# TCRP
## REPORT 82

TRANSIT
COOPERATIVE
RESEARCH
PROGRAM

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# Improving Public Transit Options for Older Persons

## *Volume 2: Final Report*

TRANSPORTATION RESEARCH BOARD
*OF THE NATIONAL ACADEMIES*

TRANSIT COOPERATIVE RESEARCH PROGRAM

TCRP REPORT 82

# Improving Public Transit Options for Older Persons

## *Volume 2: Final Report*

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**SUBJECT AREAS**
Public Transit • Planning and Administration

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

**TRANSPORTATION RESEARCH BOARD**

WASHINGTON, D.C.
2002
www.TRB.org

**TRANSIT COOPERATIVE RESEARCH PROGRAM**

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

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

TCRP was established under FTA sponsorship in July 1992. Proposed by the U.S. Department of Transportation, TCRP was authorized as part of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA). On May 13, 1992, a memorandum agreement outlining TCRP operating procedures was executed by the three cooperating organizations: FTA; The National Academies, acting through the Transportation Research Board (TRB); and the Transit Development Corporation, Inc. (TDC), a nonprofit educational and research organization established by APTA. TDC is responsible for forming the independent governing board, designated as the TCRP Oversight and Project Selection (TOPS) Committee.

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Because research cannot have the desired impact if products fail to reach the intended audience, special emphasis is placed on disseminating TCRP results to the intended end users of the research: transit agencies, service providers, and suppliers. TRB provides a series of research reports, syntheses of transit practice, and other supporting material developed by TCRP research. APTA will arrange for workshops, training aids, field visits, and other activities to ensure that results are implemented by urban and rural transit industry practitioners.

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

# TCRP REPORT 82: Volume 2

Project B-19 FY'99
ISSN 1073-4872
ISBN 0-309-06769-3
Library of Congress Control Number 2002113156



**Price $36.00**

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The members of the technical advisory panel selected to monitor this project and to review this report were chosen for recognized scholarly competence and with due consideration for the balance of disciplines appropriate to the project. The opinions and conclusions expressed or implied are those of the research agency that performed the research, and while they have been accepted as appropriate by the technical panel, they are not necessarily those of the Transportation Research Board, the National Research Council, the Transit Development Corporation, or the Federal Transit Administration of the U.S. Department of Transportation.

Each report is reviewed and accepted for publication by the technical panel according to procedures established and monitored by the Transportation Research Board Executive Committee and the Governing Board of the National Research Council.

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*are available from:*

Transportation Research Board
Business Office
500 Fifth Street, NW
Washington, DC 20001

and can be ordered through the Internet at
http://www.national-academies.org/trb/bookstore

Printed in the United States of America

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# FOREWORD

*By Dianne S. Schwager*
*Staff Officer*
*Transportation Research Board*

*TCRP Report 82: Improving Public Transit Options for Older Persons* will be of interest to practitioners and policymakers in agencies and organizations that plan, provide, administer, and fund public transit that may serve older persons. The research presents information for public transportation providers and planners to address future transportation challenges generated by an increasingly older society. It describes exemplary transportation services and innovative transportation alternatives that will enable older persons in the United States to maintain the independence they want.

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The elderly population in the United States will increase significantly by the year 2030. Mobility will be critical to this population's continued independence and quality of life. Many older persons are projected to continue to reside in their current suburban or rural communities (which seldom have good public transit service). Most older persons will have been automobile drivers for many years and can be expected to demand high levels of mobility and high-quality transportation services from all travel modes that they use. In the future, there may be a greater number of older persons who have mobility or income limitations. There may be substantial numbers of frail and poor older women living alone at a low level of independence. Decreasing family ties may lead to a greater focus on non-family sources of travel assistance. The combination of these factors is expected to pose substantial challenges for public transportation providers who wish to capture a significant proportion of the trips of tomorrow's older persons.

Under TCRP Project B-19, "Improving Transit Options for Older Persons," the research team of Westat, in association with Creative Action, Inc., and Christopher Mitchell, conducted the research project. Preparation of *TCRP Report 82* involved an in-depth literature review, analyses of various large-scale databases, focus groups with older persons, focus groups and expert interviews with transit industry representatives, case studies of the best practices from transportation programs designed to improve travel opportunities for older persons, and identification of opportunities for further innovations.

The research results are presented in three products: a color brochure, a research Final Report, and a Handbook. The color brochure allows readers to quickly grasp the key issues and findings of the research. The brochure, which is included in the Final Report also, is available separately. The research Final Report includes four sections: (1) Trends and Prospects, (2) Transit System Characteristics That Better Serve the Travel Needs of Older Persons, (3) Strategies for Implementing Better Transportation Services for Older Persons, and (4) Conclusion: Stepping Up to the Challenges to Better Transportation Services for Older Persons. The Handbook describes how to improve public transit services to make them more attractive to older persons. The Handbook provides a menu of choices regarding paths to better transit services for older persons. Many choices are available; some communities will find certain options more attractive or more feasible than other options. To make significant improvements, most of the options will need to be used in combination with other options.

### AUTHOR ACKNOWLEDGMENTS

The research for this Final Report was performed under TCRP Project B-19 by Westat, Creative Action, Inc., and Christopher G.B. Mitchell, private consultant. Jon E. Burkhardt, senior study director at Westat, was this project's principal investigator. Jon Burkhardt and Adam T. McGavock of Westat, Charles A. Nelson of Creative Action, Inc., and Christopher G. B. Mitchell were the key authors of this Final Report. They were assisted by Robert Ficke, Beth Rabinovich, and Jan Orlansky of Westat, and by Vincent Antenucci and Anton Yackmenev of Creative Action, Inc.

We would like to thank many people for substantial contributions to this project. Our TCRP project officer, Dianne S. Schwager, deserves many thanks for her dedicated and professional direction of the project panel's efforts in a cooperative working relationship, as well as her support and encouragement throughout the project. We are grateful for the guidance and assistance provided by the members of our project panel. We sincerely appreciate the time and insights given to us by many older travelers and public transportation operators who worked with us in our focus groups and interviews.

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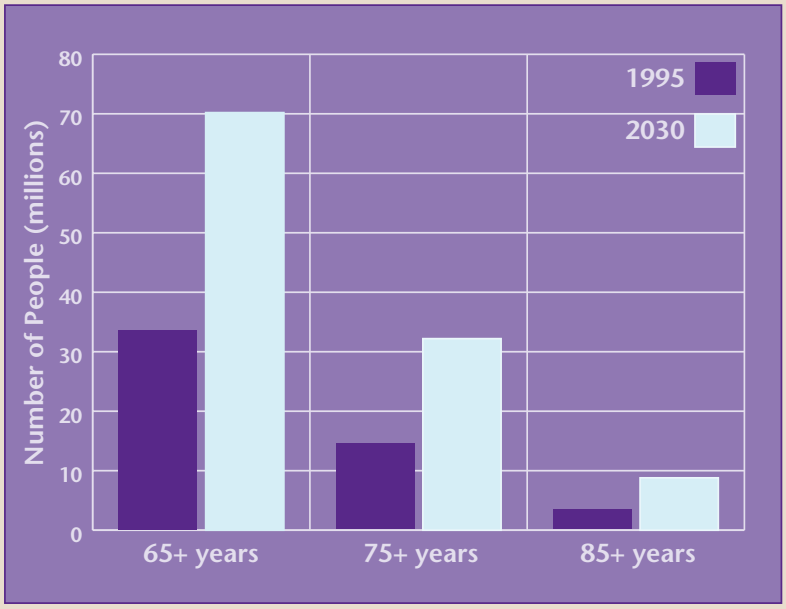
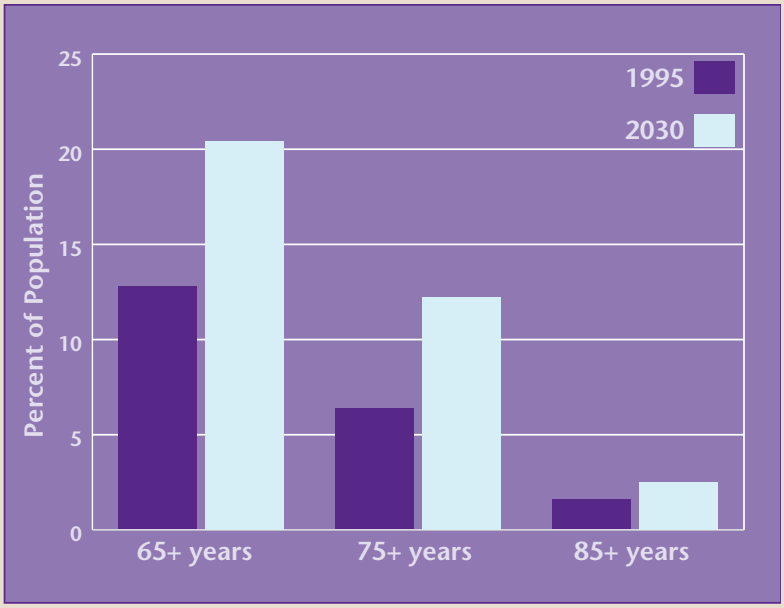
*Executive Summary of*
*TCRP Report 82*
*Transit Cooperative Research Program*

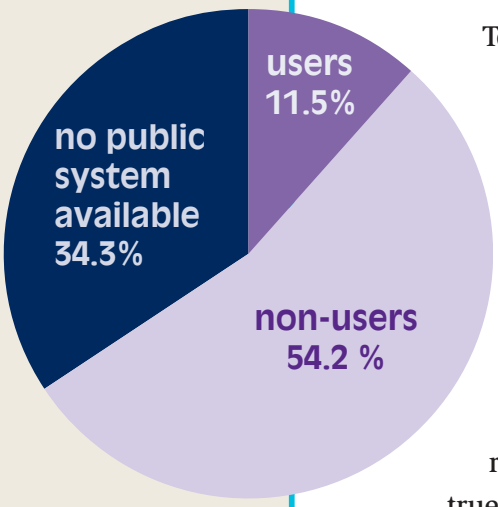
# Improving Public Transit Options for Older Persons


## *The Demographic Challenge*

Between the year 2000 and the year 2030, the number of older persons in the United States is expected to double. By that time, the proportion of our population 65 years of age and older will be much greater than today. Compared to today's older persons, tomorrow's older persons are projected to be more highly educated, healthier, more active, and enjoying higher incomes. But the future may also include a greater number of older persons who have mobility or income limitations. Tomorrow's older persons will likely represent a more diverse set of backgrounds and cultures, and a wide spectrum of needs and desires, with no one "average older traveler."






**Public Transit Use Among Older Persons**

Source: National Center for Health Statistics, National Health Interview Survey on Disability, Supplement on Aging II, 1994

Today's seniors use public transit for about 3 percent of their trips; less than 12 percent of all seniors have used public transit in the last 12 months. Tomorrow's older persons are likely to travel much more frequently and to a wider range of destinations than is true today. They are projected to be more often residents of suburban or rural communities (where public transit seldom exists) than of central cities, where extensive public transit services are often found. Most of tomorrow's older persons will have been automobile drivers all their lives and could be expected to demand high-quality transportation services.

The combination of all these factors will pose substantial challenges for public transportation providers. How can they capture a significant proportion of the trips of tomorrow's older persons?

## What Do Older Travelers Want?

Future older travelers are likely to be more service-oriented than today's older riders. According to focus groups, older consumers are most concerned about the **reliability** of public transit. Many older persons are not able to wait outside for long periods of time, especially in poor weather conditions, so on-time arrivals are highly valued. Older travelers want **door-to-door service**. They want flexible services that respond to the needs

### WHAT DO OLDER TRAVELERS WANT?

| Service attributes | Most important features | Other features |
|---|---|---|
| • Acceptability | • Reliability | • Comfort |
| • Accessibility | • Proximity (door-to-door) | • Physical accessibility<br>• Information accessibility |
| • Adaptability | • Flexibility | • Assistance with special needs |
| • Availability | • Responsiveness/frequency | • Hours/days of service |
| • Affordability | • Fare | • Discounts/subsidies when needed |

of particular trips, like carrying parcels or traveling with others. They look for **comfortable vehicles and waiting areas**, and services that will arrive on less than a 24-hour notice. Older travelers are also looking to travel **more hours of the day and days of the week** than many public transit authorities currently offer. In short, older travelers are looking for travel services that provide what nearly all consumers desire when purchasing most services and products: control, autonomy, and choice.

## Are the Needs of Older Travelers Different?

Not by much. Older travelers may have more physical limitations than the general population: this leads to some difficulties in activities like walking long distances to a bus stop, waiting for extended periods for a bus to arrive, climbing stairs to board a vehicle, and standing while a vehicle is in motion. Driver friendliness is especially prized by older transit users, who may need a little more time in boarding and alighting, or who may need additional travel information. Padded seats and smooth rides can be very important to those older persons who are thin and frail. Some older persons are very price sensitive due to fixed and limited incomes, but so are many members of the general public. Some older persons will experience a greater need for transit services as their driving abilities decline. Some are reluctant to try new experiences, and riding public transportation will be a new experience for many seniors, who will seek more than the usual level of information and assistance before feeling comfortable with a new way of travel. None of these features make older travelers very different from younger travelers; they just need a bit more time and attention. The kinds of public transit improvements that would attract greater numbers of older riders are likely to attract more riders of all age groups.

## How Do Transit Agencies Attract More Older Riders?

If transit agencies want to attract more older riders, they will need to do more than just wait for seniors to become too old or infirm to drive—the physical problems associated with aging that make driving difficult also make using our current forms of public transportation very difficult.

There are both short-term and long-term strategies for attracting more older riders. Both require

adopting a more customer-oriented approach to public transportation. **In the short run**, transit agencies could:

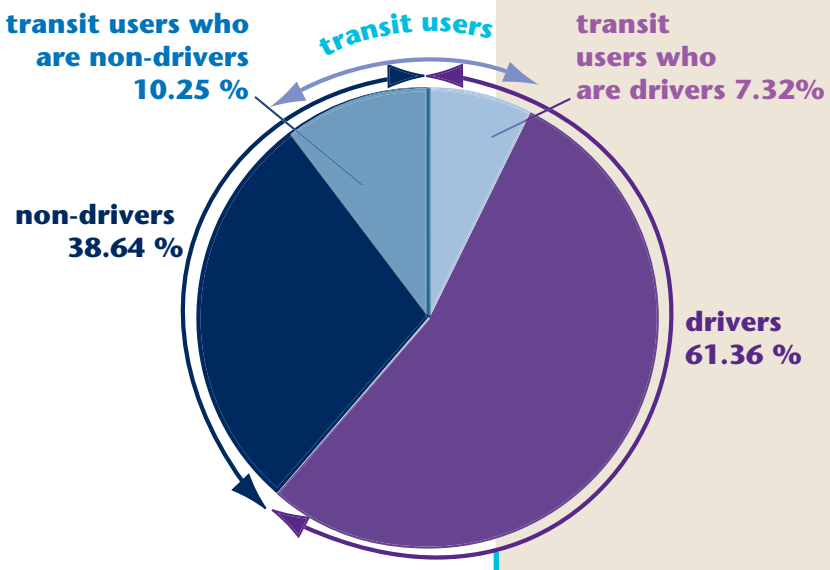
- Improve schedule reliability and provide real-time arrival/departure schedule information using advanced technologies;
- Provide "guaranteed ride home" services;
- Find ways of welcoming people who are not now accustomed to using transit service, including customer relations training for drivers, travel training for passengers, and "bus buddies";
- Find ways to help older persons board vehicles when needed;
- Improve information and provide much more of it, both for trip planning and while traveling;
- Add customer service features, such as calling out stops, reserving more seats for older persons, providing more friendly and more detailed travel information, providing more telephone lines for information, and making systems more responsive to complaints;
- Work with human service organizations and volunteer agencies to better serve the more specialized travel needs;
- Partner with representatives of the aging community to build additional community support for more local transit funding;
- Provide special vehicles for special events;
- Minimize physical barriers, such as steep or long stairs on buses or subway stations, standing and waiting outside in all kinds of weather for long periods; and
- Put an emphasis on polite, courteous drivers.

**In the long run**,

- Multiple types of services, offered at varying prices, could go a long way to replacing the "one size fits all" approach to public transportation with options that riders could choose on their own to fit the specific demands of individual days and trips.
- Shared-ride demand-responsive services, dispatched and controlled through advanced technologies, could provide higher levels of service than now available at higher levels of productivity and cost-effectiveness.
- Frequent, comfortable, affordable, spontaneous service to a wide variety of origins and destinations over a wide range of service hours is what seniors desire. Providing trips with these attributes may prove challenging for some transit agencies, but services of these types will be rewarded with patronage.

## What's the Payoff for Transit Providers?

In 1995, the number of people age 65 and older who neither rode transit nor drove was greater than the number of people who used public transportation. Among the oldest seniors, there were even more people who did not drive and did not use transit than people who used public transportation. There is a large unserved older population, not able to drive themselves, waiting for good transportation services. In addition, there are choice riders who report that they would take public transit if the trip and service characteristics fit. The market is there — who will step up to serve that market? Will it be the public transit industry or someone else?




**Travel Modes of Seniors**
Source: National Center for Health Statistics, National Health Interview Survey on Disability, Supplement on Aging II, 1994

## Are Improved Transit Services for Older Persons Worth It?

Common consequences for older persons whose mobility declines include fewer trips, shorter travel distances, and no trips to certain destinations or at particular times. They become less able to maintain independent life styles, more dependent on others, and are forced into more arduous planning for even simple trips. Not responding to the mobility needs of older persons could create serious consequences, including the increasing isolation of our oldest citizens, loss of their potential contributions to our society because of declining health and unnecessary institutionalization, and a large number of avoidable traffic injuries and fatalities (because older persons without viable travel options often continue to drive even when doing so endangers themselves and others). Improved transit services can address these needs, and transit services that better serve older persons will better serve other transit riders as well.

