for investment in public transit falls in large part on state and local governments. Transit managers and transit patrons, including persons with disabilities, must demand that their state and local legislators act to provide transit funding which allows local transit agencies to match and supplement federal funds in order to maintain, and expand as appropriate, their level of service.

INITIATE DEDICATED, MANDATORY FUNDING FOR CRITICAL MEDICAL TRANSPORTATION

ADA complementary paratransit is designed for qualified transit patrons with a disability that limits one or more major life activities. To receive the service, eligible customers must call in to the transit agency to schedule a reservation before a trip is required. The agency has some limited latitude to negotiate and set the actual pick-up and drop-off times. If the client, for whatever reason, cannot adhere to those times, they must cancel the reservation in advance or face a warning or penalty.
In some smaller transit agency service areas, more and more dialysis patients are making use of ADA complementary paratransit services. End stage renal disease, a condition exhibited by most dialysis patients, certainly limits one or more of a patient’s major life activities as defined by the ADA. Therefore the disability, in almost all cases, would qualify a person to receive complementary paratransit services. Moreover, dialysis patients generally have their treatment covered by Medicare or Medicaid, and are in fragile condition following treatment; these two factors imply a certain level of dependence on transit.

The problem lies not in dialysis patients using complementary paratransit service to access their treatment, as this activity falls well within the smaller transit agency’s obligation as prescribed by the ADA and succeeding regulations. Dialysis patients using complementary paratransit following treatment, however, can create a problem. When a paratransit vehicle is forced to wait until a dialysis patient can be cleared to leave the treatment facility, schedule adherence suffers and the quality of service declines for other passengers on board. Moreover, although the dialysis patient may not have appropriately cancelled or changed their return trip reservation, the smaller transit agency risks a backlash from the patient, the local press, and local politicians if it does not instruct the vehicle to wait until the patient has been cleared to leave the treatment facility. And once on board the vehicle, the dialysis patient must be immediately transported back to their home, again at the expense of service quality for other customers riding on the vehicle. In this situation, the dialysis patient exhibits a need that more closely fits the profile of critical medical transportation, rather than complementary paratransit.

In drafting the Developmental Disabilities Services and Facilities Construction Amendments of 1970, Congress recognized transportation as a key element in the provision of all other human services. This concept certainly includes medical services, such as dialysis, provided by Medicare and Medicaid. Yet, Medicare does not include a transportation benefit, and Medicaid deems non-emergency transportation an optional service, offering matching grants to states that elect to provide their own funds for this service. Not all states offer Medicaid non-emergency transportation, and those that do frequently target this service for budget cuts in times of fiscal crisis.

It is clear that smaller transit agencies providing ADA complementary paratransit cannot efficiently or effectively provide critical medical transportation within the requirements of the ADA and succeeding regulations, while still maintaining service quality for other passenger groups. Therefore, the Medicare program should be amended to include a provision for critical medical transportation, and Medicaid non-emergency transportation must be removed from the optional services category. For both programs, the federal government should continue to provide transportation grants to the states, and the states should be required to match these grants with their own funds. This would provide dialysis patients, and other persons receiving serious medical treatment, with mobility options better suited to their condition.

**DIRECTLY GENERATE MORE REVENUE AT THE AGENCY LEVEL**

Scarcf federal, state, and local transit funding sources require individual transit agencies to bear more responsibility for securing their own revenue through operations. Though the ADA and succeeding regulations cap the fare that can be charged for complementary paratransit services at no more than twice the comparable fixed route fare, smaller transit agencies can take several actions to generate additional operating revenue with which to support their services.
Smaller transit agencies should examine the possibility of both advertising on vehicles, and selling relatively small, innocuous items well suited to transit riders – such as newspapers or bottled water – to passengers. These activities should be initiated on a trial basis to gauge several outcomes:

- Level of sales revenue relative to the cost of administering the sales program
- Impact to schedule adherence precipitated by selling items on board the vehicle
- Degree to which transit vehicles are easily identifiable to customers in the presence of advertisements

Though these activities should not be expected to generate very large amounts of operating revenue, they may help to slightly improve the operating condition of the smaller transit agency. Moreover, they can involve both fixed route and paratransit vehicles so as to maximize the amount of operating revenue generated.

Smaller transit agencies can also generate additional paratransit operating revenue through fares charged to non-ADA riders. With respect to these groups of riders, the agency is not bound by the strict cap on paratransit fares prescribed by the ADA and succeeding regulations. For non-ADA paratransit service, smaller agencies must set fares at a level that better recovers the cost of providing the service, or, in the case of agency riders, require a level of subsidy that better covers the cost of the service from local human service agencies and/or state and local government agencies.

Where excess capacity exists in the smaller transit agency vehicle maintenance shop, the agency should examine the possibility of generating additional operating revenue through the performance of contracted vehicle maintenance on behalf of other local human service agencies that operate their own fleet of paratransit vehicles. Where paratransit service is purchased from a public or private contractor, the smaller transit agency may not be able to generate additional operating revenue by performing contracted vehicle maintenance, but may be able to lower the hourly rate paid to its own contractor.

**Data Collection**

The current state of data collection with respect to the ADA complementary paratransit requirement can be termed terribly inadequate at best. The NTD required complementary paratransit data reporting beginning in FY 1996. Since that time, the NTD only requires transit agencies to report the amount of ADA complementary paratransit operating expenses (as a lump sum, not split into the typical operations, maintenance, and administrative sub-categories), the number of ADA complementary paratransit passenger trips, and the number of ADA-accessible vehicles operating in each mode. Many transit agencies do not report this data to the NTD even though it is required. Moreover, many smaller transit agencies cannot split ADA complementary trips, miles, hours, and costs out from aggregate demand response statistics.