## Fundamental Improvements Required of Transportation Providers

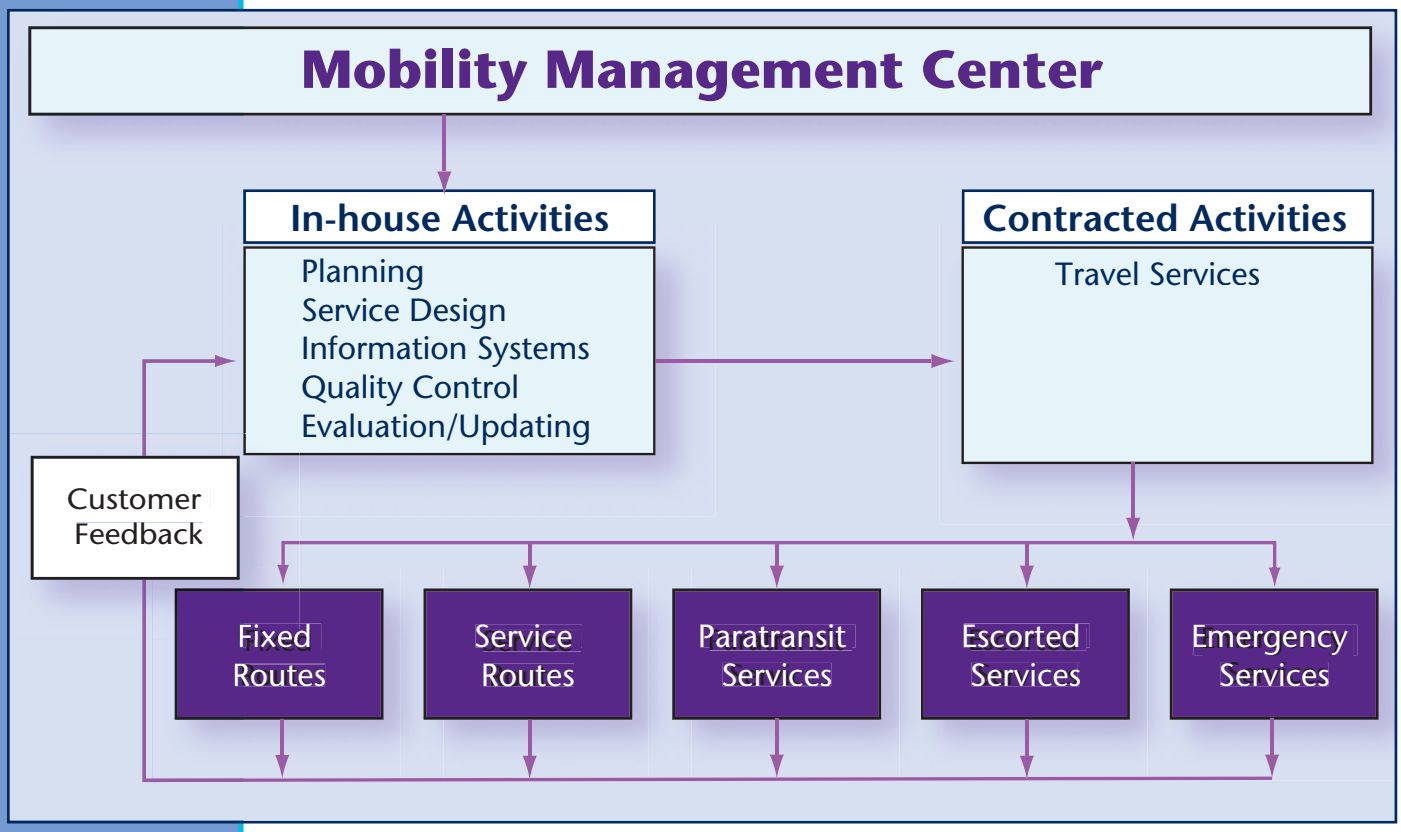
Transit agencies wishing to respond to the changing needs and demands of tomorrow's older persons will need to reconfigure their operations

and services; traditional approaches will not be considered responsive. Fundamental changes are needed in five areas:

**Consumer Orientation**—Future customers will gravitate to those services that most closely fit their specific demands. Following the lead of consumer-oriented industries like package delivery services, personal transportation services will need to focus on **tailoring travel options to the wishes of individual customers**. The primary focus thus shifts to the trip instead of the travel mode. Demand-responsive services will be highly favored, as will services that emphasize customer comfort.

**Agency Responsibilities**—As is already happening in Europe, many agencies that now provide transportation should embrace new paradigms for public transportation services. This means **shifting their focus to mobility management, organizing but not operating public transit services**. Contracts for various types of services with multiple kinds of service providers could provide different kinds and levels of service for differing travel needs. Advanced transportation organizations will be seen primarily as travel facilitators, not service providers.

**Customer Choice**—Older travelers will demand many more travel options in the future. **Multiple service types at varying prices** will be needed. Recognizing that no one solution fits all travel needs, heavy emphasis on one or two modes of travel will be replaced by more travel options

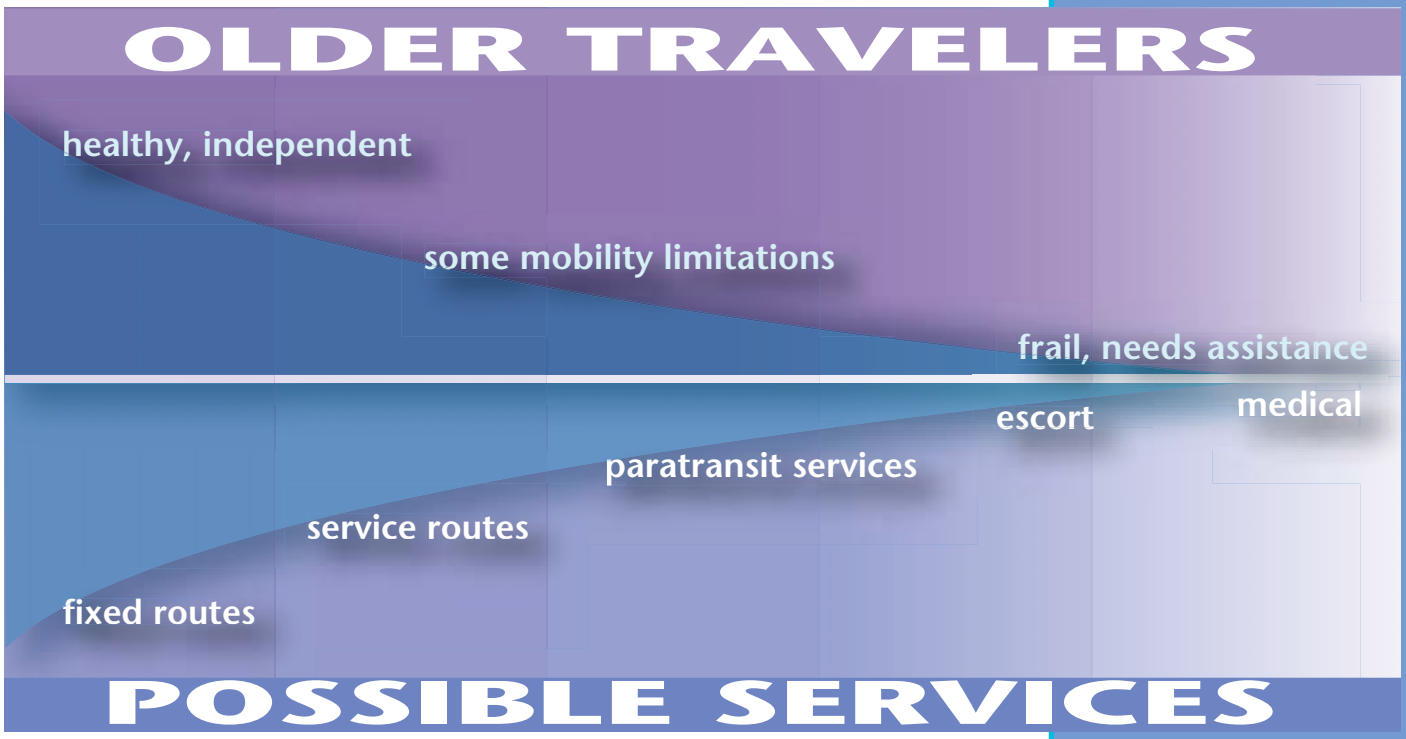


within an overall family of services. High levels of responsiveness, speed, comfort, and flexibility will command higher prices; trips reserved in advance with more scheduling dictated by the operator than the consumer will command lower prices.

**Fare Strategies**—Future transportation operators should focus on **full cost recovery** for the trips that they provide; non-operating agencies could assume responsibility for providing subsidies for those riders deemed to need subsidized trips. Electronic fare payments will predominate.

**Advanced Technologies**—Consumer-oriented technologies can provide **real-time information** about when vehicles will arrive to pick someone up and how long trips may take. **Low-floor vehicles** should be emphasized, as should **non-cash financial transactions**.

There is a role in the future for all of today's familiar transportation services and probably some that have not yet been designed. Large vehicles operating on fixed routes and schedules can still serve high-volume routes and destinations. Service routes and feeder services, with multiple stops in small areas like neighborhoods, will grow in number and demand. A strong role for taxis and paratransit services will develop as they change to meet increased demands for quality service and flexible responsiveness and pricing. Special services operated by human service agencies will continue to address special client needs. Services provided with volunteers will assume an even larger role in responding to the unique needs of travelers for whom other services are not cost-effective. To the extent that all of these components can be managed



*Copies of the full report of this project, "Improving Public Transit Options for Older Persons," TCRP Report 82, are available from the Transportation Research Board or the American Public Transportation Association. On-line requests may be placed at the respective web sites, **www.nas.edu/trb/** or **www.apta.com**.*

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and coordinated by one central office, the chances for high-quality, cost-effective services improve dramatically.

Innovative transportation services are beginning to appear in some communities. From specialized services operated for human service agency clients to public and private paratransit operations to major transit authorities, new service types are being provided from the smallest to the largest communities and in foreign countries as well. Many current sources of inspiration and operational experiences can guide the development of future transportation options for older persons. The following cases include some of the more innovative service approaches. The full research report for this project describes these and other innovative examples in detail.

Increased mobility could create substantially more independence and freedom for many older persons. Public transit agencies could play an important role in offering improved mobility options for seniors, which would benefit many other riders as well. To meet future travel needs of older persons, transit agencies will have to function more as customer-oriented mobility managers than as system-oriented service providers, offering a much wider range of services at a much wider range of prices than are available today. Current innovative services demonstrate that, with appropriate public support, the necessary improvements can be made. Making public transit more attractive to older persons makes transit more attractive to everyone.

| Innovations | Examples | Locations |
|---|---|---|
| **Customer Orientation:** | | |
| Demand-responsive transit | Fort Worth Transit Authority | Fort Worth, TX |
| Tailored services | Mountain Empire Older Citizens | Big Stone Gap, VA |
| **Agency Responsibilities:** | | |
| Non-operating agency | London Transport | London, England |
| Contracts for service | Port Authority of Allegheny County | Pittsburgh, PA |
| **Customer Choice:** | | |
| Multiple services and fares | Independent Transportation Network | Portland, ME |
| Family of services | AB Uppsalabuss | Uppsala, Sweden |
| **New Fare Strategies:** | | |
| Co-payment options | Independent Transportation Network | Portland, ME |
| Riders contract with volunteers | Transportation Reimbursement and Information Project | Riverside, CA |
| **Advanced Technologies:** | | |
| Low-floor vehicles | Valley METRO | Phoenix, AZ |
| Real-time arrival notice | San Francisco MUNI | San Francisco, CA |

*This work was sponsored by the Federal Transit Administration and was prepared by WESTAT for the Transit Cooperative Research Program, which is administered by the Transportation Research Board of the National Research Council. Jon Burkhardt was the Project Director for this research.*

# OBJECTIVES AND METHODS

The elderly population in the United States will increase significantly by the year 2030. Mobility will be a critical concern to the continued independence of older persons and their ability to access the goods, services, and community connections necessary to maintain a good quality of life. Many factors will affect their mobility options including health, income, and ease of navigation and accessible transportation choices in their communities.

Most of the older persons of the future are projected to be more highly educated, healthier, and enjoying higher incomes than the older persons of today. They are likely to be residents of suburban or rural communities, which seldom have good public transit service today. Older persons of the future are also likely to be highly active and to travel more frequently to a wider range of destinations. Most will have been automobile drivers all their lives and are likely to demand high levels of mobility and high-quality transportation services from all the travel modes that they use.

At the same time, there may be greater numbers of older persons who have mobility or income limitations in 2030 than today. There may be substantial numbers of frail and poor older women living alone at a low level of independence. These older persons will need new travel alternatives. Decreasing family ties may lead to a greater focus on non-family sources of travel assistance such as public transportation. Advanced travel options will need to consider a much larger number of elderly people from other backgrounds and cultures.

The objective of the Transit Cooperative Research Program (TCRP) is to provide information for public transportation

providers and planners to address the future transportation challenges generated by an increasingly older society. This report describes exemplary transportation services and innovative transportation alternatives that will enable older persons in the United States to maintain the independence that we all cherish. The preparation of these materials has involved an in-depth literature review, analyses of various large-scale databases, focus groups with older persons, focus groups and expert interviews with transit industry representatives, case studies of the best practices from transportation programs designed to improve travel opportunities for older persons, and the identification of opportunities for further innovations.

The future promises substantial challenges for public transportation providers who wish to capture a significant portion of the trips of tomorrow's older persons. A much greater diversity of travel options will be needed. Services offering flexible routing and scheduling are likely to be in high demand. High-quality travel modes will receive greater emphasis, but low-cost travel alternatives will also have a strong role to play in both urban and non-urban areas. This report documents the kinds of innovative practices and procedures that will be needed.

# Section 1

## TRENDS AND PROSPECTS

In the next 30 years, the proportion of the population that is elderly will increase dramatically. This rapid growth of the elderly population has brought attention to the increasing need for better transportation choices, especially for elderly people of the future. Most elderly people of the future are projected to be more highly educated, healthier, and enjoying higher incomes than elderly persons of the year 2000. Tomorrow's older persons are projected to have aged in place in their current suburban or rural communities (which seldom have good public transit service). They are likely to be highly active and to travel more frequently to a wider range of destinations than elderly people of today are. Most older persons will have been automobile drivers all their lives and can be expected to demand high levels of mobility and high-quality transportation services from all travel modes that they use.

At the same time, more older individuals may have unmet travel needs. By the year 2030, there may be a greater number of older persons who have mobility or income limitations than is true today. There may be substantial numbers of frail and poor older women living alone at a low level of independence. Decreasing family ties may lead to a greater focus on non-family sources of travel assistance. Transportation services will need to consider much larger numbers of elderly people from a greater diversity of backgrounds and cultures.

Automobiles currently play a very large part in the travel patterns of older persons; public transit is used for only about 3 percent of trips by seniors. Transit usage among the elderly is closely related to residential location, with older center city residents using transit much more frequently than those residing elsewhere. Transit currently

has problems serving older persons who are in the oldest age groups, have multiple travel options, live outside of central cities, and/or have multiple impairments. The large number of older persons who do not drive and do not use public transportation should be considered potential riders for new or improved transit services; such services could help older persons continue to live independently in their own homes for longer periods of time, thus benefiting both the older persons and society as well.

The combination of these factors is expected to pose substantial challenges for public transportation providers who wish to capture a significant proportion of the trips of tomorrow's older persons.

# 1

# DEMOGRAPHIC PROJECTIONS REGARDING OLDER PERSONS

Although the "graying of America" is an accepted phenomenon, some of the causes, repercussions, and characteristics of this trend are less well known. The number of people who are "elderly," "older," or "seniors"—all taken to mean 65 years of age or older in this report—is larger than ever before and is still growing. Older persons are living longer than previously. At the same time, birth rates are declining, leading to overall increases in the average age of the U.S. population and in the proportion of the population that is elderly. Characteristics of the older population such as numerical and geographic distributions, income distribution, health status, activity patterns, family structure, and retirement status are all changing.

All these characteristics need to be understood for a clear picture of the probable mobility needs of older persons in the future. Public transit operators must understand these probable mobility needs if they wish to serve a significant portion of the future travel needs of older persons. This chapter discusses the key characteristics of the older population; the next two chapters discuss current and future travel trends.

## POPULATION CHANGES AMONG THE ELDERLY[1]

### Number of Older Persons

The number of older persons is projected to grow dramatically, as shown in Table 1.

[1] Readers interested in up-to-date information should consult the statistics Web page of the Administration on Aging at www.aoa.dhhs.gov/aoa/STATS/profile.

**Table 1**

**Population Projections for People Age 65 and Older**

| | 1995 | | 2030 | |
|---|---|---|---|---|
| | Number of People | Percent of Population | Number of People | Percent of Population |
| 65+ years | 33.7 million | 12.8% | 70.2 million | 20.4% |
| 75+ years | 14.7 million | 6.4% | 32.2 million | 12.2% |
| 85+ years | 3.6 million | 1.6% | 8.8 million | 2.5% |

Source: U.S. Bureau of the Census, 1996.

According to the Census Bureau, 34.4 million people 65 years of age and older constituted 12.7 percent of the total U.S. population in 1998. People 65 years of age and older made up 13 percent of the population in the year 2000, a figure that will rise to 18 percent by 2020 (U.S. Bureau of the Census, 2000a). By 2030, seniors are projected to constitute 70 million out of a total population of 350 million people, or 20 percent (AoA, 2001). By 2050, people age 65 and older are projected to be 80 million out of 392 million people (20.4 percent). (Thus, although the elderly population is projected to be larger numerically in 2050, it will constitute about the same percentage of the total population in 2050 as it did in 2030.)

Although one in five persons will be age 65 and older in the United States in 2030, one in four persons will be at least that old in most European countries and Japan. In 2050, more than one-third of the population of many European countries will be age 65 and older (OECD, 2001).