The lack of comprehensive and accurate data with respect to the ADA complementary paratransit requirement makes it exceedingly difficult for the transit manager to understand the precise impact of the requirement on his or her system, make changes to the system to increase service efficiency, effectiveness, and quality, set realistic goals and performance standards, compare data with like systems, and recommend policy changes to legislators and other transit decisionmakers.
At a minimum, smaller transit agencies must examine their individual data needs and collect the following types of specific information to drive better decisions with respect to complementary paratransit:

- Passenger trips
- Passenger miles
- Vehicle miles and hours
- Revenue miles and hours
- Operating costs, both total and per passenger trip, divided by category
- Capital costs, both total and per passenger trip, divided by category
- Average trip length and duration
- Average fare collected
- Productivity in terms of passengers per vehicle mile and hour, and passengers per revenue mile and hour
- Trips generated by major points of origin and destination within the service area
- Peak travel time periods, and number of trips provided during those time periods, by geographic area
- Deviation of actual pick-up and drop-off times from requested pick-up and drop-off times
- Percentage of pick-ups and drop-offs considered on-time

The key to collecting, archiving, and analyzing these types of data, as well as incorporating the considerations that naturally flow from the data into the daily trip and run scheduling process, is technology. The presence of a robust paratransit scheduling software package, coupled with an AVL system, GIS, and MDTs on-board each paratransit vehicle assures the smaller transit agency of the highest possible level of data collection and analysis.

Such a technology package, however, represents a significant investment of capital resources and training effort, and the degree to which this technology can be obtained and deployed in a practical manner is a decision best left to the individual agency. It may be possible to develop a proprietary scheduling database in-house that is just as effective. The overriding concern is for the smaller agency to develop and implement the most suitable strategy that allows the transit manager to know exactly what the system is doing so that improvements can be made.

**Paratransit Demand Management**

Complementary paratransit services, as defined by the ADA and succeeding regulations, were never intended to meet all of the transportation needs of persons with qualified disabilities. Many, if not most, of these needs can be met by accessible fixed route bus and rail services. To minimize the level of labor, vehicle, and administrative resources – and therefore operating and capital funds – dedicated to providing complementary paratransit service, smaller transit agencies need to take action to minimize paratransit demand and shift customers to accessible fixed route services where appropriate.

**CONSULT REGULARLY WITH THE LOCAL DISABILITY COMMUNITY**

One of the most effective, and least costly, methods of managing paratransit demand is to develop a close relationship with the disabled population within the service area. Doing so strengthens the line of communication between agency and customer, allowing the transit agency to learn what specific expectations persons with disabilities have of the fixed route and
paratransit systems. Smaller transit agencies must initiate an accessible transportation advisory committee, with a membership including persons with a variety of disabilities residing in different parts of the service area. Such diversity will promote the greatest possible understanding of concerns.

The committee must convene on a regular basis – perhaps once a month or once per quarter – to keep the discussion current. Particularly with respect to accessible fixed route services, once deficiencies have been identified, the smaller transit agency must be willing to ensure that they are addressed quickly and to the satisfaction of the group so as to facilitate a shift from paratransit to the fixed route.

**CONDUCT REGULAR AND THOROUGH EVALUATIONS OF FIXED ROUTE SERVICE**

The ADA and succeeding regulations strictly define the complementary paratransit service area around existing fixed bus routes and rail stations, with the exception of commuter express routes. Therefore, the condition of the fixed route network wields considerable influence over the condition of the complementary paratransit system. For this reason, it is critical that the smaller transit agency evaluate each piece of its fixed route system on at least an annual basis, curtailing unproductive service and making route changes where appropriate.

It makes little sense for a transit agency to provide complementary paratransit service around an inefficient, unproductive fixed route; in this situation, the agency makes very poor use of its limited resources. By cutting fixed route service where none can be justified, the agency conserves operating and capital resources, and minimizes its obligation to provide complementary paratransit. By making fixed route changes where such changes are viable, the agency realizes a greater return on its fixed route investment, and increases the likelihood that corresponding paratransit service will operate more efficiently and productively.

**ENSURE FIXED ROUTE ACCESSIBILITY TO THE GREATEST PRACTICAL EXTENT**

Once the smaller transit agency has evaluated its fixed route system and made changes to maximize efficiency and productivity, in order to limit demand for complementary paratransit services, the agency must ensure the accessibility of this fixed route system by taking action in several critical areas.

**Vehicle Accessibility**

Vehicle accessibility is an important component of the overall accessibility of fixed route bus and rail systems. Accessible buses, particularly those of the low-floor variety, allow ADA-eligible passengers greater use of the fixed route system, but also increase ease of use for passengers that are not ADA-eligible, particularly senior citizens with limited mobility.

Smaller transit agencies are bound by the ADA and succeeding regulations to purchase both fixed route and paratransit vehicles that are accessible to persons with disabilities, including those that require the use of a wheelchair or other mobility aid. The transit manager should view this investment as a critical element in managing paratransit demand. But the investment can only be truly effective if the mobility aids – wheelchair lifts, ramps, etc. – consistently function as intended. Therefore, the smaller transit agency must institute a sound preventive maintenance program that protects this investment by keeping accessible vehicles in good working order.
**Stop and Station Accessibility**

The accessibility of transit stops and stations is equally important to the overall accessibility of fixed route bus and rail systems. As with vehicles, accessible fixed route stops – with nearby curb cuts, a solid surface, adequate room to maneuver a wheelchair, and shelter where appropriate – not only allows disabled persons greater use of the system, but also increases comfort for all fixed route passengers. Moreover, properly designed fixed route bus stops allow wheelchair lifts and ramps to be deployed properly.

Accordingly, it is critical that the smaller transit system evaluate all of its fixed route stops and work with the accessible transportation advisory committee to identify problems with respect to stop accessibility. Once problems have been identified, they can be corrected in two ways. Where extensive improvements are required, the smaller transit agency must develop strong working relationships with local municipalities, including public works departments, to identify a funding source for the improvements, secure permission for the necessary work, and ensure that the work is completed. In other cases, however, stop accessibility can be improved at little to no cost by simply moving the stop to another nearby location. Once the stop has been made accessible, no matter the method employed, the smaller transit agency must regularly review all stops and maintain the improvements that have been made.

**Operator Training**

Fixed route vehicle operators also play an important role in overall fixed route accessibility. In order to control the demand for complementary paratransit services, the smaller transit agency must train drivers to serve disabled customers with the highest level of competence, safety, and sensitivity. Moreover, the ADA and succeeding regulations require that fixed route drivers call out stops, especially major time points, along each fixed route at all times; this allows customers with visual impairments to more easily use the system. Although this can be accomplished with stop annunciators connected to an AVL system, it is far less expensive and just as effective for a smaller transit agency to train drivers to properly call out stops, and then use on-the-road observations by members of the accessible transportation advisory committee to ensure that this requirement is being followed.

**Identification for Customers with Visual Impairments**

The ability of a blind or visually impaired customer to board a fixed route vehicle – because that customer often cannot see a transit vehicle approaching the stop so as to flag the driver – is dependent upon the ability of the fixed route vehicle operator to identify the customer. The smaller transit agency must facilitate this identification, and can do so easily and inexpensively by providing bright, visible armbands to such customers, and then training fixed route operators to recognize and respond to the armbands.

**Information in Alternative Formats**

A fixed route transit trip, especially one that is being taken for the first time, is facilitated by comprehensive and clear information. To increase the ability of a disabled passenger to use the fixed route system, the smaller transit agency must make all informational materials available in alternative formats – including Braille, large print, and audiotape – and update these materials as required. Local human service agencies serving clients with disabilities are generally quite willing to assist the transit agency in this effort at little or no cost.
STRENGTHEN THE ELIGIBILITY DETERMINATION PROCESS

In order to control the demand for complementary paratransit services, and minimize duplication between the accessible fixed route and complementary paratransit systems, the smaller transit agency must make careful and deliberate paratransit eligibility determinations in strict accordance with the provisions of the ADA and succeeding regulations; unjustified paratransit trips waste scarce resources and create inefficiency. Once the fixed route system has been made as accessible as is practical, the process of tightening paratransit eligibility becomes much easier and yields a much greater benefit.

To begin to strengthen the paratransit eligibility determination process, the smaller transit agency must first consider the method used to certifying an applicant’s disability. Wide decentralization of disability certification certainly increases convenience for the customer, but opens up the paratransit system to inconsistency and misuse. A better approach is to limit disability certification to a few select locations, perhaps even limiting them to the transit agency itself. In this manner, the smaller transit agency can conduct for others or obtain for itself – as appropriate – training, which serves to combine knowledge of medical conditions with knowledge of the local transit system. This training provides those responsible for certifying disabilities with the tools to make a more accurate assessment of the relationship between a given disability and the ability to use fixed route transit. Moreover, increasing centralization of the disability certification process serves to filter out customers who apply for complementary paratransit simply because they know the certification process is an easy one to clear.

Next, the smaller transit agency must make better use of their right to grant conditional paratransit eligibility. It is unlikely that most persons with disabilities, the most severely disabled customers notwithstanding, will require the use of complementary paratransit for all trips, and each unjustified paratransit trip costs the smaller transit agency – on average – about $15. The smaller transit agency must control demand by granting full eligibility only when warranted and by using conditional eligibility in other cases. This decision is made much easier by considering the results of the accessibility evaluation of fixed route stops, as described earlier in this section, combined with functional testing of complementary paratransit applicants.

Last, the paratransit reservationists who work for the smaller transit agency must have the ability to quickly access the specifics of a customer’s paratransit eligibility determination and apply it to the trip reservation and scheduling process. It is of little use to the transit agency to dedicate administrative resources to exerting stronger control over the disability certification process, considering conditional eligibility, and conducting functional testing if the information gained from those processes cannot be practically used to limit paratransit demand. A smaller transit agency must store all relevant information from the eligibility determination process in a robust paratransit scheduling software package or a proprietary scheduling database so that it can be quickly accessed when needed.

Smaller transit agencies may be reluctant to tighten the paratransit eligibility determination process because of the amount of effort required to do so. But a smaller transit agency that can successfully use the techniques described above to shift 20,000 annual paratransit trips to accessible fixed route services can, on average, afford a full-time staff member to evaluate paratransit applications, conduct functional testing, and deal with all aspects of conditional eligibility. And it is unlikely that a full-time staff member will be required to complete these tasks in many smaller agencies, therefore the staff member can be redirected to other tasks within
the paratransit operation when there is slack in the workload. In service areas where this is not possible, the smaller transit agency can likely identify and partner with a contractor to review applications and conduct functional testing, governed by a specific set of guidelines, at a reasonable cost.

**OFFER FIXED ROUTE TRAVEL TRAINING**

In service areas characterized by broad accessibility of fixed route transit, and a strong eligibility determination process that includes centralized certification of disability, functional testing, and granting of conditional eligibility, the smaller transit agency should offer fixed route travel training to increase the ADA-eligible passenger’s comfort level with respect to the fixed route system. Reluctance on the part of the customer to use accessible fixed route services can often be solved through intensive, compassionate one-on-one travel instruction, and, regardless of disability, such instruction leads to the development of better informational materials for all transit customers. In cases where the functional testing process reveals a high probability of being able to use fixed route services, the smaller transit agency should make travel training a condition of complementary paratransit eligibility.