## Age Distribution

The number of people age 75 and older is projected to increase from 14.7 million people in 1995 to 32.2 million in 2030, and those age 85 and older are projected to increase from 3.6 million in 1995 to 8.8 million in the year 2030. The largest increases in the number of people who are over the ages of 75 and 85 will come after 2030 and before 2050. The 14.7 million people age 75 and older in 1995 are projected to increase to 45.5 million in 2050, and the 3.6 million people age 85 and older in 1995 are projected to increase to 18.9 million in 2050. By 2050, nearly 20 percent of the population will be 75 years of age or older. (The official year 2000 Census reported that there were 51,310 people in the United States 100 years old or older [U.S. Bureau of the Census, 2001a].)

In terms of numbers, the fastest-growing demographic group in the United States is people 85 years of age and older; this group's numbers are expected to double between 2000 and 2005. The 75-and-over age group will show the greatest increase in terms of its proportion of the overall U.S. population. Between 1995 and 2050, the number of people age 65 and over is projected to more than double, the number of people age 75 and over is projected to triple, and the number of people age 85 and over is projected to quintuple.

## Proportion of the Population That Is Older

There will also be a dramatic increase in the percentages of the total population

that these older age groups constitute. The overall aging of our society will be seen in much higher proportions of older persons: those over age 65 will increase in number from about 13 percent in 1995 to more than 20 percent of the total population in 2030 (U.S. Bureau of the Census, 1996; AoA, 1999). From 1995 to 2050, the proportion of people age 65 and older will increase by 60 percent, the proportion of people age 75 and older will almost triple, and the proportion of those age 85 and over will triple. The most significant increase is expected between 2010 and 2030, when the "baby boom" generation reaches age 65.

The anticipated population changes are summarized in Table 1. Similar changes or even greater changes are expected in Europe and in other parts of the world. (For example, see Metz, 2000, p. 149.)

## Changes over Time

The elderly population will increase only gradually until 2010, after which it will rise substantially as the baby boom generation begins to reach age 65. Until then, increases will be tempered by the relatively small number of children born during the Depression years of the 1930s. This interim period provides an important opportunity to begin developing policies and programs to serve the needs of this expanding population. In the meantime, the fastest growing age cohort will continue to be the small but increasing number of people age 85 and above. This has important policy and program implications because both driving and the use of regular public transit fall dramatically at or above age 85, and the prevalence of disabilities increases substantially for this group. This points strongly to the need for another mobility option for those people age 85 and over, an option that differs from driving and from current public mass transit services.

From 2000 to 2020, the U.S. population age 65 and above will increase by more than 54 percent, rising from nearly 35 million people in the year 2000 to almost 54 million in 2020, as the leading edge of the baby boom enters the ranks of the elderly. Figure 1 shows that this pattern will only accelerate in later years, with the elderly population increasing to more than 70 million by the year 2030.

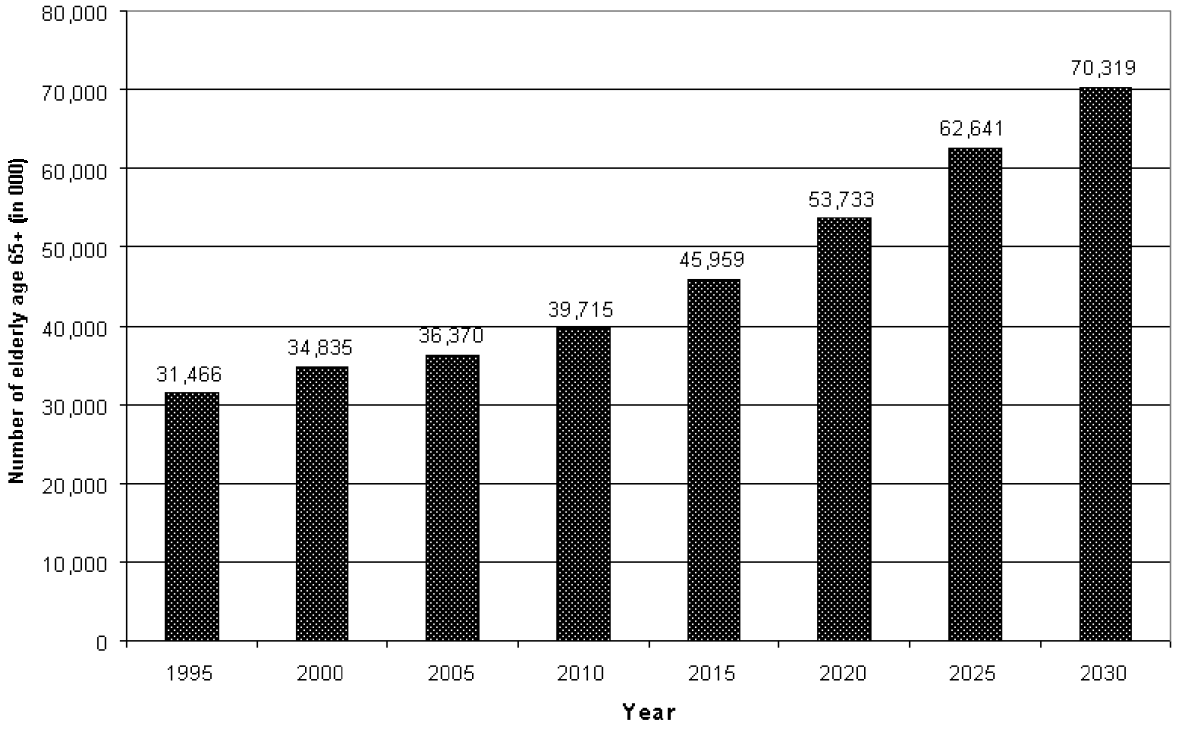
## Gender Differences

Women tend to live longer than men, and they make up almost 60 percent of all persons 65 and older. There are approximately 143 elderly women to every 100 elderly men. In the group of elderly 85 years and older, the ratio swells to 241 women to every 100 men. Almost half of all older women in 1998 were widows (45%), with four times as many widows (8.4 million) as widowers (2.0 million). Older women have a higher poverty rate than older men, 12.8 percent versus 7.2 percent in 1998. The U.S. Census Bureau projects that these patterns will continue, at least in the near term.

Older women are more likely than older men to be living alone, to be frail, and to have low incomes (AoA, 2001). Whereas men age 65 and older can expect to spend an average of two-thirds of their remaining years independently, the proportion is much lower for women (Katz et al., 1983). All these factors have transportation implications. Seniors who live with a spouse or significant other are much more likely to be independently providing their own transportation; older men are much more likely to be married than are older women, who are more likely to be living alone.

**Figure 1**

**Growth in the Number of People Age 65+, 2000–2030**




Source: U.S. Bureau of the Census, 2000a.

## Life Expectancy

Average life expectancy has been increasing for more than 100 years. For the year 2000, life expectancy at birth is 74.1 years for men and 79.5 years for women (Minino and Smith, 2001). In about 50 years, males will be expected to live 77.2 years and females about 82.7 years (Old Age and Survivors Board, 1997).

# GEOGRAPHIC DISTRIBUTION OF CHANGES

## Regional Differences

In 1999, just over one-half (52 percent) of all persons age 65 and older lived in nine states. California led the list with 3.6 million older persons; Florida, New York, and Texas had more than 2 million seniors apiece, and Pennsylvania had nearly 2 million seniors. Other states with more than 1 million seniors included Illinois, Michigan, New Jersey, and Ohio. The distribution of the population is shown in Table 2.

Changes in the percentage of the population that is elderly between 1995 and the year 2020 also will vary considerably from one part of the country to another. Figure 2 shows that increases will be greatest in the West and South and lowest in the Northeast and Midwest. Individual states within these regions show considerable variation as well in the size of their elderly populations now and will continue to do so in the future. In the year 2000, Alaska,

## Table 2

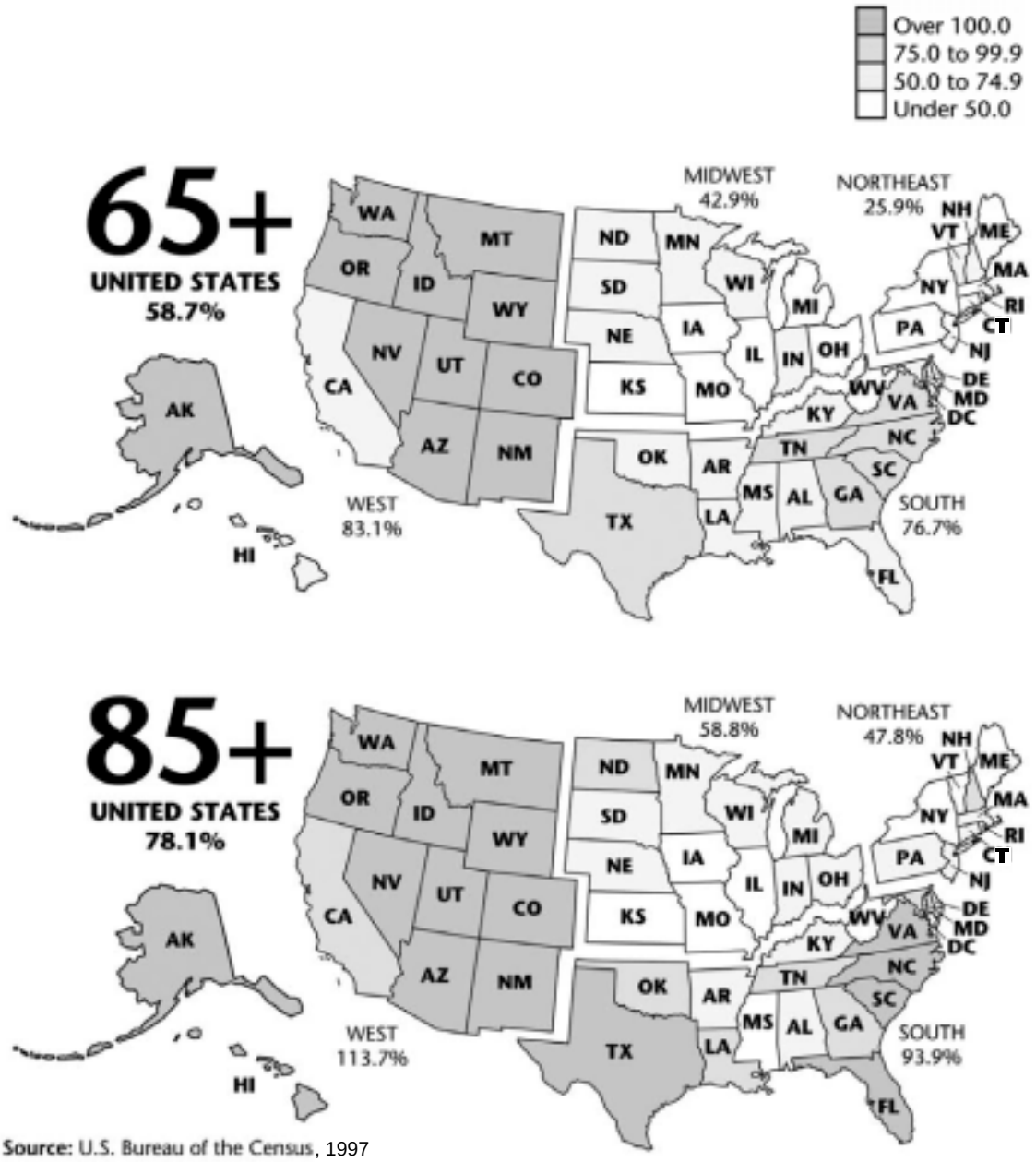
## Resident Population Age 65 and Older, by State, 2000

| *Alphabetically* | *Number of People* | *Percent* | *Ranked by Percentage* | *Percent* |
|---|---|---|---|---|
| UNITED STATES | 34,540,025 | 12.7 | | |
| | | | | |
| ALABAMA | 567,952 | 13.1 | FLORIDA | 18.1 |
| ALASKA | 34,750 | 5.6 | PENNSYLVANIA | 15.8 |
| ARIZONA | 628,633 | 13.2 | WEST VIRGINIA | 15.1 |
| ARKANSAS | 361,342 | 14.2 | IOWA | 14.9 |
| CALIFORNIA | 3,647,532 | 11.0 | NORTH DAKOTA | 14.6 |
| COLORADO | 407,773 | 10.1 | RHODE ISLAND | 14.6 |
| CONNECTICUT | 468,576 | 14.3 | SOUTH DAKOTA | 14.4 |
| DELAWARE | 98,135 | 13.0 | CONNECTICUT | 14.3 |
| DISTRICT OF COLUMBIA | 72,102 | 13.9 | ARKANSAS | 14.2 |
| FLORIDA | 2,741,849 | 18.1 | MAINE | 14.0 |
| GEORGIA | 761,143 | 9.8 | DISTRICT OF COLUMBIA | 13.9 |
| HAWAII | 161,889 | 13.7 | MASSACHUSETTS | 13.9 |
| IDAHO | 142,029 | 11.3 | HAWAII | 13.7 |
| ILLINOIS | 1,496,177 | 12.3 | NEBRASKA | 13.7 |
| INDIANA | 743,020 | 12.5 | MISSOURI | 13.6 |
| IOWA | 428,487 | 14.9 | NEW JERSEY | 13.6 |
| KANSAS | 354,079 | 13.3 | NEW YORK | 13.4 |
| KENTUCKY | 493,154 | 12.5 | OKLAHOMA | 13.4 |
| LOUISIANA | 501,458 | 11.5 | KANSAS | 13.3 |
| MAINE | 175,357 | 14.0 | MONTANA | 13.3 |
| MARYLAND | 596,961 | 11.5 | OHIO | 13.3 |
| MASSACHUSETTS | 859,731 | 13.9 | ARIZONA | 13.2 |
| MICHIGAN | 1,223,560 | 12.4 | WISCONSIN | 13.2 |
| MINNESOTA | 585,394 | 12.3 | ALABAMA | 13.1 |
| MISSISSIPPI | 335,492 | 12.1 | OREGON | 13.1 |
| MISSOURI | 745,684 | 13.6 | DELAWARE | 13.0 |
| MONTANA | 117,239 | 13.3 | INDIANA | 12.5 |
| NEBRASKA | 228,286 | 13.7 | KENTUCKY | 12.5 |
| NEVADA | 207,412 | 11.5 | NORTH CAROLINA | 12.5 |
| NEW HAMPSHIRE | 144,585 | 12.0 | MICHIGAN | 12.4 |
| NEW JERSEY | 1,108,257 | 13.6 | TENNESSEE | 12.4 |
| NEW MEXICO | 199,974 | 11.5 | ILLINOIS | 12.3 |
| NEW YORK | 2,429,632 | 13.4 | MINNESOTA | 12.3 |
| NORTH CAROLINA | 954,866 | 12.5 | VERMONT | 12.3 |
| NORTH DAKOTA | 92,383 | 14.6 | SOUTH CAROLINA | 12.2 |
| OHIO | 1,501,136 | 13.3 | MISSISSIPPI | 12.1 |
| OKLAHOMA | 448,698 | 13.4 | NEW HAMPSHIRE | 12.0 |
| OREGON | 435,099 | 13.1 | WYOMING | 11.6 |
| PENNSYLVANIA | 1,898,936 | 15.8 | LOUISIANA | 11.5 |
| RHODE ISLAND | 154,348 | 14.6 | MARYLAND | 11.5 |
| SOUTH CAROLINA | 473,371 | 12.2 | NEVADA | 11.5 |
| SOUTH DAKOTA | 105,442 | 14.4 | NEW MEXICO | 11.5 |
| TENNESSEE | 680,954 | 12.4 | WASHINGTON | 11.4 |
| TEXAS | 2,016,497 | 10.1 | IDAHO | 11.3 |
| UTAH | 185,603 | 8.7 | VIRGINIA | 11.3 |
| VERMONT | 72,916 | 12.3 | CALIFORNIA | 11.0 |
| VIRGINIA | 774,885 | 11.3 | COLORADO | 10.1 |
| WASHINGTON | 657,312 | 11.4 | TEXAS | 10.1 |
| WEST VIRGINIA | 272,896 | 15.1 | GEORGIA | 9.8 |
| WISCONSIN | 691,409 | 13.2 | UTAH | 8.7 |
| WYOMING | 55,630 | 11.6 | ALASKA | 5.6 |

Source: U.S. Bureau of the Census, 2000b.

**Figure 2**

**Percentage Increase of the Elderly and Oldest Old Populations: 1995 to 2020**




Source: U.S. Bureau of the Census, 1997

Georgia, Texas, and Utah had the lowest percentages of population age 65 and above—from 6 to 10 percent—whereas Florida, Pennsylvania, and West Virginia had the highest—from 16 to 18 percent. By 2020, all the western states except California are expected to more than double their elderly population, whereas a substantial number of states in the South are expected to increase their elderly population by three-quarters or more.

## Aging in Place

Many people grow older in the communities where they spent their "middle-aged" years,

thus giving rise to the concept of "aging in place." No official definition exists for aging in place, but many people agree on several key components: living where one has lived many years, living in a private home or an apartment outside of a health care environment, and taking advantage of products and services to allow independence in the face of changing circumstances without a change in residence. Aging in place is often seen as a positive development. Currently, there are a number of resources aimed at helping seniors successfully age in place, from home remodeling programs to arranging for outside assistance when necessary.

According to M. Powell Lawton, a leading expert on housing for the elderly, "only about 7 percent of the elderly move to any kind of organized retirement community" (Starr, 1998). That means that a sizable number of the other 93 percent are staying in the communities where they have lived most of their lives. According to *Senior Resource* (2000), 70 percent of seniors spend the rest of their lives in the place where they celebrated their 65th birthday (Starr, 1998). A newly released study for Baltimore found that 90 percent of the region's seniors expected to remain in their current residence for the foreseeable future (KETRON, 1999).