As in the case of strengthening the eligibility determination process, where a smaller transit agency can shift a significant number of paratransit trips to accessible fixed route services through travel training, they can afford to have a staff member conduct that travel training in-house. An effective and less costly method, however, is to provide instruction of a “train the trainer” variety to representatives from local human service agencies whose clients use the local transit system. In this manner, the instruction can be provided to the end user by a person with whom that user is very familiar, and the human service agency is able to provide their clients with an additional valuable service that complements the other services they provide.

In either case, membership in the Association of Travel Instruction (ATI) is available at a minimal cost to help smaller transit agencies develop the skills necessary to teach persons with disabilities how to use transit services, obtain professional certification in travel training for their staff or human service agency staff, and network with other member agencies to develop better organizational practices with respect to travel training.

**CONSIDER ALTERNATIVE MODELS FOR ACCESSIBLE SERVICE DELIVERY**

It is important for the smaller transit agency to consider that accessible public transportation does not necessarily need to be delivered entirely through direct point-to-point service on the fixed route or complementary paratransit system. These two service delivery methods can be individually modified, or combined to some degree, to yield a more suitable alternative that provides the level of mobility demanded by the local market, while limiting the role of traditional complementary paratransit.

**Flexible Routes**

In service areas, or portions of service areas, that warrant some level of transit service but do not provide a suitable environment for regular fixed route service, the smaller transit agency should use deviated fixed route or flexible service. Such a service model combines the efficiency and productivity of fixed route with the greater degree of flexibility and responsiveness afforded by paratransit. To meet the requirements of the ADA, a flexible service must be available to deviate according to the ¾-mile rule, and operate without the denial of trips to qualified persons with disabilities. Because significant ridership growth in either the fixed route or deviating
component of the service can erode schedule adherence and give rise to trip denials, this option is only suitable in areas of low and relatively flat population, and low population density, or in emerging transit systems.

**Feeder Service**

In service areas, or portions of service areas, that are characterized by fully accessible fixed route transit, a strict paratransit eligibility determination process, and the presence of a fixed route travel training program, the smaller transit agency should employ ADA complementary paratransit service as a feeder to the fixed route where possible. This minimizes the consumption of operating and capital resources by the paratransit system while providing an ADA-eligible customer with greater independence and a less costly mobility option. For this to be successful, the transit agency must be able to schedule “just-in-time” connections between paratransit and the fixed route, by using a robust paratransit scheduling software package or proprietary scheduling database, and should also modify their fare and transfer policies to make the connection as appealing an option as possible for the customer.

**Commuter Express Routes**

Where consistent fixed route service throughout the day cannot be justified, as determined through regular, thorough evaluations of the fixed route system, there may still exist travel patterns between two points, primarily in one direction during the morning peak, and the other direction during the evening peak. Here, the smaller transit agency should use commuter express service. The use of such service conserves scarce operating and capital resources, and is not subject to the complementary paratransit requirement as prescribed by the ADA and succeeding regulations. Nevertheless, these services can be made largely accessible to ADA-eligible customers by ensuring the accessibility of the vehicle and stops.

**Improving Efficiency and Productivity**

After limiting complementary paratransit demand through the techniques described above, the remaining demand, including any subscription service, will serve as the backbone of the ADA complementary paratransit system. By modifying its operational practices, the smaller transit agency must make this remaining service as efficient and productive as possible.

**MAXIMIZE COMPLEMENTARY PARATRANSIT FARE REVENUE**

The ADA and succeeding regulations place an artificial cap on the revenue that a smaller transit agency can generate from complementary paratransit fares. By law and regulation, a complementary paratransit fare can be no more than twice the comparable fixed route fare. The cost of providing a complementary paratransit trip, however, is many times greater than that of a comparable fixed route trip. Accordingly, it is critical that smaller transit agencies set their complementary paratransit fare structure at the maximum level allowed by law and regulation. Doing so not only allows the agency to maximize paratransit revenue and improve cost recovery, but also serves to make accessible fixed route services – which assess half fares for registered persons with disabilities during non-peak periods – more attractive to the consumer.

**SUPPLEMENT COMPLEMENTARY PARATRANSIT WITH NON-ADA TRIPS**

Once the backbone of its ADA complementary paratransit system is in place, the smaller transit agency must supplement this base ridership with other populations where and when it makes sense to do so. Customers groups such as senior citizens, persons with disabilities not eligible
under the provisions of the ADA, human service agency clients, and even some members of the general public, do find paratransit attractive because of the responsive, personalized nature of the service provided. Moreover, depending on the nature of the service area, state and local government agencies and human service agencies may subsidize paratransit fares for some of these customer groups. Adding such clients into the system in locations and at times that exhibit excess capacity improves productivity and cost recovery without significantly increasing vehicle miles and hours; therefore, a higher level of service is provided to the community at a minimum of extra cost to the smaller transit agency.

The keys to effectively supplementing the backbone of the ADA complementary paratransit system with logical groups of non-ADA customers are flexibility and data availability. As non-ADA paratransit is not generally governed by strict standards of service delivery, or limits on the fare structure, the smaller transit agency must use its increased power of negotiation in order to mold these trips to more closely match the patterns of the ADA-eligible ridership. For example, the agency can employ a greater degree of negotiation with respect to pick-up and drop-off times so as to build passenger density and improve productivity. The agency can also set capacity constraints so as to avoid overloading the system and denying trips to ADA-eligible passengers. Moreover, fares can be set at a level low enough to facilitate ridership, yet adequate to recover a higher percentage of operating costs than the fare charged for ADA complementary paratransit. But the smaller transit agency must use good, readily available data to determine where and when non-ADA ridership can be safely added.

**ENCOURAGE GROUPING OF TRIPS**

In addition to taking action to supplement the backbone of its ADA complementary paratransit system with non-ADA ridership, the smaller transit agency must also facilitate group trips – including ADA complementary, non-ADA, and mixed trips – at appropriate times and within appropriate areas. Care must be taken so as not to overload the system and force either the deployment of an additional vehicle or the denial of trips to ADA-eligible passengers. But where trip grouping is successfully employed, the productivity and cost recovery of the system can increase significantly.

The Lane Transit District provides a sound model for trip grouping with its RideSource Shopper service. In this model, ADA-eligible customers in certain portions of the service area are given a reduced paratransit fare in exchange for scheduling regular trips to the grocery store on days and at times when LTD’s paratransit system exhibits excess capacity. But this special service is limited only to certain neighborhoods where adequate paratransit capacity exists to provide the trips.

Another effective technique would be to encourage ADA-eligible passengers to bring a friend or relative along on an outing to a major neighborhood trip generator, as such escorts riding between the same origin and destination points as an ADA-eligible passenger pay the same fare as that passenger. For example, during evening periods of low demand, in certain areas, the smaller transit agency could build paratransit passenger density by sponsoring a “Night at the Movies” for ADA-eligible passengers and their friends and families. The agency could charge a reduced individual fare to each rider, but bring in a greater total amount of revenue without increasing the level of service by providing several productive group trips. Such a strategy would also carry with it the added benefit of promoting recreation for persons with disabilities in the service area.
STRENGTHEN CANCELLATION AND NO-SHOW POLICIES

ADA complementary paratransit is intended to approximate the responsiveness and spontaneity afforded by fixed route transit. Accordingly, legal and regulatory provisions allow for scheduling and canceling paratransit trips on relatively short notice. Moreover, in cases where a customer’s disability involves a serious medical condition, complications can arise which force that customer to cancel the trip late or miss it entirely. In setting a cancellation and no-show policy, the smaller transit agency must be sensitive to these types of concerns. On the other hand, late cancellations and no-shows create excess capacity within the paratransit system, and bring about the inefficient and unproductive use of labor and vehicle resources. This research shows that smaller transit agencies stand to lose a great deal by failing to curb the practice of improper trip cancellation. Therefore, the smaller transit agency should set a reasonable and sensitive, yet stronger, cancellation and no-show policy as follows:

• Trips must be cancelled no later than one and one-half hours before the scheduled pick-up time
• If a trip is not cancelled by this established deadline, and the customer is not present at the pick-up point within three minutes of the arrival of the vehicle, a no-show is assessed
• For the first no-show in any six-month period, no action is taken
• For the second no-show in any six-month period, a warning letter is sent to the customer indicating that their paratransit eligibility is in jeopardy
• For the third no-show in any six-month period, eligibility is suspended for thirty days, and suspended indefinitely until a fine equal to the average cost of one paratransit trip is paid to the transit agency
• For all suspensions, due process is afforded through an appeal hearing, requested within five days of the notice of suspension, at which the customer has the opportunity to present any mitigating factors
• If an appeal hearing is requested, the suspension is stayed until the hearing is conducted and a final decision issued, at which time the suspension may be set aside

In this manner, the smaller transit agency can take a stronger position on cancellations and no-shows, and generate some revenue to compensate for the resources wasted as a result of improper trip cancellation, while providing several opportunities for the customer to correct their own practices and, if necessary, appeal a suspension based on mitigating factors.

But to really encourage responsible trip scheduling and cancellation, the smaller transit agency must also provide an incentive for those customers who consistently abide by established scheduling rules and policies. On an annual basis, the agency should generate a list of all paratransit customers that have not accumulated any no-shows during the preceding year. Each of these customers should be provided with voucher for three free trips.

USE PARATRANSIT SCHEDULING SOFTWARE OR A PROPRIETARY SCHEDULING DATABASE TO OPTIMIZE DAILY TRIP PATTERNS

The ADA and succeeding regulations prescribe very strict service delivery standards with respect to complementary paratransit. The smaller transit agency has little room to negotiate pick-up and drop-off times, must keep individual trip lengths and durations at a reasonable level, and must maintain an acceptable level of schedule adherence. Moreover, ADA complementary paratransit is inherently less efficient and productive than other types of demand response
services, and all other modes of transit. Accordingly, even in a very small system, it is unlikely that trips can be scheduled manually so as to yield the most efficient and effective mix, while adhering to all legal and regulatory requirements.

For these reasons, as well as concerns discussed earlier in this section with respect to the ¾-mile rule, data collection, conditional paratransit eligibility, and adding logical non-ADA trips and group trips into the system, the smaller agency must employ technology as a tool to facilitate scheduling and data collection and analysis. There exists a wide range of robust paratransit scheduling software packages to assist the smaller transit agency in these tasks; however, such software represents a significant investment of capital funds. It may be possible for the agency to develop, either in-house or in conjunction with an outside vendor, a proprietary scheduling database that is just as effective. The critical issue is to employ technology to optimize schedules and enable the transit agency to collect and analyze detailed data in a manner that is cost-effective and appropriate to the agency.

**CONSIDER CONTRACTING**

To more effectively manage the ADA complementary paratransit requirement, many smaller transit agencies purchase transportation services from a private or nonprofit contractor. Contracting is a strategy employed for several reasons, including cost containment, flexibility in scheduling labor and vehicle resources, risk management, and as a means to bring in additional knowledge of transit operations or the service area. It is clear that contracting for paratransit services can yield a better paratransit system at a lower cost, but this is not categorically true in all service areas. Smaller transit agencies must weight the potential benefits of contracting against the needs of the agency and the local community, and make the choice that is most appropriate to meet these needs.