A 1992 survey by the American Association of Retired Persons (AARP) showed that 27 percent of older persons live in neighborhoods where more than 50 percent of the residents are over age 60 (Lanspery, 1995). These neighborhoods are being called "naturally occurring retirement communities" (NORCs), a term coined by University of Wisconsin professor Michael Hunt in the 1980s. Essentially, a NORC is an assisted-living community without formal assistance programs. Although located primarily in urban areas, NORCs can be found in all areas of the country. There are no common characteristics of NORCs, and the people who inhabit them are equally diverse. The unplanned and spontaneous nature of a NORC can make it difficult for a community to plan for and meet its needs (Lanspery, 1995). For example, a rural NORC in Iowa (or one in another Great Plains state) may be as many as 100 miles from the nearest hospital and 40 miles from the nearest ambulance. The cost of transportation to and from health care facilities could overtax a community's Medicare and Medicaid funds, which in many cases are already stretched very thin.

Some areas are making efforts to address the problem of providing health care to NORCs. *House Bill 942*, introduced to the Missouri State House in 1999 (Missouri House of Representatives, 1999), would have authorized an Aging in Place Pilot Program. This program would have delivered in-home, comprehensive health care services to elderly persons in order to reduce the need for relocating them. The bill would also have authorized the Division of Aging to apply for any federal waivers necessary for providing Medicaid reimbursement. At this point, this bill is not currently on the legislative calendar.

In Australia, the Ex-Service Organizations, major providers of in-home care to elderly war veterans and war widows, are looking for ways to address the health care needs of elderly clients who wish to age in place. The Ex-Service community wants a flexible and individualized array of services including transportation, equipment, respite, housing, personal care, home support, therapy services, and social support. The Ex-Service Organizations are investigating new approaches to service delivery, project management, and coordination with other

providers, in an effort to establish a community health network and provide in-home health services to members of the Ex-Service Community (Australia Department of Veterans Affairs, 1998).

The baby boomers (people born between 1946 and 1964) now inhabiting the suburbs are likely to remain there, placing different demands on transportation and service systems as senior citizens than they did as young parents with children. Homes with multiple levels separated by stairs that were suitable for younger people's physical abilities could become untenable for many people as they age; subdivisions built miles from services such as stores, pharmacies, and health facilities will be difficult to access for many older persons. Seniors living in many rural locations face cutbacks in the local availability of health services as well as a continuing loss of younger people who seek jobs elsewhere. These trends are already resulting in longer trips for health care and other services and fewer available non-driving transportation alternatives (such as rides with adult children).

# INCREASING DIVERSITY

## Dispersion of Characteristics

Older persons are a heterogeneous group, and their heterogeneity is expected to increase as their population grows. As described in the pages that follow, there are wide differences in education, health, income, activity, creativity, and levels of independence among the elderly. Many older persons are quite capable of caring for themselves; others need substantial assistance. In the future, the number of elderly persons from minority groups will rise significantly. (See the section on cultural diversity.) Chronological age will become less significant, as more 85-year-olds will have functional abilities that are greater than some people in their 70s. (See the section on health status.)

The age cohort approaching retirement over the next 20 years brings additional diversity to the travel patterns and mobility requirements expected in the future. In addition, recent research shows that mobility and other functional limitation rates among the elderly are actually declining, even as the size of this population, especially those over age 85, is growing. (See the section on health status.) Furthermore, this trend is increasing, suggesting that future patterns and requirements may vary considerably from what is currently the case.

## Cultural Diversity

Changes in the size and composition of the elderly population reflect more than the aging of the baby boom era cohort. Much of the increase in numbers of the older population will be among members of minority groups, especially those of Hispanic origin, a group with relatively high public transportation use. As Table 3 shows, growth in the Hispanic elderly population is not only much higher than that of the White and Black cohorts that constitute the aging baby boom generation, but it also follows a much different pattern. Between 2000 and 2020, the Hispanic population age 65 and over will increase by 147 percent, from 1.9 to 4.8 million people.

The problems associated with poverty, health, and longevity combine to make transportation a more pressing issue for

**Table 3**

**Percentage Increase in the Elderly Population, by Race and Hispanic Origin, 2000–2030**

| Year | Total 65+ Population (%) | White, Non-Hispanic (%) | Black, Non-Hispanic (%) | Hispanic (%) | Other (%) |
|---|---|---|---|---|---|
| 2000-2005 | 4.4 | 2.0 | 8.1 | 24.5 | 25.6 |
| 2005-2010 | 9.2 | 7.1 | 12.0 | 23.4 | 24.8 |
| 2010-2015 | 15.7 | 13.7 | 20.2 | 26.1 | 26.9 |
| 2015-2020 | 16.9 | 14.6 | 23.8 | 27.4 | 25.2 |
| 2020-2025 | 16.6 | 14.2 | 23.1 | 27.6 | 22.6 |
| 2025-2030 | 12.3 | 9.5 | 17.3 | 25.4 | 19.6 |

Source: U.S. Bureau of the Census, 2000a.

minority older persons. The poverty rate is much higher for older persons belonging to a minority group. "The highest poverty rates [among older people] were experienced [in 2000] by older Hispanic women who lived alone or with non-relatives" (AoA, 2001).

Also, elderly Blacks are said to be nearly four times as likely to report using specialized transportation services as older Whites (Netzer et al., 1997).

In 1998, 8.9 percent of elderly Whites were poor, whereas 26.4 percent of elderly Blacks and 21 percent of elderly Hispanics were poor. The highest poverty rate (49.3 percent) was among older Black women living alone (AoA, 1999).

Black elderly men and women can expect to live, on average, 2 years fewer than their White counterparts. High series projections put this number closer to 4 years. Hispanic elderly men and women can expect to live 2 years longer than their White counterparts, according to the Census projections. This projected longevity, along with the continued growth of the Hispanic community, will lead to substantial growth in the number of Hispanic elderly. According to Census projections, the Hispanic elderly, who constituted 5 percent of the elderly population in 2000, will constitute 17.5 percent of the elderly population by 2050.

As noted by Rosenbloom,

> The *1990 Nationwide Personal Transportation Survey* (NPTS) indicated substantial variations in the trip-making behavior of older persons from different racial and ethnic groups, even when controlling for income. We are still grappling with the causes of these differences: some reflect historical income patterns, some voluntary or involuntary residential segregation, and still others may represent ethnic and racial differences in attitudes, preferences, culture, and family beliefs about travel. (Rosenbloom, 1999)

The real issue here may be one of culture and not minority status. Unfortunately, most available data are on racial or ethnic distinctions, not on culture. In 1976, Wachs et al. found that "the lifestyle patterns and travel behavior of the elderly were closely related, and that the travel behavior and needs of the elderly varied considerably with

location in Los Angeles County" (Wachs et al., 1976). They also found that "propinquity and financial security dimensions were most strongly and consistently related to the travel data . . . and that the spatial patterns of the elderly can be expected to change over time in parallel with those of the general population." When suburban areas become more culturally diverse, will their travel patterns more closely reflect the travel patterns of culturally diverse center cities or culturally homogeneous suburbs? Although Wachs et al. seemed to say that lifestyle (as determined by factors such as financial security) had a greater influence on travel patterns than culture, a definitive answer appears still to be lacking.

## Income Distribution

Income distribution is more uneven among the elderly than among other age groups. Although many older persons experience substantial declines in income as a result of retirement, many own their homes outright (thus making no monthly mortgage payments) and have reduced expenses in retirement. Still, poverty among the elderly remains a significant problem.

The incidence of poverty among the elderly has declined significantly, thanks to a variety of government safety net programs including Social Security, Medicare, Medicaid, the Older Americans Act, and Supplemental Security Income. Social Security is said to have lifted from poverty nearly three of every four elderly persons who would have been poor without it (Porter et al., 1999).

Seniors particularly at risk of poverty status are women, those who live alone, and racial and ethnic minorities. In 2000, 10.2 percent of older adults lived in poverty—about 3.4 million elderly persons (AoA, 2001). This rate is equal to the poverty rate for people 18 to 64 years of age. Another 2.1 million elderly persons (about 7 percent) lived just above the poverty line and were classified as near poor (incomes between poverty level and 125 percent of poverty level). In total, one of six elderly persons is either poor or near poor.

Higher than average poverty rates for older persons are found for women (12.8 percent) and for those living in central cities (13.8 percent), rural areas (12.5 percent), and in the South (12 percent). Twenty-seven percent of elderly persons with disabilities are below the poverty level, and 49 percent of the elderly disabled population fall below 150 percent of the poverty level (compared with 17 percent and 35 percent of the elderly non-disabled population).

Seniors in poverty are highly susceptible to the disruption of their transportation systems by such occurrences as car repairs, insurance cost increases, or increases in the cost of public transit. When one is lacking adequate financial resources, it is difficult to purchase a new car.

Projections to the year 2020 suggest that the number of elderly persons who are poor will decrease sharply. The percentage of the non-disabled elderly population below the poverty level will decrease from 17 percent in 1990 to 7 percent in 2020, a drop of more than 50 percent. The percentage below 150 percent of the poverty level is expected to decrease from 35 percent in 1990 to 16 percent in 2020, a decrease of more than 50 percent. The percentage of disabled elderly persons living below the poverty level is projected to drop from 27 percent in 1990 to 11 percent in 2020, a decrease of nearly 60 percent. The percentage of elderly

disabled persons at less than 150 percent of the poverty level is projected to drop from 49 percent in 1990 to 23 percent in 2020, again a decrease of more than 50 percent (AoA, 1999). Still, the future distribution of financial resources among the elderly could be more unequal for the aging baby boom generation, especially for those who are poorly educated and do not have marketable labor force skills (U.S. Congress, 1993).

If these projections of improved economic well-being among the elderly of the future prove to be accurate, the additional income and wealth should lead to an increase in the demand for high-quality transportation services. Unless public transit services are reconfigured, this might also create a drop in demand for public transportation among elderly persons.

One would expect older persons with higher incomes to travel more and to demand higher quality services than persons with less income. This would be generally true across all types of residential areas. In the future, suburban seniors generally could be expected to frequently own and drive their own automobiles and also to be able to purchase high-quality services when necessary. On the other hand, future low-income suburban seniors could possibly experience difficulty in meeting their travel needs because of the dispersion of destinations in suburban areas.

One potential effect of the aging of societies could be the inability of governments to fund certain programs because of shrinking tax bases. Transportation services could be one of those programs. At the moment, "the current ratio of tax-paying workers to non-working pensioners in the developed world is 3:1. By 2030, this ratio is expected to decrease to 1.5:1 and in some countries may drop to 1:1 or lower" (Centre for Strategic and International Studies and Watson Wyatt Worldwide, 1999).

# HEALTH STATUS VARIATIONS

Differences in health status are said to be a primary reason for the wide variability in well-being among the elderly. This is because health is a key determinant of the degree to which people can lead independent lives and because poor health can be a significant drain on financial resources.

The elderly of the future will generally be in better health than the elderly of the present, in large part because of better health practices throughout their lives (National Academy on Aging, 1994). But the longer life expectancy for these persons will create a dramatic increase in the number of disabled elderly persons. There will be many more oldest-old people who will require in-home services and nursing home care in much greater numbers than at the present time. Significantly more people will require some kind of assistance with daily living activities (like transportation) that they can no longer perform by themselves. Assuming middle series longevity projections, the number of disabled elderly persons will nearly triple between 1986 and 2040. More conservative projections predict a 68-percent increase in the number of impaired elderly persons between 1990 and 2020 (AoA, 1999).

## Aging, Disability, and Health

Federal statistical agencies, health researchers, and service delivery

professionals all use a range of definitions and measures to classify disability among the elderly and other population groups. Most of these definitions and measures acknowledge the complex nature of disability. Key complexities include the interplay among chronic health conditions such as arthritis or a mental illness, the resulting functional limitations such as difficulty walking or understanding written material, and the impact these limitations have on the ability to engage in basic life activities (e.g., personal care, home management, or traveling about the community).

Disability prevalence rates among the elderly vary considerably depending on which concepts, definitions, and measures researchers use. According to the *National Health Interview Survey* (the largest, most comprehensive national survey of disability across the life span including children, non-aging adults, and the elderly), more than one-third (37.2 percent) of elderly people (age 65 and over) experience some form of activity limitation. About 1 in 10 (10.5 percent) are unable to carry out their major activity, which for the elderly is most often independent living (but does include the ability to work for those age 65 to 69) (Benson and Marano, 1998). The Census Bureau's Disability Topical Module from the *Survey of Income and Program Participation* (SIPP) uses multiple measures to identify the prevalence and severity of a disability. These include limitations in activities of daily living (ADLs) such as bathing and dressing. These also include the more complex instrumental activities of daily living (IADLs), which cover care of the home such as preparing meals and shopping for essential items, and functional limitations such as difficulty walking, understanding speech, seeing, or using stairs. Across all these measures, the Census Bureau classifies more than one-half (52.5 percent) of the elderly population as having a disability and one-third as having a severe disability, the latter generally defined as being unable to carry out one or more of these activities without the assistance of others (McNeil, 1997).

In recent years, there has been a significant change in the definition and measurement of disability. There has been a move away from just identifying chronic medical conditions and a move toward assessing functional capacity as a basis for classifying persons with disabilities and designing programs for them. An emphasis on limitations regarding specific activities, in conjunction with the chronic conditions involved, helps decisionmakers use data to identify particular service requirements that address the real needs of persons with disabilities. Another example of this emphasis on functioning and the participation of persons with disabilities in the mainstream of society is the Americans with Disabilities Act (ADA) of 1990, as amended. The ADA focuses on reasonable accommodation, access to public and private services, and the removal of physical and attitudinal barriers faced by persons with disabilities. The ADA's stated goals are (1) equality of opportunity, (2) full participation in society, (3) independent living, and (4) economic self-sufficiency.

## Mobility Limitations

Prior research has shown that age and the presence of chronic medical conditions, even at the advanced end of the age spectrum, are poor predictors of mobility or other limitations and the associated need for services, including transportation

(Ficke, 1992). Data on age and health, in combination with a host of other factors, however, can provide strong empirical evidence for documenting transportation demand and presenting convincing arguments for transit and paratransit options. For example, poor performance in ADLs (e.g., personal care and getting around inside the home) and IADLs (e.g., home management and getting around outside the home) have been linked to impaired driving abilities and to driving cessation in populations of drivers with cognitive limitations (Carr et al., 1990; Wild et al., 2000).

## Current Levels of Mobility Limitations

Data from the 1994–95 Supplement on Aging portion of the *National Health Interview Survey on Disability* are shown in Table 4. The figures in the table cover people age 65 and over who report problems with two or more ADLs from a list of six activities: bathing, dressing, eating, transferring between bed and chair, toileting, and getting around inside the home. The figures include any reports of problems with the ADL, whether or not the person receives (or needs) personal assistance to perform the activity.

The first item of interest is the overall number of people who report various levels of disability. The first line of figures in Table 4 shows that among the 31.3 million people age 65 and over, 1.9 million, or 6 percent, report problems with two or more ADLs. (These figures are based on an average of 1994 and 1995 data and may differ from other population counts and sources for this age cohort.) Beyond this overall measure of disability among the elderly, Table 4 also shows the socioeconomic and demographic characteristics of this population with two or more ADL limitations. The table uses seven characteristics to illustrate which of several subgroups have the highest and lowest prevalence of this level of disability.

For example, the table shows that disability increases substantially with age, rising from 3.1 percent for the 65 to 74 cohort to 18.1 percent for those persons 85 and older. Black, non-Hispanic elderly persons are over two-thirds more likely to have this level of disability than White, non-Hispanic elderly persons (9.4 percent versus 5.6 percent). Certainly as a function of age, women are over 40 percent more likely to report this level of frailty than men (6.8 percent versus 4.8 percent) are.

Poverty is also highly correlated with disability among the elderly. Older persons below the poverty level are more than twice as likely to report two or more ADL limitations than those older persons with incomes at or above the poverty threshold (10.6 percent versus 5.2 percent).

## Implications for Transportation Services

As will be discussed at length in Chapter 2, there is a clear demarcation in the use of public transportation—people who reported limitations in performing two or more ADLs use transit significantly less than people with one or no ADL limitations. Elderly persons age 69 and above who reported one or no such limitations had a public transportation use rate of 12.8 percent. Those reporting two ADL limitations had a public transportation use rate of 6.4 percent, and for those reporting three or more ADL limitations, the rate was 6.0 percent.

## Table 4

## Number and Percent of People Reporting Problems with Two or More Activities of Daily Living (ADLs), by Age, Race, Gender, Poverty, Living Arrangements, Region, and Area of Residence, 1994–1995

| *Characteristic* | | *Total Population (age 65+)* | *Number and Percent of People Reporting Problems with Two or More ADLs* | |
|---|---|---|---|---|
| | | | *Number* | *Percent** |
| Total | 65+ | 31,245,307 | 1,862,121 | 6.0 |
| Age Group (years) | 65-74 | 18,355,635 | 576,320 | 3.1 |
| | 75-84 | 10,194,079 | 796,892 | 7.8 |
| | 85+ | 2,695,594 | 488,909 | 18.1 |
| Race/Ethnicity | White (non-Hispanic) | 26,375,021 | 1,469, 260 | 5.6 |
| | Black (non-Hispanic) | 2,474,992 | 233,460 | 9.4 |
| | Hispanic | 910,906 | 49,898 | 5.5 |
| | Others** | 1,484,389 | 109,504 | 7.4 |
| Gender | Male | 13,035,173 | 623,931 | 4.8 |
| | Female | 18,210,134 | 1,238,190 | 6.8 |
| Poverty Index | At or above | 24,469,930 | 1,268,005 | 5.2 |
| | Below | 2,617,225 | 278,062 | 10.6 |
| | Unknown | 4,158,152 | 316,054 | 7.6 |
| Living Arrangements | Living with others | 21,473,521 | 1,271,371 | 5.9 |
| | Living alone | 9,771,786 | 590,750 | 6.1 |
| Region | Northeast | 6,977,963 | 386,494 | 5.5 |
| | Midwest | 7,815,246 | 400,050 | 5.1 |
| | South | 10,411,602 | 708,165 | 6.8 |
| | West | 6,040,496 | 367,412 | 6.1 |
| Area | MSA***/center city | 9,139,670 | 631,041 | 6.9 |
| | MSA/not center city | 14,385,891 | 767,839 | 5.3 |
| | Non-MSA | 7,719,746 | 463,242 | 6.0 |

* Percent=rounded to one decimal point.