Where contracting for all paratransit service is not possible, or is not desirable, a better option may be to subcontract portions of the service. This can be accomplished in several ways. For example, a smaller transit agency should identify local human service agencies within the service area that operate their own fleet of paratransit vehicles, and work cooperatively with those agencies to determine whether trips may be bartered in such a way that improves efficiency, productivity, and service quality to the mutual benefit of all parties. Or perhaps there are local taxi companies that may be willing to offer a significantly reduced rate for transportation in exchange for the opportunity to fill periods of slack demand in their own systems. Subcontracting paratransit trips to such companies, even though they are for-profit entities, can lower total costs and improve the cost recovery of paratransit service.

If paratransit trips are subcontracted to an outside provider to improve efficiency and productivity, regardless of the specific method employed, the smaller transit agency needs to have a strong agreement that governs the manner in which the trips will be provided. There are several key considerations that must be reflected in the agreement. Specific service delivery standards must be set, and be accompanied by enforcement mechanisms. Contractor employees must represent the smaller agency in suitable fashion. The revenue generated from purchased paratransit services must be protected and accounted for. Detailed operating data must be collected. And most importantly, the smaller agency must be able to communicate effectively with the contractor, not only on an operational level, but also on a strategic one.
WIDELY BROADCAST ACCESSIBLE TRANSIT INFORMATION

Transit trips are facilitated by comprehensive and clear information. This is especially true with respect to ADA complementary paratransit and other accessible transit services, which often operate in a complex environment of legal and regulatory provisions and individual agency rules, policies, and procedures. Significant administrative effort can be expended as the smaller transit agency acclimates customers to these rules, policies, and procedures; this increases the total cost of operating accessible transit services.

For this reason, the smaller transit agency must make comprehensive and clear information regarding accessible transit services, including ADA complementary paratransit, as widely available as possible. Moreover, this information must facilitate independent access by prospective clients. One particularly effective and inexpensive method by which to broadcast this information is through website development. A thoroughly developed website can include an application for complementary paratransit, eligibility guidelines, procedures for having a disability certified, rules of the paratransit program, fares, days and hours of service, information regarding accessible fixed route services, and a list of frequently asked questions. The website should include this information in plain-text format so that it can be read by persons with visual impairments who make use of screen reader software.

Other methods for widely broadcasting information with respect to accessible transit services include the development of a printed rider guide, and the dissemination of information to local human service agencies whose clients tend to use transit services. Regardless of the specific methods employed to make information widely available, the practice can increase rider competency in using the system, and can relieve the smaller transit agency of administrative burden.

PARTNER WITH OTHER AGENCIES TO PURCHASE EQUIPMENT AND SUPPLIES

By virtue of their size, smaller transit agencies are at a distinct disadvantage when it comes to purchasing capital equipment and operating supplies, and receiving customer service following procurement. Because smaller transit agencies purchase equipment and supplies in smaller quantities, they cannot always enjoy the volume discounts that their larger counterparts receive. Moreover, to ensure repeat business, vendors are more likely to reserve their best after-the-sale service for their larger customers.

But by banding together with other agencies, the smaller transit agency becomes part of a much larger collective group. This collective, whether formally organized by a government agency, or informally connecting like agencies, wields a greater level of power with which to negotiate better prices for equipment and supplies, receive better quality products, realize a faster delivery time, and demand a higher level of customer service.

To improve its operating condition by cutting costs and lessening the administrative burden of procurement, a smaller transit agency must identify agencies with similar equipment and supply needs, and work toward cooperative purchasing agreements for vehicles, fuel, tires, maintenance parts, insurance, office supplies, and the like.

USE SMALLER VEHICLES WHERE APPROPRIATE

Regardless of the specific strategies employed to reduce complementary paratransit demand and supplement the backbone of their system with non-ADA paratransit ridership, any smaller transit
agency will likely be left with at least a handful of trips that must be provided to only one or two people, over long distances or in remote portions of the service area. In these situations, the smaller transit agency incurs a higher-than-necessary level of operating costs by using a traditional paratransit vehicle to provide low-density trips over long distances, and fails to capitalize on the opportunity to reserve the capacity of larger vehicles for the core service area.

Especially where low-density, far flung trips are taken by persons with disabilities who do not require the use of a wheelchair lift, the smaller transit agency must purchase and appropriately use smaller vehicles – vans, minivans, and passenger sedans – that are more efficient and less costly to buy, staff, fuel, maintain, and insure. Moreover, these smaller vehicles must be scheduled at the most appropriate times and in the most appropriate locations by using a paratransit scheduling software package or proprietary scheduling database.
CONCLUSION

Transit agencies receive considerable amounts of funding from government at the federal, state, and local levels. Providing transit subsidy gives government the authority to set policies which ensure that the benefits of the subsidy are distributed fairly and equally. Accordingly, as a steward of public funds, transit agencies are obligated, to the best possible extent, to make mobility available for all citizens. Supplying accessible transit services to persons with disabilities is an activity fully consistent with this mission.

Federal, state, and local governments have adopted legislation prohibiting discrimination in all areas of public service and accommodation. But nowhere is equality more important than in public transportation. Mobility is the cornerstone of independence. For persons with disabilities who cannot provide this mobility for themselves, equal access to public transportation can make all the difference between a life characterized by personal growth and meaningful contribution to society, and one marked by isolation and unrealized potential. Making employment, educational, and recreational opportunities accessible yields a lower level of benefit if a person is physically unable to reach these opportunities.