** Others=American Indian, Alaska Native, Native Hawaiian, or other Asian/Pacific Islander.

*** MSA=Metropolitan Statistical Area

Source: National Center for Health Statistics, 1994–1995

The two-or-more disabilities group shown in Table 4 constitutes a particular subset of elderly persons whose level of disability corresponds to relatively low levels of public transportation use and who may require special attention when developing transit options for the elderly. The table shows that the vast majority of older persons do not have ADL limitations. Persons with two or more disabilities constitute an at-risk population of special concern for transportation professionals.

## Trends in the Prevalence of Disabilities

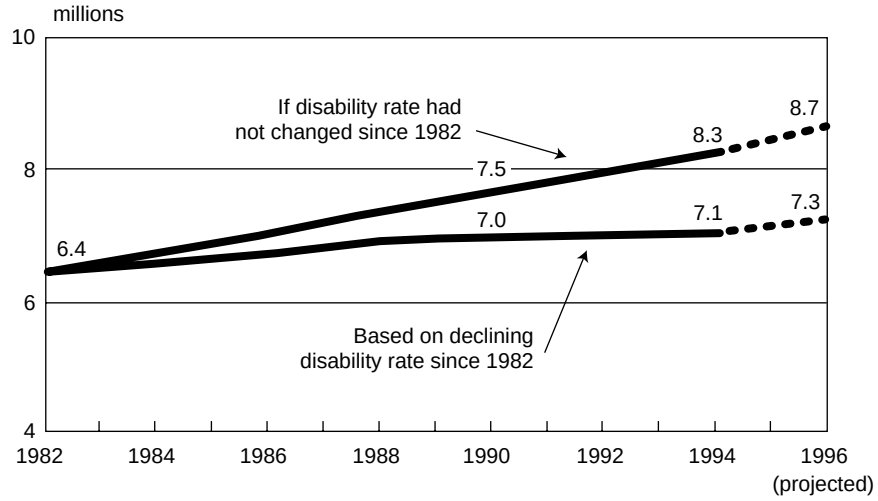
Recent research shows that mobility limitation and other functional limitation rates among the elderly are actually declining, even as the size of this population, especially those over age 85, is growing. Furthermore, this trend is increasing, suggesting that future patterns and requirements may vary considerably from what is currently the case. Identifying the relevant factors and forecasting the needs of older persons over the next 20 years requires a clear understanding of these phenomena.

Figure 3 uses ADL and IADL limitations among the elderly household population to illustrate the extent to which disability rates among older persons actually have fallen and how this pattern is escalating over time.

This research, sponsored by the National Institute on Aging, shows that there were 1.2 million fewer elderly persons age 65 and over with a disability in 1994 than would have been the case had disability rates continued based on 1982 levels (National Institute on Aging, 1997). As a result of this improvement in functional status, there were projected to be 7.1 million elderly persons with disabilities instead of

**Figure 3**

**Number of Chronically Disabled Americans Age 65 and Over**




Note: The elderly population (age 65+) in the United States totaled 26.9 million in 1982, 30.8 million in 1989, 33.7 million in 1994, and 34.1 million in 1996 (projected).
Source: U.S. Department of Health and Human Services, 1982–1994.

8.3 million in 1996, a substantial reduction in the rate of increase. Disability is defined as functional problems dealing with several normal activities of daily living (ADL and IADL limitations). These findings are based on the analysis of data from the *1982–1994 National Long-Term Care Survey* (NLTCS), a longitudinal study of elderly persons with mobility and other functional limitations living in the community (U.S. Department of Health and Human Services, 1982–1994). This research also showed that the decrease in disability rates is accelerating and the functional limitations that do exist have become less severe. The study also shows that rates of nursing home placement among the elderly are decreasing as well. This is part of an overall pattern associated with increased emphasis on home care and other community-based alternatives to institutionalization.

Projections indicate that the elderly of the future will experience more years without disabilities. No one has yet been able to prove that this means that people will be able to drive longer; we could have a growing number of fit, rich, active older persons who cannot drive and need alternative forms of transportation. On the other hand, there could be numerous older persons with substantial disabilities living in their own apartments and other locations who will rely on paratransit and other non-traditional public transportation options to address routine travel requirements such as shopping, socialization, and doctor visits.

## A Current Example of the Travel Implications of Health Status

A new travel study of elderly persons in Baltimore found that an older person's ability to walk three blocks was the most robust of all predictive variables in terms of explaining variations in travel frequency (KETRON, 1999). Those persons who could not walk three blocks and also could not drive were classified into a high travel need category. According to the study, "All individuals in the 'high need' group would experience moderate to severe difficulties in walking to any vehicle that would be available to take them for a ride." This high need group constituted about 6 to 8 percent of the population of the various jurisdictions in the Baltimore region.

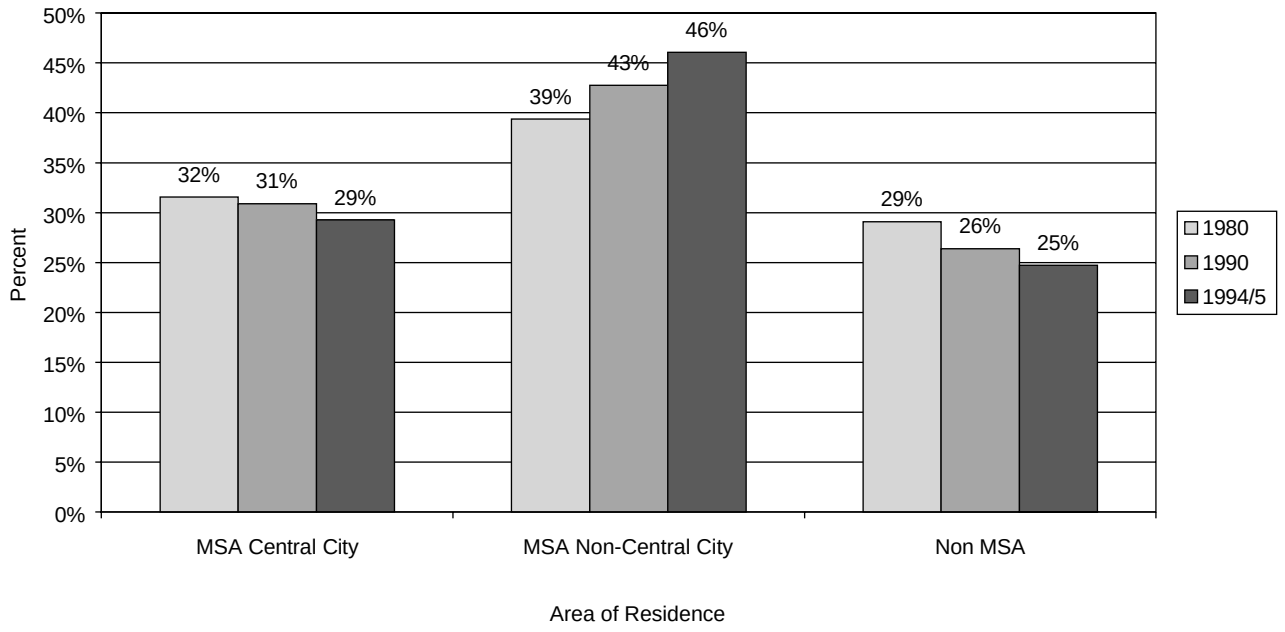
# SETTLEMENT AND ACTIVITY PATTERNS

## Residential and Activity Patterns

Changes in where the elderly live also reflect the rise in the suburban population relative to center cities and rural areas. This change has tremendous policy implications. As Figure 4 shows, the percentage of the nation's elderly living in metropolitan statistical areas (MSAs) classified as non-central city, or suburban, (where the availability of public transit and its use by the elderly is relatively low) increased from 39 to 46 percent between 1980 and 1995. At the same time, percentages of the elderly living in central cities and rural areas were falling. This change is even greater among the age cohort approaching age 65, suggesting that this pattern of suburban growth among the elderly will only increase over time.

Projections are that the numbers and proportions of older persons in suburban areas will increase dramatically. The numbers of older persons in central cities and rural areas will generally increase, but

**Figure 4**




Source: Original tabulations from U.S. Census Current Population Reports for various years.

the proportions of older persons living in these areas will decrease. A number of central cities actually show declining older populations. Baltimore is one of these cities (KETRON, 1999).

A similar rise occurred in the suburbanization of employment and commercial destinations. Automobile travel made a greater variety of travel destinations reachable, leading to a wider range of possibilities, flexibility, and independence.

> Certainly some argue that by supporting suburbanization and decentralization of our communities, the car has made it necessary for everyone to drive, removing walking, biking, and transit as options. (Rosenbloom, 1999)

The late 1990s have seen a large increase in activities designed to limit suburban sprawl and to increase densities of development in residential areas and their supporting services. Greater densities in suburban areas would certainly make these areas more readily served by transit operations in their current configurations. But because seniors tend to age in place, the new developments at higher densities are not likely to attract an overwhelming proportion of seniors. Therefore, although higher density developments are seen as an aid to public transportation, current densification trends cannot be expected to play a large role in addressing the future transportation needs of the elderly.

## Urban/Rural Differences

The proportion of residents who are elderly is greater for rural areas than for urban areas. This leads to an older age structure in non-metropolitan areas than in metropolitan areas. In 1998, the median age was 36.0 in non-metropolitan areas and 34.0 in metropolitan areas (Rogers, 1999).

Non-metropolitan populations are both increasing and becoming older. The combination of the out-migration of younger segments of the population and the aging in place of those people who remain has dramatically increased the average age of the rural population in certain areas (e.g., central Iowa). The in-migration of retirees has increased the overall age of the populations in other rural areas, particularly those classified as "retirement destinations." ("Retirement destination counties" is a U.S. Department of Agriculture (USDA) classification of non-metropolitan counties by policy type. Others are federal lands counties, commuting counties, persistent poverty, transfers-dependent, and not classified.) In 1995, the USDA classified 8.3 percent of non-metropolitan counties in the United States (190 of 2,276) as retirement destination counties (USDA, 1995). They are primarily located in the South and the West. Non-metropolitan retirement counties are expected to continue their rapid growth. Although these counties total just 8.3 percent of all non-metropolitan counties, they accounted for 25 percent of the non-metropolitan population growth from 1990 to 1998 (Rogers, 1999).

In 1997, 18 percent of the rural population was elderly, whereas 15 percent of the urban population was elderly. The majority of non-metropolitan counties with an elderly population of 20 percent or more are located in the Great Plains subregion, often in the states of Nebraska, North Dakota, and South Dakota, but also in Iowa, Kansas, Missouri, and Texas (Fuguitt, 1995). These states have experienced a large out-migration of younger persons and have a large population that is aging in place. Some parts of the United States—the West North Central region and the West South Central region, for example—have experienced declines in their non-metropolitan elderly populations between 1990 and 1996 because of natural causes (deaths) (Bowers and Hamrick, 1997).

The oldest-old, people age 85 and older, are more concentrated in rural areas (Tauber, 1992; Rosenbloom, 1996). Non-metropolitan elderly persons are significantly more likely to be poor or near-poor than their metropolitan-area counterparts (Rogers, 1999; Glasgow, 1993). In non-metropolitan areas, the oldest-old were twice as likely as the youngest-old (people age 60 to 64) to be classified as poor or near-poor in 1998 (Rogers, 1999).

Many rural areas have fewer transportation options than their urban or suburban counterparts. In 2000, almost three-fourths of people over the age of 65 (73 percent) lived in suburban or rural areas in the United States, where alternatives to the automobile are scarce or non-existent (U.S. Bureau of the Census, 2001b). One reason that transportation issues are particularly important for the elderly is because most rural areas have fewer medical services available than in comparable urban areas. Rogers lists the medical problems of rural communities as a narrower range of health care services for seniors, fewer alternatives available, less accessible and more costly health service, and fewer health care providers offering specialized services (Rogers, 1999).

Rogers writes that

> the consequences of changes in the older population vary widely for rural areas based on the county economic type and

> the composition of the older population—either young retirees or persons who have remained and grown old in the community . . . [The] mismatch between availability of and demand for services can create serious problems for service delivery in . . . areas [such as non-metropolitan areas dependent on farming and mining where working-age persons have left, creating declining populations, reduced tax bases, and increasing demands for medical and social services]. (Rogers, 1999)

# CHANGES IN FAMILY STRUCTURE

Changes currently occurring in family structure might—or might not—diminish the future role of the family in caring for frail or disabled older relatives. Complicated changes are occurring in the structure of household and kinship roles and relationships because of the growth of single-parent households, the increase in women working outside the home, the high incidence of divorce and remarriage (differentially higher for men), and the "increasing number of 'blended families,' reflecting multiple lines of descent through multiple marriages and the birth of children outside of wedlock through other partners" (National Academy on Aging, 1994). One manifestation of these changes is a steady increase in the proportion of older persons living alone. From 1970 to 1998, the proportion of men age 75 and older living alone increased from 19.1 percent to 22.3 percent; during this same time, the proportion of women age 75 and older living alone increased from 37.0 percent to 52.9 percent (Federal Interagency Forum, 2000).

All of these changes could possibly result in less daily assistance for seniors from family members (with transportation or other caregiving activities). This issue is of serious concern because, according to the National Academy on Aging,

> it is well established that family members currently provide at least 80 percent of all long-term care and support to community-based frail older persons through direct unpaid services. The family also plays an important role in obtaining and managing services from paid service providers. If changes in the intensity of kinship relations significantly erode the capacity and sense of obligation to care for older family members just as the population enters a period of rapid aging, the implications for public policy and for the well-being of older persons—particularly the 'old-old'—may be profound. (National Academy on Aging, 1994)

## Living with a Spouse

Living with a spouse can be an important component of independence and support for an elderly person, especially when there are no other family members in the area. Sixty-seven percent of older non-institutionalized people lived in family settings in 1998 (80 percent of older men, 58 percent of older women). As seniors get older, the proportion of those living in family settings decreases significantly: only 45 percent of those age 85 and over are living in family settings. Thirty-one percent of the elderly live alone; only 7 percent live with children, siblings, or other relatives (not spouses, children, or siblings). Only about 5 percent of elderly men and women report never having been married. In the 75-and-older age bracket, widows and widowers become more prevalent. Sixty-four percent of men age 75 and older were married with a living spouse in 1995, but only 21.6 percent of women reported being married with a living spouse. The number of older persons living with their spouses is expected to decrease slightly over time as the life spans of both men and women increase.

## Living with Children

Thirty-one percent of all elderly persons lived alone in 1998; four-fifths of those elderly persons living alone were women. In the absence of a living spouse, children are the next best source of support for an elderly person. In 1995, approximately one-third of White women and nearly one-quarter of Black women over the age of 65 were married and had at least one child; 47 percent of elderly White women and 50 percent of elderly Black women aged 65 and over had no spouse but at least one child.

Because of the decline in children's mortality rates and the rise in fertility and marriage during the baby boom era, an increase in the percentage of elderly women with children can be expected, at least in the short term. Experts predict that by 2010, 86 percent of elderly women will have at least one child (AoA, 1999). Some of these children may provide support and relieve some of the burden that the growing elderly population will place on public-sector support services. After 2010, the trend toward fewer children could reverse the assistance that older persons could expect to receive from their children.

# RETIREMENT STATUS

In previous generations, many people died before reaching retirement age. Now, the retirement phase of some people's lives may be longer than their work careers. In the future, older persons will be living much longer after the retirement age of 65. According to the high series of U.S. Census Bureau projections, by the year 2050, the average male could live for 25 years after retiring at age 65, and the average female could live for nearly 30 more years. Middle series projections place these numbers at 20 and 22 years, respectively (AoA, 1999). With elderly persons living twice as long after the age of 65 (retirement age) and elderly populations increasing sharply, it is likely that the demand for all kinds of transportation services could rise dramatically. Although retirement is a time for leisure and the pursuit of hobbies for some people, for others retirement means living on a reduced or fixed income, adapting to a lower standard of living, and coping with the loss of roles such as worker or family provider.

# CONCLUSION

In the next 30 years, there will be many more elderly persons living in the United States. Compared with the elderly of the year 2001, most of the elderly of the future are projected to be more highly educated, healthier, and enjoying higher incomes. Despite this predicted overall pattern of well-being for the elderly of the future, it is important to recognize that in the future there might be greater numbers of older persons who have mobility or income limitations. Tomorrow's elderly are projected to be more often residents of suburban or rural communities than of central cities. They are likely to travel more frequently and to a wider range of destinations than the elderly of today. Most future seniors will have been automobile drivers all their lives and can be expected to demand high-quality transportation services. The combination of these factors is expected to pose substantial challenges for public transportation providers wishing to capture a significant proportion of the trips of tomorrow's older persons.

# 2

# CURRENT TRAVEL PATTERNS OF OLDER PERSONS

The travel patterns of older persons—those who are 65 years of age or older—are different in a number of ways from the travel patterns of younger persons. Some of these distinctions are related to long-established travel patterns, which may differ from generation to generation; other distinctions stem more from trip purpose differences or from other factors. This chapter examines travel modes, travel frequency, and the meaning of mobility for older persons. A particular focus of this chapter is the use of public transit services by older persons.

## TRAVEL MODE

### Overall Patterns

Driving is currently the predominant mode of transportation for older persons in the United States. The next most frequent mode of transportation is as an automobile passenger. Automobile trips, as driver or passenger, account for more than 90 percent of all trips by seniors. Transit, walking, taxi, and other modes are used for only a small fraction of the total trips taken by older persons.

The mode of travel typically changes as a person ages (Burkhardt, 1994; Rosenbloom, 1999; Straight, 1997). Although people in their 60s most often drive their own automobiles, reliance on the personal automobile decreases dramatically with increasing age. People in their 60s seldom rely on relatives, friends, or neighbors for their transportation, but this reliance on others increases substantially as a person ages and if health problems or a disability are present (Burkhardt, 1994; Glasgow and

Blakely, 1994). Eighty-seven percent of those in the 60-to-64 age group used their own automobiles for their usual means of travel, as did 48 percent in the 80-to-84 age group and 22 percent in the group 90 years and older.

Thompson's study (1996) in the New Haven area concurred that most former drivers prefer to travel as passengers in private automobiles followed by walking, paratransit, and public transit. The study also revealed that the preferred travel mode changes according to destination.

## Driving

The two best sources of data regarding the travel patterns of older persons are the *Nationwide Personal Transportation Survey* (NPTS) and the *National Health Interview Survey on Disability, Supplement on Aging II* (SOA II). NPTS surveys have been conducted since 1969 (about every 5 years starting in 1977) for the purpose of describing travel throughout the United States. SOA II contains a broad range of information on health and disability including several variables on driving practices and limitations, the availability and use of public transportation, difficulties experienced in using transit, the availability and use of paratransit services, difficulty using such services, and willingness to use paratransit if it were available. The 1995 NPTS data include responses from 12,691 people 65 years of age and older; the 1994–95 SOA II data were collected from 9,447 people 69 years of age and older. NPTS collects information on driver licensing status instead of directly asking respondents, "Do you drive?" The NPTS driver licensing data have been discussed at length (Burkhardt et al., 1998) and show that the proportion of adults with a driver's license declines as age increases from about age 60. The decline is becoming less noticeable over time. At this time, older women are much less likely to hold a driver's license than are older men; this difference is also decreasing over time.

The 1994–95 SOA II shows that, of the 21.8 million U.S. citizens age 69 and older, 65.3 percent (14.3 million people) drive. This includes those who seldom drive, those who drive occasionally, and those who drive daily (see Table 5). The table shows that the greatest reported frequency of driving (the "competing mode" with respect to transit) is found among people who are

- Younger;
- Male;
- White;
- At or above poverty levels;
- Living with others;
- Living in non-MSAs; and
- Not limited in their ADLs.

These results are as expected.

Table 6 presents an analysis based on asking those respondents who never drove if they never drove because of a health or impairment problem. If older persons do not drive, it is more likely to be related to health or impairment if they are

- Older than 74;
- Female;
- White;
- At or above poverty levels;
- Living with others;
- Living in MSA areas; and
- Functioning with three or more ADL limitations.

Conversely, if older persons with characteristics other than these do not

## Table 5

# Frequency of Driving Among People Age 69 and Over, 1994

### (How frequently do you drive a car or other motor vehicle?)

| Characteristic | | Total | Number and Percent of People Age 69 and Over Reporting Frequency of Driving | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Daily or Almost Daily | | Occasionally | | Seldom | | Never | |
| | | Number (100%) | Number | Percent | Number | Percent | Number | Percent | Number | Percent |
| Total | | 21,755,849 | 10,740,160 | 49.4 | 2,675,659 | 12.3 | 783,438 | 3.6 | 7,489,260 | 34.4 |
| Age Groups (years) | 69-74 | 10,084,516 | 6,250,449 | 62.0 | 1,096,370 | 10.9 | 398,632 | 4.0 | 2,339,065 | 23.2 |
| | 75-84 | 9,446,545 | 4,153,698 | 44.0 | 1,336,998 | 14.2 | 317,557 | 3.4 | 3,638,292 | 38.5 |
| | 85+ | 2,157,456 | 336,013 | 15.6 | 242,291 | 11.2 | 67,249 | 3.1 | 1,511,903 | 70.1 |
| Gender | Male | 8,713,257 | 5,961,183 | 68.4 | 850,722 | 9.8 | 245,486 | 2.8 | 1,655,866 | 19.0 |
| | Female | 12,975,260 | 4,778,977 | 36.8 | 1,824,937 | 14.1 | 537,952 | 4.2 | 5,833,394 | 45.0 |
| Race | White, non-Hispanic | 18,335,658 | 9,702,139 | 53.0 | 2,355,748 | 12.9 | 670,033 | 3.6 | 5,607,738 | 30.9 |
| | Black, non-Hispanic | 1,613,235 | 473,431 | 29.4 | 171,212 | 10.6 | 55,655 | 3.5 | 912,937 | 56.6 |
| | Hispanic | 1,089,598 | 350,199 | 32.1 | 104,518 | 9.6 | 28,144 | 2.6 | 606,737 | 55.7 |
| | Other | 496,222 | 148,501 | 29.9 | 31,890 | 6.4 | 29,606 | 6.0 | 286,225 | 57.7 |
| NHIS Poverty Index | At or above | 16,338,184 | 8,893,705 | 54.4 | 1,976,333 | 12.1 | 590,636 | 3.6 | 4,877,510 | 29.9 |
| | Below | 1,778,239 | 383,211 | 21.6 | 207,232 | 11.7 | 72,986 | 4.1 | 1,114,810 | 62.7 |
| Living Arrangements | Living alone | 7,480,683 | 3,158,704 | 42.2 | 993,436 | 13.3 | 224,454 | 3.0 | 3,104,089 | 41.5 |
| | Living with others | 14,207,834 | 7,581,456 | 53.4 | 1,682,223 | 11.8 | 558,984 | 3.9 | 4,385,171 | 30.9 |
| Area of Residence | MSA*, Center City | 6,423,699 | 2,643,597 | 41.2 | 682,862 | 10.6 | 179,761 | 2.8 | 2,917,479 | 45.4 |
| | MSA, non-Center City | 9,359,722 | 4,950,353 | 52.9 | 1,149,370 | 12.3 | 331,653 | 3.5 | 2,928,346 | 31.3 |
| | Non-MSA | 5,905,096 | 3,146,210 | 53.3 | 843,427 | 14.3 | 272,024 | 4.6 | 1,643,435 | 27.8 |
| Number of ADL** Limitations | None | 15,421,941 | 9,381,157 | 60.8 | 1,893,296 | 12.3 | 433,190 | 2.8 | 3,714,298 | 24.1 |
| | One | 2,236,084 | 815,622 | 36.5 | 346,284 | 15.5 | 104,584 | 4.7 | 969,594 | 43.4 |
| | Two | 1,234,635 | 253,177 | 20.5 | 176,063 | 14.3 | 58,912 | 4.8 | 746,483 | 60.5 |
| | Three or more | 2,761,210 | 280,679 | 10.2 | 257,970 | 9.3 | 186,752 | 6.8 | 2,035,809 | 73.7 |

Source: National Center for Health Statistics, 1994–1995 (Original tabulations from the 1994–1995 National Health Interview Survey). Weighted responses are shown. *MSA=Metropolitan Statistical Area. **ADL=activities of daily living.

## Table 6

# Frequency of Non-Drivers Age 69 and Over Who Never Drive Because of Health or Impairments, 1994

### (Do you never drive because of an impairment or health problem?)

| Characteristic | | Total | Number and Percent of People Age 69 and Over Who Reported Never Driving | | | |
|---|---|---|---|---|---|---|
| | | | YES | | NO | |
| | | Number (100%) | Number | Percent | Number | Percent |
| Total | | 7,489,260 | 2,830,127 | 37.8 | 4,614,591 | 61.6 |
| Age Groups (years) | 69-74 | 2,317,207 | 746,659 | 32.2 | 1,570,548 | 67.8 |
| | 75-84 | 3,620,780 | 1,376,007 | 38.0 | 2,244,773 | 62.0 |
| | 85+ | 1,506,731 | 707,461 | 47.0 | 799,270 | 53.1 |
| Gender | Male | 1,646,025 | 1,037,359 | 63.0 | 608,666 | 37.0 |
| | Female | 5,798,693 | 1,792,768 | 30.9 | 4,005,925 | 69.1 |
| Race | White, non-Hispanic | 5,579,150 | 2,366,455 | 42.4 | 3,212,695 | 57.6 |
| | Black, non-Hispanic | 909,864 | 254,527 | 28.0 | 655,337 | 72.0 |
| | Hispanic | 596,186 | 122,992 | 20.6 | 473,194 | 79.4 |
| | Other | 283,895 | 59,115 | 20.8 | 224,780 | 79.2 |
| NHIS Poverty Index | At or above | 4,848,250 | 1,977,389 | 40.8 | 2,870,861 | 59.2 |
| | Below | 1,107,325 | 325,728 | 29.4 | 781,597 | 70.6 |
| Living Arrangements | Living alone | 3,089,593 | 1,049,626 | 34.0 | 2,039,967 | 66.0 |
| | Living with others | 4,355,125 | 1,780,501 | 40.9 | 2,574,624 | 59.1 |
| Area of Residence | MSA*, Center City | 2,896,518 | 918,666 | 31.7 | 1,977,852 | 68.3 |
| | MSA, non-Center City | 2,908,872 | 1,127,877 | 38.8 | 1,780,995 | 61.2 |
| | Non-MSA | 1,639,328 | 783,584 | 47.8 | 855,744 | 52.2 |
| Number of ADL** Limitations | None | 3,695,965 | 791,412 | 21.4 | 2,904,553 | 78.6 |
| | One | 958,812 | 369,774 | 38.6 | 589,038 | 61.4 |
| | Two | 735,941 | 370,736 | 50.4 | 365,205 | 49.6 |
| | Three or more | 2,030,924 | 1,288,586 | 63.5 | 742,338 | 36.6 |

Source: National Center for Health Statistics, 1994–1995 (Original tabulations from the 1994–1995 National Health Interview Survey). Weighted responses are shown. *MSA=Metropolitan Statistical Area. **ADL=activities of daily living.

drive, the reason is not so often related to health or impairment. Understanding how these characteristics influence travel choices can help us define potential target markets for enhanced transit services.

# Public Transit

## *Overall Transit Use Patterns*

The process of assessing public transit options for older persons of the future must start with the travel patterns of today's elderly population. In Table 7, data on whether or not people age 69 and older have used public transportation in the last 12 months are presented. The overall responses (SOA II) are powerful. Reporting on the last 12 months, 11.5 percent (2.5 million people) said that they had used public transportation, 53.8 percent said that they hadn't used public transportation, and 34.1 percent said that no public transportation system was available.

Similar responses are found in the 1995 NPTS data shown in Table 8. In the NPTS survey, 10.1 percent of all people age 65 and older were transit users, and 49.4 percent were not. Another 40.5 percent of the respondents reported that public transit services were not available to them.

Of course, the "no public system available" response means not available in the eyes of the respondents; indeed, they may not know of services that are in fact available. Nonetheless, the 34 or 40 percent affirmative response is still a substantial proportion of all older persons. This suggests that some older persons might make greater use of public transit services if public transit services were simply more often available to them. Whether or not they would make sufficient use of new transit services to make the implementation of these services cost-effective is questionable.

## *Characteristics of Older Transit Users*

According to the SOA II figures in Table 7, older persons who do use public transportation are generally

- In the younger age groups;
- Female;
- White;
- People with incomes at or above poverty levels;
- People who live in central cities; and
- People who have no ADL limitations.

(Note that on a proportional basis, older non-Whites use transit much more frequently than older Whites, older persons in central cities make much greater use of public transit than older persons elsewhere, and older persons with below poverty incomes make somewhat greater use of transit than do older persons with incomes at or above poverty levels.)

Of all the demographic characteristics presented, place of residence was the most reliable indicator of whether or not public transportation was available and used. Older persons without public transit are much more likely to be living in non-MSA areas than in more urbanized areas, and older persons who do use public transit are more likely to be center city residents. Finally, older persons who say that they have no public transportation available are also much more likely to be White than to be of any other racial or ethnic background.

Travel frequencies for those older persons who do use public transportation are shown in Table 9 for the SOA II survey. Not quite

## Table 7

# Frequency of People Age 69 and Over Who Have Used Public Transportation in the Last 12 Months, 1994

### (During the past 12 months, have you used local public transportation, such as a regular bus line, rapid transit, subway, or streetcar?)

| Characteristic | | Total | Number and Percent of People Age 69 and Over Who Have Used Local Public Transportation | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | YES | | NO | | No Public System Available | |
| | | Number (100%) | Number | Percent | Number | Percent | Number | Percent |
| Total | | 21,755,849 | 2,492,929 | 11.5 | 11,712,023 | 53.8 | 7,423,362 | 34.1 |
| Age Groups (years) | 69-74 | 10,059,058 | 1,288,295 | 12.8 | 5,221,027 | 51.9 | 3,549,736 | 35.3 |
| | 75-84 | 9,429,461 | 1,068,814 | 11.3 | 5,198,326 | 55.1 | 3,162,321 | 33.5 |
| | 85+ | 2,139,795 | 135,820 | 6.4 | 1,292,670 | 60.4 | 711,305 | 33.2 |
| Gender | Male | 8,688,753 | 904,894 | 10.4 | 4,659,770 | 53.6 | 3,124,089 | 36.0 |
| | Female | 12,939,561 | 1,588,035 | 12.3 | 7,052,253 | 54.5 | 4,299,273 | 33.2 |
| Race | White, non-Hispanic | 18,279,521 | 1,710,462 | 9.4 | 9,909,108 | 54.2 | 6,659,951 | 36.4 |
| | Black, non-Hispanic | 1,612,138 | 400,565 | 24.9 | 796,076 | 49.4 | 415,497 | 25.8 |
| | Hispanic | 1,086,629 | 220,375 | 20.3 | 624,663 | 57.5 | 241,591 | 22.2 |
| | Other | 496,222 | 135,039 | 27.2 | 290,589 | 58.6 | 70,594 | 14.2 |
| NHIS Poverty Index | At or above | 16,292,742 | 1,823,324 | 11.2 | 9,088,753 | 55.8 | 5,380,665 | 33.0 |
| | Below | 1,771,790 | 270,296 | 15.3 | 780,077 | 44.0 | 721,417 | 40.7 |
| Living Arrangements | Living alone | 7,456,960 | 1,069,486 | 14.3 | 3,939,027 | 52.8 | 2,448,447 | 32.8 |
| | Living with others | 14,171,354 | 1,423,443 | 10.0 | 7,772,996 | 54.9 | 4,974,915 | 35.1 |
| Area of Residence | MSA*, Center City | 6,416,903 | 1,522,648 | 23.7 | 4,307,284 | 67.1 | 586,971 | 9.2 |
| | MSA, non-Center City | 9,337,143 | 882,339 | 9.5 | 5,927,113 | 63.5 | 2,527,691 | 27.1 |
| | Non-MSA | 5,874,268 | 87,942 | 1.5 | 1,477,626 | 25.2 | 4,308,700 | 73.4 |
| Number of ADL** Limitations | None | 15,377,101 | 1,965,566 | 12.8 | 8,112,822 | 52.8 | 5,298,713 | 34.5 |
| | One | 2,231,296 | 284,985 | 12.8 | 1,173,943 | 52.6 | 772,368 | 34.6 |
| | Two | 1,230,656 | 78,308 | 6.4 | 738,953 | 60.1 | 413,395 | 33.6 |
| | Three or more | 2,754,614 | 164,070 | 6.0 | 1,658,625 | 60.2 | 931,919 | 33.8 |

Source: National Center for Health Statistics, 1994–1995 (Original tabulations from the 1994–1995 National Health Interview Survey). Weighted responses are shown. *MSA=Metropolitan Statistical Area.
**ADL=activities of daily living.

**Table 8**

## Transit Usage

| *Transit Usage Among Different Age Groups* | | | |
|---|---|---|---|
| ***Age Group*** | ***Use Transit*** | ***Never Use Transit*** | ***Transit Not Available*** |
| 65 and under | 14.9% | 47.1% | 38.0% |
| Over 65 | 10.1% | 49.4% | 40.5% |
| All age groups | 14.2% | 47.4% | 38.4% |
| *Transit Use for Those with Access to Transit Services* | | | |
| ***Age Group*** | ***Use Transit*** | ***Never Use Transit*** | ***Transit Not Available*** |
| 65 and under | 24.0% | 76.0% | N/A |
| Over 65 | 16.9% | 83.1% | N/A |

Source: U.S. Department of Transportation, 1995 (Original tabulations from the Nationwide Personal Transportation Survey).

15 percent of persons age 69 and older who used public transportation (1.6 percent of all persons age 69 and older) used transit daily or almost daily. Almost 50 percent used transit occasionally, and 36 percent seldom used transit. Those who use transit daily or almost daily are likely to be

- Among the youngest of the elderly;
- Female;
- White;
- At or above poverty thresholds;
- Living in center cities; and
- People having no ADL limitations.

(Again, on a proportional basis, older non-Whites use transit more frequently on a daily basis than older Whites, and older persons with below-poverty incomes make much greater daily use of transit than do older persons with incomes at or above poverty levels.)

Numerically speaking, older transit users who seldom use public transit are likely to be

- Female;
- White;
- At or above poverty levels;
- Not living alone;
- Living in center cities; and
- People having no ADL limitations.

(On a proportional basis, those seniors likely to seldom use transit are older, male, White, at or above poverty thresholds, living with others, not living in center cities, and having three or more ADLs.)

Although these results generally conform to overall demographic patterns, the results also confirm the notion that transit has a difficult time attracting older riders who have a choice of travel modes. It is also important to note that transit is most often used where it is most often available—in center cities.

Table 10 shows the frequency of transit use according to the NPTS data, also breaking down the figures for drivers and non-drivers. Among all older persons who use transit, about one-third use transit 2 days or more a week, one-sixth use it once a week, about one-quarter use it several times a month, and about one-fifth use it less than once a month. These figures show a slightly higher usage of transit than the figures shown in the SOA II sample.