The legal and regulatory provisions resulting from the ADA do much to secure equal access to public transportation for persons with disabilities. Accessible fixed route services promote an independent, spontaneous lifestyle, and do so at reasonable cost to the consumer. Complementary paratransit services are necessary to approximate similar benefits for those who are unable to access a fixed route.

Providing equal access to public transit services for persons with disabilities not only requires changing attitudes, it requires changes and additions to the level of physical infrastructure and service. Both shifts are equally challenging and difficult, but the latter entails tangible and considerable costs. Moreover, complementary paratransit as defined by the ADA – like most demand response service – is inherently more labor-intensive, more vehicle-intensive, and less efficient and productive than other modes of transit service. While certainly valuable to the community, such service presents very real and pressing challenges to the smaller transit agency. Some of these challenges are common to all agencies, while others are unique to the service area.

Fortunately, there is ample evidence to suggest that these challenges can be more effectively managed by smaller transit agencies so as to provide a greater level of accessibility while conserving scarce resources. The key to these improvements is action – by elected officials, agencies with funding authority, transit managers, and persons with disabilities.

Though most of the complementary paratransit provisions contained in the ADA and succeeding regulations are sensible, two require minor changes to allow smaller transit agencies to operate more efficiently. Moreover, federal, state, and local governments must be mindful of the additional costs involved in providing accessible transit services, and make an investment commensurate with the importance of this activity – persons with disabilities and transit managers must demand nothing less.

Smaller transit agencies do require outside assistance, but bear much of the responsibility for improving the operation of their own paratransit service. They must maximize their operating revenue and improve their data collection in such a way that drives better management decision-making and policy development. They must work to improve the accessibility of their fixed route services – as such services promote the highest level of independence – then shift demand...
from complementary paratransit services. Last, they must take action to make their remaining paratransit service as efficient and productive as possible.

Where the practical recommendations offered in the preceding chapter are not sufficient to solve all of the unique problems within individual smaller transit service areas, a sufficient knowledge base exists – both within the practices employed by smaller transit agencies as summarized in this research, and through consultation with similar agencies – to develop and adapt solutions that further meet the needs of the local community while improving the operating condition of the transit agency.
APPENDIX A – ADA PARATRANSIT SURVEY QUESTIONNAIRE

General Contact Information

1) Name of agency:

2) Key contact persons(s) and title(s):

3) Address:

4) Phone number(s):

5) Fax number(s):

6) Email address(es):

7) Agency web address:

Transit Agency Information

1) Year of agency inception:

2) Service area characteristics:
   2a) Area (square miles):
   2b) Population (2000 census):
   2c) Rural, suburban, small urban, mix? If a mix, please explain:
   2d) General population growth trend (increasing, flat, decreasing):
   2e) Does the service area cross county and/or state lines? Please describe:
   2f) Please list the primary cities and towns within the service area:
   2g) Does your agency’s service area present any remarkable geographic, climatic, or topographic barriers to the efficient operation of ADA complementary paratransit services? Please explain.

3) Transit system characteristics:
   3a) Modes offered:
   3b) Total annual ridership (FY 2002-03):
   3c) Basic fleet description:
   3d) Basic organizational structure (functional areas, geographic divisions):

Initial Implementation of ADA Complementary Paratransit

1) Did your agency provide paratransit for persons with disabilities before the passage of the ADA? Please describe.

2) When was the complementary paratransit plan for your agency approved by the FTA? If you could provide a copy of your plan it would be helpful.

3) When did your agency implement complementary paratransit under the provisions of the ADA? If implementation was staged, please explain:

4) Did your agency request and/or receive any complementary paratransit-related implementation extensions or “undue financial burden” waivers from the FTA? If so, please explain the circumstances:
Paratransit Service Characteristics

1) Does your agency currently offer paratransit services beyond the complementary paratransit provisions of the ADA? If so, please describe the various populations eligible to receive this service:

2) Is your paratransit service characterized as door-to-door or curb-to-curb?  
   2a) If applicable, does this characteristic differ between ADA complementary paratransit and other types of paratransit? If so, how?

3) Please describe the major steps a customer must follow to apply for, be found eligible for, reserve, and complete trips on your paratransit services, including any relevant deadlines or trip cancellation/no-show policies.  
   3a) If applicable, do these steps differ between ADA complementary paratransit and other types of paratransit? If so, how?

Paratransit Operating Arrangements

1) Does your agency directly operate ADA complementary paratransit services, purchase these services from a private contractor, or some mix of both? Please describe the percentages both directly operated and contracted in terms of revenue miles, revenue hours, and/or passenger trips.  
   1a) If applicable, how does this operating arrangement differ from the other fixed route and paratransit services your agency offers?

2) Has your agency changed its ADA complementary paratransit operating arrangement from directly operated to purchased transportation (or vice versa) at some point since implementing the service? If so, please describe.

3a) If your agency purchases ADA complementary paratransit services from a private contractor, what was the basis for this decision? What real benefits has your agency observed from contracting?

3b) If your agency directly operates its ADA complementary paratransit services, what was the basis for this decision? What real benefits has your agency observed from directly operating?

3c) If your agency both purchases and directly operates portions of its ADA complementary paratransit services, what was the basis for this decision? What real benefits has your agency observed by purchasing a portion of services while directly operating the remainder?

ADA Complementary Paratransit Funding

1) How are your agency’s ADA complementary paratransit services funded? Please provide a rough breakdown of funding sources by percentage, and provide some detail regarding any state funding programs that are used, as I will likely not be familiar with the programs in your individual state.

2) Has the increased flexibility of transportation funds, as initiated by the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) and continued by the Transportation Equity Act for the 21st Century (TEA-21), enhanced your agency’s ability to fulfill the ADA requirement for complementary paratransit? Please explain.
**ADA Complementary Paratransit Performance Trends**

1) What is the general trend in the number of ADA complementary paratransit passenger trips provided by your agency? If you could provide the annual number of ADA complementary paratransit trips since your agency’s inception of the service, it would be helpful.
   1a) To what do you attribute this trend?

2) What is the general trend in the capital and operating costs of ADA complementary paratransit service provided by your agency? If you could provide the annual capital and operating costs of ADA complementary paratransit since your agency’s inception of the service, it would be helpful.
   2a) To what do you attribute this trend?

3) What is the general trend in the revenue miles of ADA complementary paratransit service provided by your agency? If you could provide the annual revenue miles of ADA complementary paratransit since your agency’s inception of the service, it would be helpful.
   3a) To what do you attribute this trend?

4) What is the general trend in the revenue hours of ADA complementary paratransit service provided by your agency? If you could provide the annual revenue hours of ADA complementary paratransit since your agency’s inception of the service, it would be helpful.
   4a) To what do you attribute this trend?

**ADA Complementary Paratransit Challenges and Solutions**

1) What would you describe as the primary challenges your agency faces in providing ADA complementary paratransit services? Please explain.

2) Has the ADA complementary paratransit requirement changed the manner in which you go about planning for new and/or expanded fixed route services? Please explain.

3) Has your agency reduced other fixed route or paratransit services, raised fares, or eliminated administrative staff positions as a result of your compliance with the ADA complementary paratransit requirement? Please explain.

4) How has your agency succeeded in meeting challenges, and/or gained efficiencies, in the provision of ADA complementary paratransit services? Please describe your accomplishments, if applicable, in the following areas:
   4a) Communication systems:
   4b) Driver or dispatcher training:
   4c) Fare structure and collection methods:
   4d) Fixed route bus stop design and placement:
   4e) Fixed route design and scheduling:
   4f) Inter-jurisdictional coordination:
   4g) Labor negotiations:
   4h) Organizational structure:
   4i) Paratransit route design and scheduling:
   4j) Partnerships with other local transportation or human service agencies:
   4k) Person and trip eligibility processes:
   4l) Public information:
4m) Rider policies:
4n) Securement of new and/or additional funding:
4o) Technology:
4p) Travel training for persons with disabilities:
4q) Trip reservation process:
4r) Vehicle maintenance:
4s) Vehicle selection and procurement:
4t) Other:

**The Future of ADA Complementary Paratransit**

1) Is your agency currently planning or pursuing any future initiatives to further meet challenges, and/or gain efficiencies, in the provision of ADA complementary paratransit services? Please explain.

2) Understanding the strong roots of the ADA in transportation and disability policy, and the importance of the ADA complementary paratransit requirement to persons with disabilities, would you recommend any changes to the current laws or regulations to increase the efficiency and/or utility of your services? What would these changes achieve?

**Other**

1) Are there any other important points you would like to raise regarding your agency’s ADA complementary paratransit service and the manner in which your agency is meeting its challenges?
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ABOUT THE AUTHOR

Gregory Matthew Kausch was born in Freehold, New Jersey and raised in the suburbs of Pittsburgh, Pennsylvania. The son of two New York City area natives – Dolores, a registered nurse, and Harold, an international freight traffic executive – Gregory comes from a family dependent on buses and trains for access to educational, recreational, and employment opportunities. He was introduced to public transportation as a young boy, and by the age of 14 could navigate both the New York City and Washington, DC subway systems despite his upbringing in suburban Pittsburgh. Thus began his lifelong interest in the movement of people and goods, as well as in the effects these movements have on communities.

While an undergraduate student at the Pennsylvania State University in State College, Pennsylvania, Gregory was selected as an intern for the Beaver County Transit Authority (BCTA) in Rochester, Pennsylvania. During his 15 months as an intern for BCTA, Gregory participated in a major reorganization of fixed route schedules and fares, assisted in planning for new services, designed a circulating shuttle route for a nearby high-growth area, and conducted a feasibility study focusing on the use of alternative fuel transit vehicles.

Following completion of extensive coursework in freight transportation, inventory control, and geography, Gregory graduated from the Penn State in May 2000 with a Bachelor of Science degree in Business Logistics. He embarked upon his professional career later that year with the California Department of Transportation (Caltrans).

As a Transportation Planner for the Caltrans District 3 Office of Regional Planning in Sacramento, Gregory reviewed local development projects for potential impacts to the state highway system, participated in the development of a regional goods movement plan, updated District 3 project information for inclusion in the area Metropolitan Transportation Plan (MTP), and served as the District 3 coordinator for the California Transportation Investment System (CTIS) tool – an application that utilizes geographic information system (GIS) technology to allow Caltrans employees, local government officials, and members of the general public to analyze and map transportation investment throughout California.

With the goals of lifelong learning and career advancement, and with financial support from Caltrans, Gregory entered the Master of Science – Transportation Management Program under the auspices of the Mineta Transportation Institute at San Jose State University in August 2001.

Shortly thereafter, Gregory accepted an offer to return to the Pittsburgh area as BCTA’s Service Development Coordinator. In January of 2002, he began the task of reorganizing the BCTA fixed route system to operate on “pulsed” connections – where all routes converge on designated transfer points at the same time – as well as consistent 30- and 60-minute headways. In doing so, he increased the efficiency, utilization, and simplicity of the transit system while actually cutting modest amounts of service.

In May of 2003, Gregory was promoted to BCTA Manager of Planning and Service Quality. He oversees a full-time staff of four, and his current charges include further simplification of the fixed route fare structure, development of the agency website, and increased interaction with transit riders to develop market-based mobility solutions.

Gregory continues to live in the City of Pittsburgh, often making his 80-mile round trip commute by bus. He plans to pursue a second Master of Science degree in Urban and Regional Planning.