## Table 9

## Frequency of Use of Local Public Transportation in the Last 12 Months, 1994

### (During the past 12 months, how often did you use the local public transportation service? Would you say . . .)

| Characteristic | | Number and Percent of People Age 69 and Over Using Local Public Transportation in the Past 12 Months | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Total | Daily or Almost Daily | | Occasionally | | Seldom | |
| | | Number (100%) | Number | Percent | Number | Percent | Number | Percent |
| Total | | 2,492,929 | 342,232 | 13.7 | 1,183,620 | 47.5 | 900,091 | 36.1 |
| Age Groups (years) | 69-74 | 1,252,517 | 199,531 | 15.9 | 567,990 | 45.4 | 484,996 | 38.7 |
| | 75-84 | 1,042,206 | 139,402 | 13.4 | 539,229 | 51.7 | 363,575 | 34.9 |
| | 85+ | 131,220 | 3,299 | 2.5 | 76,401 | 58.2 | 51,520 | 39.3 |
| Gender | Male | 858,934 | 113,262 | 13.2 | 376,512 | 43.8 | 369,160 | 43.0 |
| | Female | 1,567,009 | 228,970 | 14.6 | 807,108 | 51.5 | 530,931 | 33.9 |
| Race | White, non-Hispanic | 1,660,119 | 197,705 | 11.9 | 757,415 | 45.6 | 704,999 | 42.5 |
| | Black, non-Hispanic | 389,645 | 70,600 | 18.1 | 221,264 | 56.8 | 97,781 | 25.1 |
| | Hispanic | 214,652 | 33,476 | 15.6 | 130,901 | 61.0 | 50,275 | 23.4 |
| | Other | 135,039 | 40,451 | 30.0 | 49,609 | 36.7 | 44,979 | 33.3 |
| NHIS Poverty Index | At or above | 1,768,784 | 236,568 | 13.4 | 844,894 | 47.8 | 687,322 | 38.9 |
| | Below | 267,047 | 68,347 | 25.6 | 144,141 | 54.0 | 54,559 | 20.4 |
| Living Arrangements | Living alone | 1,038,942 | 173,549 | 16.7 | 562,921 | 54.2 | 302,472 | 29.1 |
| | Living with others | 1,387,001 | 168,683 | 12.2 | 620,699 | 44.8 | 597,619 | 43.1 |
| Area of Residence | MSA*, Center City | 1,482,795 | 268,956 | 18.1 | 755,800 | 51.0 | 458,039 | 30.9 |
| | MSA, non-Center City | 865,583 | 69,065 | 8.0 | 392,806 | 45.4 | 403,712 | 46.6 |
| | Non-MSA | 77,565 | 4,211 | 5.4 | 35,014 | 45.1 | 38,340 | 49.4 |
| Number of ADL** Limitations | None | 1,910,256 | 292,347 | 15.3 | 918,552 | 48.1 | 699,357 | 36.6 |
| | One | 277,761 | 31,431 | 11.3 | 134,655 | 48.5 | 111,675 | 40.2 |
| | Two | 76,186 | 10,163 | 13.3 | 45,353 | 59.5 | 20,670 | 27.1 |
| | Three or more | 161,740 | 8,291 | 5.1 | 85,060 | 52.6 | 68,389 | 42.3 |

Source: National Center for Health Statistics, 1994–1995 (Original tabulations from the 1994–1995 National Health Interview Survey). Weighted responses are shown. *MSA=Metropolitan Statistical Area. **ADL=activities of daily living.

**Table 10**

**Frequency of Transit Use Among Older Persons Who Use Transit**

| *Frequency of Use* | *Older Drivers* | *Non-Drivers* | *Totals* | *Percents* |
|---|---|---|---|---|
| 2+ days/wk | 307 | 767 | 1,074 | 33.74% |
| Once a week | 228 | 307 | 535 | 16.81% |
| 1-2 days per month | 506 | 368 | 874 | 27.46% |
| Less than once per month | 589 | 111 | 700 | 21.99% |
| ***Totals*** | 1,630 | 1,553 | 3,183 | |
| | 51.21% | 48.79% | 100.00% | 100.00% |

Source: U.S. Department of Transportation, 1995 (Original tabulations from the Nationwide Personal Transportation Survey).

### *Effects of Health Limitations*

Table 11 presents data compiled from older transit users' responses to the question of whether they have difficulty using local transit service because of an impairment or health problem. Almost 90 percent of those interviewed did not have any such problems. Those transit users who had difficulty using transit because of an impairment or health problem tended to be

- In the 75- to 84-year-old age group;
- Female;
- At or above the poverty index;
- Living alone;
- Living in center cities; and
- People having three or more ADL impairments.

(On a proportional basis, those seniors likely to have difficulty using transit because of an impairment or health problem are likely to be older, female, below poverty thresholds, living alone, living in center cities, and people having one or more ADL limitations.)

### *Older Persons Not Using Public Transit Because of Health Reasons*

People who are non-users of public transportation because of impairments or health problems (see Table 12) are likely to be

- Older;
- Female;
- White;
- At or above poverty threshold;
- Living with others;
- Living in metropolitan areas, but not necessarily in center cities; and
- People having three or more ADL impairments.

(On a proportional basis, those seniors likely not to use transit because of an impairment or health problem are likely to be older, female, non-White, below poverty thresholds, living alone, living in center cities, and people having one or more ADL limitations.)

## Table 11

# Frequency of Recent Difficulties Using Local Public Transportation Among Transit Users Age 69 and Over, 1994

**(Because of an impairment or health problem, during the past 12 months, did you have any difficulty using the local public transportation service?)**

| *Characteristic* | | *Total* | *Number and Percent of People Age 69 and Over Reporting Difficulty Using Local Public Transportation Service* | | | |
|---|---|---|---|---|---|---|
| | | *Number (100%)* | *YES* | | *NO* | |
| | | | *Number* | *Percent* | *Number* | *Percent* |
| Total | | 2,492,929 | 225,517 | 9.0 | 2,206,357 | 88.5 |
| Age Groups (years) | 69-74 | 1,252,928 | 94,604 | 7.6 | 1,158,324 | 92.5 |
| | 75-84 | 1,045,396 | 101,637 | 9.7 | 943,759 | 90.3 |
| | 85+ | 133,550 | 29,276 | 21.9 | 104,274 | 78.1 |
| Gender | Male | 862,813 | 60,234 | 7.0 | 802,579 | 93.0 |
| | Female | 1,569,061 | 165,283 | 10.5 | 1,403,778 | 89.5 |
| Race | White, non-Hispanic | 1,674,844 | 160,098 | 9.6 | 1,514,746 | 90.4 |
| | Black, non-Hispanic | 391,216 | 34,066 | 8.7 | 357,150 | 91.3 |
| | Hispanic | 216,946 | 18,618 | 8.6 | 198,328 | 91.4 |
| | Other | 124,948 | 6,470 | 5.2 | 118,478 | 94.8 |
| NHIS Poverty Index | At or above | 1,772,421 | 131,902 | 7.4 | 1,640,519 | 92.6 |
| | Below | 267,047 | 36,009 | 13.5 | 231,038 | 86.5 |
| Living Arrangements | Living alone | 1,046,809 | 130,217 | 12.4 | 916,592 | 87.6 |
| | Living with others | 1,385,065 | 95,300 | 6.9 | 1,289,765 | 93.1 |
| Area of Residence | MSA*, Center City | 1,487,455 | 180,850 | 12.2 | 1,306,605 | 87.8 |
| | MSA, non-Center City | 866,854 | 40,067 | 4.6 | 826,787 | 95.4 |
| | Non-MSA | 77,565 | 4,600 | 5.9 | 72,965 | 94.1 |
| Number of ADL** Limitations | None | 1,912,286 | 62,347 | 3.3 | 1,849,939 | 96.7 |
| | One | 280,973 | 55,692 | 19.8 | 225,281 | 80.2 |
| | Two | 76,186 | 22,938 | 30.1 | 53,248 | 69.9 |
| | Three or more | 162,429 | 84,540 | 52.1 | 77,889 | 48.0 |

Source: National Center for Health Statistics, 1994–1995 (Original tabulations from the 1994–1995 National Health Interview Survey). Weighted responses are shown. *MSA=Metropolitan Statistical Area. **ADL=activities of daily living.

## Table 12

# Number of Non-Transit Users Who are Prevented or Limited from Using Public Transportation Because of an Impairment or Health Problem, 1994

### (Does an impairment or health problem prevent or limit your use of the public transportation service?)

| *Characteristic* | | *Total* | *Number and Percent of People Age 69 and Over Prevented or Limited from Using Public Transportation* | | | |
|---|---|---|---|---|---|---|
| | | *Number (100%)* | *YES* | | *NO* | |
| | | | *Number* | *Percent* | *Number* | *Percent* |
| Total | | 11,839,558 | 1,809,048 | 15.3% | 9,323,522 | 78.7% |
| Age Groups (years) | 69-74 | 5,199,463 | 435,815 | 8.4 | 4,562,613 | 87.8 |
| | 75-84 | 5,150,922 | 904,527 | 17.6 | 4,013,933 | 77.9 |
| | 85+ | 1,264,375 | 468,706 | 37.1 | 746,976 | 59.1 |
| Gender | Male | 4,641,350 | 519,039 | 11.2 | 3,959,483 | 85.3 |
| | Female | 6,973,410 | 1,290,009 | 18.5 | 5,364,039 | 76.9 |
| Race | White, non-Hispanic | 9,830,260 | 1,366,985 | 13.9 | 8,025,838 | 81.6 |
| | Black, non-Hispanic | 787,383 | 224,590 | 28.5 | 544,210 | 69.1 |
| | Hispanic | 617,304 | 130,951 | 21.2 | 472,963 | 76.6 |
| | Other | 288,226 | 73,131 | 25.4 | 204,901 | 71.1 |
| NHIS Poverty Index | At or above | 9,003,793 | 1,239,084 | 13.8 | 7,424,254 | 82.5 |
| | Below | 769,780 | 217,339 | 28.2 | 477,914 | 62.1 |
| Living Arrangements | Living alone | 3,888,371 | 721,907 | 18.6 | 2,995,577 | 77.0 |
| | Living with others | 7,726,389 | 1,087,141 | 14.1 | 6,327,945 | 81.9 |
| Area of Residence | MSA*, Center City | 4241791 | 850,397 | 20.1 | 3,358,529 | 79.2 |
| | MSA, non-Center City | 5,895,902 | 826,752 | 14.0 | 4,769,894 | 80.1 |
| | Non-MSA | 1,477,067 | 131,899 | 8.9 | 1,195,099 | 80.9 |
| Number of ADL** Limitations | None | 8,098,000 | 265,912 | 3.3 | 7,572,863 | 93.5 |
| | One | 1,158,479 | 247,134 | 21.3 | 858,079 | 74.1 |
| | Two | 715,617 | 285,866 | 40.0 | 377,297 | 52.7 |
| | Three or more | 1,614,984 | 1,002,488 | 62.1 | 497,215 | 30.8 |

Source: National Center for Health Statistics, 1994–1995 (Original tabulations from the 1994–1995 National Health Interview Survey). Weighted responses are shown. *MSA=Metropolitan Statistical Area. **ADL=activities of daily living.

## *Older Persons Not Driving Because of Health Reasons*

Disabilities more frequently limit driving than they limit transit use. As shown in Table 13, the proportion of people who never drive because of an impairment or health problem is more than twice as large as the proportion of people who never use public transit because of an impairment or health problem. Furthermore, the number of seniors age 69 and older who never drive because of an impairment or health problem—2,830,127—is 56 percent greater than the number of seniors age 69 and older who never use public transit because of an impairment or health problem, which is 1,809,048.

## *Overall Results*

These data suggest that transit has significant difficulty serving older persons who are in the oldest age groups, are riders by choice, live outside of central cities, and have multiple impairments.

Finding cost-effective means of tapping into these target markets will be a primary challenge for public transit providers.

Survey respondents in the Baltimore elderly travel survey indicated that improvements in local bus service would be needed to enhance their travel abilities (KETRON, 1999). Focus group respondents in the Baltimore elderly travel survey reported that concerns about "lack of good public transportation" and "safety/security for senior citizens/crime" were the factors impeding their use of public transportation. Ignorance of how to use public transit was one major impediment to its use by older people. Other major impediments were concerns about safety and security, working elevators and escalators, and frequency of

**Table 13**

**Travel Limitations of the Elderly Because of Impairment or Health Problems**

| *Characteristic* | *Number* | *Percent of Total* | *Percent of Those Not Using This Mode* |
|---|---|---|---|
| **Total Elderly** | | | |
| Total elderly persons 69+ | 21,755,260 | 100.0 | N/A |
| **Automobile Drivers** | | | |
| Automobile drivers who never drive | 7,489,260 | 34.4 | 100.0 |
| Elderly who never drive because of impairment or health problem | 2,830,127 | 13.0 | 37.8 |
| **Transit Users** | | | |
| Persons age 69+ for whom transit is available | 13,204,952 | 65.3 | N/A |
| Elderly who use transit | 2,492,929 | 11.5 | N/A |
| Elderly who never use transit | 11,712,023 | 53.8 | 100.0 |
| Elderly who never use transit because of impairment or health problem | 1,809,048 | 8.3 | 15.4 |

Source: National Center for Health Statistics, 1994–1995 (Original tabulations from the 1994–1995 National Health Interview Survey).

service. Seniors also expressed a need for more park-and-ride lots, more feeder buses, more travel information and more accurate travel information, and finally, volunteers to help seniors learn about and use transit.

## Older Persons Who Are Neither Drivers Nor Transit Riders

A very large number of older persons neither drive nor use public transit. The vast majority of these people travel as automobile passengers. In fact, automobile passenger is the second largest travel mode for older persons, far surpassing transit use in popularity. Using NPTS data, Eberhard (2000) has shown that the combination of the transportation modes of automobile driver and automobile passenger accounts for about 90 percent of all trips by seniors in all age groups in urban areas and 94 percent of all trips by seniors in rural areas. (The figures for the group 85 years and older are slightly lower—85 percent and 83 percent, respectively.)

Data from the NPTS and the NHIS SOA II presented in Table 14 demonstrate the large numbers of older persons who neither drive nor use public transit. (It should be remembered that the NPTS data are for people age 65 and older, whereas the SOA II data are for people age 69 and older. Sixty-one percent of the SOA II respondents were drivers; 74 percent of the NPTS respondents were drivers.)

According to the NHIS SOA II survey, (1) there are 21.8 million people age 69 and older in the United States (see Table 5); (2) 14.2 million people 69 years of age and older do have transit services in their communities (65 percent of the 21.8 million); (3) 2.5 million use transit; and (4) 4 million do not drive AND do not use transit.

The data reveal that 4.0 million of the 5.5 million people age 69 and older who do not drive also do not use transit (73.5 percent).

Data on driving and transit use from the 1995 NPTS are similar but not quite the

**Table 14**

**Use of Transit by Older Drivers and Non-Drivers in Communities Where Transit is Available (percents of totals are shown)**

| | *1994 SOA II Survey (69+)* | | | *1995 NPTS Survey (65+)* | | |
|---|---|---|---|---|---|---|
| | ***Transit Users*** | ***Non-Users*** | ***Totals*** | ***Transit Users*** | ***Non-Users*** | ***Totals*** |
| Drivers | 1,037,914 | 7,667,479 | 8,705,393 | 1,630,000 | 12,101,000 | 13,731,000 |
| | 7.32% | 54.04% | 61.36% | 8.77% | 65.13% | 73.90% |
| Non-Drivers | 1,453,923 | 4,028,137 | 5,482,060 | 1,553,000 | 3,296,000 | 4,849,000 |
| | 10.25% | 28.39% | 38.64% | 8.36% | 17.74% | 26.10% |
| Totals | 2,491,837 | 11,695,616 | 14,187,453 | 3,183,000 | 15,397,000 | 18,580,000 |
| | 17.56% | 82.44% | 100.00% | 17.13% | 82.87% | 100.00% |

Sources: National Center for Health Statistics, 1994–1995 (Original tabulations from the 1994–1995 National Health Interview Survey). U.S. DOT, 1995 (Original tabulations from the Nationwide Personal Transportation Survey).

same. (The differences may be because of the age groups included—people age 69 and older for SOA II and people age 65 and older for NPTS—or different sampling procedures.) The NPTS figures (representing 18.6 million people age 65 and older who have transit available in their communities) indicate that there are 3.3 million people age 65 and older who do not drive and do not use transit. (This figure is lower than the comparable SOA II figure, which is higher but represents a smaller group of people.) In percentage terms, NPTS reports that 68 percent of the 4.8 million people age 65 and older who do not drive also do not use transit.

One conclusion that can be drawn from either the NPTS or SOA II figures is that a potentially large number of older persons could be ready for and accepting of good transit services. Even after subtracting older persons with transportation-related disabilities—those elders who do not use transit because of a disability (see Table 11) and an estimated 25 percent of those elders who do not drive because of a disability (see Table 6)—the potential older persons' market for good transit services is still somewhere between 2.5 million and 3.0 million people, which is greater than the number of current older transit riders.

# TRAVEL FREQUENCY

People 65 years of age and older travel frequently, making both local and long-distance trips (the focus of this research is local travel). The amount of travel declines with age (which may be only a surrogate for other factors such as health and income), decreases with increasing disability, increases with increasing income, and increases with automobile ownership.

Projecting the amount of travel by older persons is fraught with uncertainty. However, based on changes to lifestyles, patterns of residential development, and driving behavior, the expectation that older persons of the future will travel more than older persons do now is probably valid. These expectations are discussed further in Chapter 3.

From 1983 to 1990, the total annual person-miles of travel for people age 65 or older increased almost 26 percent, in contrast to a 14-percent increase for the population as a whole (Hu and Young, 1992). This overall increase for seniors in travel miles is due to a 6-percent increase in the number of trips and a 19-percent increase in the average trip length. The average trip lengths for older persons are coming closer to those of the overall population, as are total miles traveled. Spain (1997) reports that the 1995 NPTS data show 31.4 miles per day as an average for the general population, 35.2 miles for men, and 27.8 miles for women. For the 65-to-74-year age group, the average number of miles traveled per day is 26.3 miles for men and 19.4 miles for women. For people 75 and older, the miles per day drop to 19 for men and 10.9 for women. Projections of the number of miles driven by older men and women have been discussed at length by Burkhardt (Burkhardt et al., 1998).

Rosenbloom has noted a substantial growth in the travel of older persons:

> Between 1983 and 1995, older Americans increased their travel activity on every index: they made 77 percent more vehicle

> trips, spent almost 40 percent more time driving, and drove 98 percent more miles than they had in 1983. They also increased the numbers of trips made in private vehicles by 13 percent and increased all trip lengths by 11 percent. In fact, older people had the largest increase of any age group on almost all these indicators. (Rosenbloom, 1999)

Older persons do travel less than younger persons, according to Rosenbloom (1999):

> An NPTS report found that older persons make 3.43 trips per day or 22.4 percent less than those under 65. The common assumption that the drop in trip-making at retirement is also a drop in mobility obscures how active the elderly really are. In fact, trip rates of older persons are not substantially lower than those of younger persons until after age 75.

Examining non-work trips, Rosenbloom found that older men under age 85 take more non-work trips than younger men; older women take fewer trips than younger women but not many fewer until after age 75. These data suggest that older persons are very active and mobile after they reach age 65—and even age 75—and that these travel boundaries may well extend as even more active (and automobile-dependent) people age in the coming decades.

No age cohort of the elderly takes more than 2.3 percent of all their trips by transit. The most striking finding is how few differences there are between younger and older persons regarding mode choices for each kind of trip purpose.

Area of residence makes a big difference. Older persons in center cities are much more likely to take transit or to walk and are less likely to use cars for their trips than the elderly in suburban or rural areas (Rosenbloom, 1999).

# MOBILITY CHANGES: THEIR MEANING FOR THE ELDERLY

## Mobility Declines Associated with Driving Cessation

In the study *Mobility and Independence: Changes and Challenges for Older Drivers* (Burkhardt et al., 1998) the authors reported that definite mobility changes occur when older drivers reduce or cease driving. In a majority of cases, mobility—whether measured in quantitative or qualitative terms—declines. Specific mobility declines that were noted were the following:

- Fewer trips will be taken (older drivers make about six trips per week in contrast to about two trips per week for older non-drivers (Straight, 1997));
- Shorter distances will be traveled;
- Fewer or no trips will be taken under certain conditions; and
- The older person will be more often traveling according to the schedules and convenience of others instead of their own desires.

For older persons who are former drivers, it requires a great deal of planning to get to and from a destination without personally driving. In focus groups, seniors who were reducing their driving mentioned with some frequency mobility changes such as having to plan their lives around other people's schedules and the reduction or total loss of recreational activities (e.g., going out to eat, going to the movies, and socialization—especially at night). Still, very few

individuals made no trips at all, and most found ways to make "necessary" trips, even if at higher monetary and psychological trip costs. Overall, "life maintenance trips" were still made, but "life enriching" trips, for the most part, were not. Metz maintains that travel benefits that could be considered to be "destination-independent" (such as trips taken just for the sake of "getting out and about" as well as trips resulting in community involvement) should also be considered as mobility measures, as should the ability to make a trip even if that trip is not made (Metz, 2000, p. 150).

After driving, the most common transportation mode is riding in an automobile as a passenger. Asking for and accepting rides from family and friends is difficult for most older individuals, particularly those raised in the tradition of independence and self-sufficiency. As a woman in one of the focus groups for *Mobility and Independence* explained, "You really get humble, you hate to ask" (Burkhardt et al., 1998). Seniors who do not drive are hesitant to ask for additional rides because they are often unable to reciprocate by providing a ride or other services.

Mobility remains important for older persons, even as it declines:

> Remaining mobile is a critical aspect of independence and is important to the welfare of people, including those with functional limitations. Access to services, activities, and other people is essential to maintaining one's well-being and quality of life. (OECD, 2001)

There is some evidence that mobility declines can lead to depression (Marottolli et al., 1995), reduced life satisfaction (Cutler, 1975), health problems (Dobbs, 1998), and isolation and loneliness (Russell et al., 1997). There appear to be few benefits from reduced or limited mobility. Specific connections between mobility levels and factors such as health and life satisfaction clearly deserve substantially more investigation.

Some in the older persons' focus group were able to meet their transportation needs for grocery shopping, medical appointments, and other basic errands reasonably well after they stopped driving. These people have one or more of the following attributes:

- They live in communities with viable non-driving transportation options.
- They are physically able to use public transportation.
- They have spouses or significant others who drive.
- They live with children or have children in the area.
- They have sufficient financial resources to purchase transportation.
- They are heavily involved with a religious institution.
- They have reduced their activities and their expectations to fit their present circumstances.

## Mobility Improvements Associated with Specialized Transportation Services

A wide variety of human service agencies sponsor or operate specialized transportation services for their clients. (Some of these services are operated by or coordinated with public transit operations.) The Administration on Aging (AoA) funds transportation services for seniors through its Grants for State and

Community Programs on Aging (known as the Title III Program).

AoA's *Performance Outcomes Measures Project* examined the perspectives of older consumers on the care that they were receiving from AoA-sponsored services that provided transportation to older adults. Using telephone and mail surveys, State Units on Aging and Area Agencies on Aging in Arizona, Florida, Georgia, Hawaii, Indiana, Iowa, Kentucky, and Ohio assessed client satisfaction with transportation services provided through AoA-funded programs. A total of 1,057 interviews were conducted. Initial tabulations (Burkhardt, 2001) showed the following:

- Older consumers were, in general, highly satisfied with the AoA-funded transportation services that they have received.
- Although about half of those interviewed used these services for just a few of their trips, one-fifth of the respondents used the services for nearly all of their trips.
- Even with such services available, 13 percent of those who had used these services did not leave their home for any reason for the previous 2 weeks.
- On average, riders of these services made about six trips per month on these services.
- The most frequent recommendation for transportation service improvements, reported by half of the respondents, was to increase the hours of service.
- Sixty percent of the riders reported that they traveled more now than before they had access to these AoA-sponsored transportation services, and 61 percent reported that their social activities had increased since they started using the AoA-funded transportation services.

Besides assessing the quality of the services, respondents were asked what difference these services had meant to them. The actual question was, "How has your life changed since you started using this service?" Although some respondents (those who had multiple travel options or made little use of the AoA-sponsored services) reported few changes, if any, those seniors who really depended on the AoA-funded services for their mobility had very dramatic responses:

- "A blessing to have the bus. I do not feel like a shut-in. It gives me the freedom to come and go and do for myself."
- "I would be dead without this service."
- "I depend on this bus, now that my husband went to heaven. I wondered how I was going to get around, but I do not have to worry now."
- "I feel very independent not bothering my family for transportation."
- "This is what keeps me out of that nursing home."
- "It's like letting a bird out of a cage."

The themes of mobility, independence, self-sufficiency, comfort, dependability, and even joy recurred in a large number of the interviews. Clearly, access to high-quality transportation services means a great deal to older persons, whether they provide their own means of access or rely on others to meet their travel needs.

# CONCLUSION

Automobiles currently play a large part in the travel patterns of older persons, accounting for about 90 percent of all trips made. Transit is used by about 11 percent of older persons; transit trips represent about 3 percent of all trips by older persons. Between 34 and 40 percent of all seniors report that they have no transit services available to them. (Public transit services are used by nearly 18 percent of those

seniors who have public transportation services available to them.) Transit usage is closely related to residential location, with older center city residents using transit much more frequently than those residing elsewhere. Transit currently has problems serving older persons who are in the oldest age groups, have multiple travel options, live outside of central cities, and have multiple impairments. The large numbers of people who do not drive and do not use public transportation should be considered as potential riders for new or improved transit services. New or improved transit services could help older persons continue to live independently in their own homes for longer periods of time, thus benefiting both the older persons and society as well.

# 3

# TRAVEL IMPLICATIONS OF TRENDS AND CHANGES IN THE OLDER POPULATION

## SUMMARY OF EXPECTED TRENDS

Current trends and changes provide some expectations as to future travel choices of the elderly. Although many of these changes will be incremental, the overall impact of the changes expected over the next several decades will create a future that will look quite different from the present. The overall expectation is that tomorrow's elderly population (today's baby boomers) will travel much differently than today's elderly population.

- Most older persons of the future will have active, independent, and mobile lifestyles. But tomorrow's elderly population will certainly not be a homogeneous group. Some older persons—most often, the oldest of the old—will need assistance. An AARP survey (Straight, 1997) concerning adult children's perceptions of their parents' needs reported that transportation was the second most frequently identified form of assistance needed (reported as a need by 11 percent of the respondents) after financial help (39 percent).
- Trip rates will continue to increase for older persons. (Older persons already make more non-work trips than younger persons [OECD, 2001].) High levels of life satisfaction will be strongly dependent on access to a wide range of highly dispersed activities and services.
- Nearly all older men and women will have been automobile drivers from their teenage years and throughout their lives. They will be highly accustomed to the freedom, independence, convenience, and flexibility that automobiles provide.
- The number of older drivers—people age 65 and older, 75 and older, and 85 and older—can be expected to increase substantially, at least doubling from 1996 to 2030. Older women are

expected to drive in greater proportions than is now the case. If they do, the number of older drivers could be more than two-and-a-half times the 1996 levels within 30 years. The number of drivers age 85 and over in 2030 will be four to five times greater than today.

- Older drivers will be a greater proportion of all drivers because of the increase in the number of older persons and because the U.S. population as a whole is getting older.
- Older persons will travel more (taking more trips and driving more miles) than before. The proportion of the total mileage for elderly drivers to the total miles driven by all drivers will also steadily increase.
- Based on conservative estimates and current risk and fatality rates, the number of traffic fatalities among the elderly in the United States could more than triple by the year 2030. This problem mirrors concerns in other countries.
- These factors conclusively demonstrate an extremely strong need for travel alternatives and options other than driving, both for those persons who often drive and those who do not. These factors also demonstrate the following:
  - Organizations that can provide such services are liable to find ever larger numbers of willing customers at their doors.
  - In the future, there will be greater need for more travel options for both the more mobile and least mobile members of the older population.
- Public transit providers will be challenged to find cost-effective ways to provide services to widely dispersed residences and activity centers.

The demographic factors influencing travel patterns of the future elderly are summarized in Table 15, which reviews the following factors:

- Dispersion of activities,
- Automobile driver licensing,
- Aging in place,
- Health status,
- Income/poverty status,
- Retirement status,
- Family support,
- Urban/rural difference,
- Predominance of women, and
- Cultural diversity.

# KEY TRAVEL TRENDS FOR THE FUTURE

Some of the key travel trends for older persons of the future are expected to be

- Large amounts of travel;
- A continued emphasis on automobile travel;
- A need for additional mobility options;
- Higher levels of expectations regarding service than are now seen;
- A need for cost-effective public transit solutions for low-density areas; and
- A need for comprehensive solutions that address the travel needs of high-income and high-mobility seniors while at the same time addressing the travel needs of low-income and low-mobility seniors.

# CONCLUSION

Anticipated changes in demographic and travel patterns are expected to have significant transportation implications. With many more elderly persons living in the United States, the travel demands of the elderly will become a more significant policy issue. Tomorrow's older persons are projected to have aged in place in suburban or rural communities that seldom have good public transit service now. They are likely to be highly active and to travel more frequently and to a wider range of

## Table 15

## Summary of Characteristics Affecting Future Travel Patterns and Mobility Needs of Older Persons

| *Characteristic* | *Transportation Implications* | *Expected Trends* | *Potential Travel Impacts* |
|---|---|---|---|
| **Dispersion of activities:** Most new residential and commercial development occurring in suburban areas | Dispersed travel patterns; strong need for flexible routing and scheduling as offered by automobile travel. | Most new development will continue to occur in suburban areas. | Strong continued emphasis on automobile travel, unless other travel modes begin to offer more flexible routing and scheduling. |
| **Automobile driver licensing:** Nearly universal driver licensing in younger age groups | Travelers will have grown up with high expectations in trip-making in levels of comfort, privacy, and spontaneity. | Current cohort of elderly with no driving experience (primarily women) will disappear; licensing and driving rates among older females will approach those of older males; more elderly will drive. | Older persons of the future will expect higher levels of service from transportation providers than are found today. |
| **Aging in place:** Most people now 50 years of age or older will live in the same house when they reach 65 years of age | Large numbers of persons aging in suburban and rural areas that now have little or no transit service. More non-metropolitan elderly own their own homes outright, thus having a substantial incentive to stay where they now live. | Continuation of the "graying of the suburbs," where population densities will slowly increase; continued overrepresentation of the oldest-old in rural areas. | Need for new transit paradigms serving low-density areas cost-effectively. New funding options and sources probably needed to fill these demands. |
| **Health status:** Improving health status among older persons; longer life spans | Healthier people are more mobile and have greater travel needs; there will also be more people with mobility limitations, which will increase demands on transit services. | Continued improvements in health status; some individuals living longer with chronic conditions; greater dispersion of characteristics and capabilities among the oldest of the old. | Greater need for travel options for both the more mobile and the least mobile seniors. Unless new travel options are offered, there will be more drivers of advanced age and limited abilities on the road; automobile crashes could increase. |
| **Income/poverty status:** Improving income for many older persons | Greater level of choice in travel options, leading to greater automobile ownership and use. | Continuation of general improvements, which will create an even larger income gap for the about 15 percent of the elderly in or near poverty. | More disposable income to spend on transportation for most seniors, meaning more emphasis on high-quality modes. For others, a greater need for low-cost alternatives. |
| **Retirement status:** Many more years of life after retiring from the primary profession than before | Increasing travel needs for seniors; more trips of all types, including work and recreation. | Increasing dispersion in the implications of retirement and related travel needs. | Greater trip demand among the elderly. Greater variability in travel origins and destinations will create additional needs for flexibly routed and scheduled services. |
| **Family support:** Decreasing level of family ties in nuclear and extended families | Loss of informal networks for trip-making for those not able to provide their own trips. People living alone are much more likely to be poor. | Continuation of dispersion of children and other relatives to locations some distance away from aging parents. | Greater focus on non-family sources of travel assistance, both public and private, formal and informal. |
| **Urban/rural differences:** Measurable and important differences on most of the other characteristics | More serious transportation problems in rural areas, where distances are long, transit options are fewer, and seniors tend to have lower incomes. | Continuation of trends of average age increases in the rural heartland; growth in retirement destinations in more attractive rural communities. | Continued need for additional public and private transit options in less urbanized areas, emphasizing more cost-effective alternatives. |
| **Predominance of women:** Substantial numbers of frail and poor women living alone at a low level of independence | Strong need for assistance with daily transportation. Non-metropolitan women are particularly vulnerable to health and economic problems at advanced ages. | In the short run at least, a continuation of these problems. | Need for transportation capable of simultaneously addressing issues of disability, poverty, and isolation. |
| **Cultural diversity:** Rapid growth in number of minority seniors; socio-economic concerns of minority seniors regarding poverty, health, and longevity still remain | People in some minority groups are less able to independently provide their own transportation; at this time, greater reliance on taxis and informal networks, which are highly developed in some cultures. | Increasing proportions of the elderly will be minorities; improvements in income, health, and longevity expected. | Need for transportation capable of simultaneously addressing issues of disability and poverty, and also working with informal alternatives, which may offer substantial assistance for people from certain cultures. |

destinations than today's seniors. Most older persons of the future will have been automobile drivers all their lives and can be expected to demand high levels of mobility and high-quality transportation services from all travel modes that they use.

There may also be greater numbers in 2030 than today of older persons who have mobility or income limitations. There may be substantial numbers of frail and poor older women living alone at a low level of independence. Decreasing family ties may lead to a greater focus on non-family sources of travel assistance. Advanced travel options will need to consider older persons from a diverse array of backgrounds and cultures.

The combination of these factors is expected to pose substantial challenges for public transportation providers who wish to capture a significant proportion of the trips of tomorrow's older persons. High-quality travel services are likely to receive greater emphasis, but low-cost travel alternatives are expected to also have a strong role to play in both urban and non-urban areas.

# Section 2

## TRANSIT SYSTEM CHARACTERISTICS THAT BETTER SERVE THE TRAVEL NEEDS OF OLDER PERSONS

Typically, when customers contemplate any purchase, choices are made between the competing products that are available. Transportation is no different. Older persons make travel choices each day and will continue to do so in the future based on their needs, preferences, and available choices for particular trips.

As noted in previous chapters, older persons now seldom choose public transportation as their preferred mode of travel. Stated and revealed travel preferences, as well as forecasted changes in demographics and spatial activity patterns, suggest that fixed-route transit services will experience even greater difficulties in attracting older riders in the future.

To better serve older persons, public and other transportation service providers need better understandings of the travel needs and service expectations of seniors, both now and in the future. A clear focus on customer needs and expectations is likely to be a key hallmark of successful transportation options for older persons in the future.

The choice of travel mode depends on many factors. These include the transportation options available and the design, pricing, and delivery of these options. Customer service considerations such as reliability, driver courtesy, vehicle comfort, safety, and passenger amenities are critical. Emphasis needs to be placed on how information about services is communicated, as well as

on making older persons aware of available services. Equally important is the use of marketing efforts such as introduction to, and trial use of, new or unfamiliar services through programs of travel familiarization and training.

This section examines measures of service quality and customer satisfaction.

The mobility preferences of seniors are documented both from the perspectives of seniors themselves and transit industry professionals. Transit system characteristics that would provide better service for older persons are also documented. Section 3 examines how to get some of these improved services into operational status in various communities.

# 4

# MEASURES OF TRANSPORTATION SERVICE QUALITY

Measures of service quality and customer satisfaction have been discussed for many years within the transit industry. The *Handbook for Measuring Customer Satisfaction and Service Quality* states that "increases in customer satisfaction translate into retained markets, increased use of the [transit] system, newly attracted customers, and a more positive image" (Morpace International, Inc., and Cambridge Systematics, Inc., 1999). One would expect to find few people disputing the importance or overall usefulness of consumer satisfaction considerations. Still, many within the transit industry feel that these measures have not been sufficiently understood or implemented in ways that affect operating decisions. The American Public Transportation Association's (APTA's) Transit 2000 Task Force reported "we are bound by a traditional preoccupation with accommodating vehicles and inattention to accommodating people." Few firms of any sort, in the transit industry or in any other industry, are said to be focused on satisfying customers (Morpace International, Inc., and Cambridge Systematics, Inc., 1999).

If lack of sufficient attention to consumer satisfaction is one concern, a second is the complexity of measuring the quality of transportation services. Many factors have been proposed for measurement in attempts to rate the adequacy of transportation services from a consumer perspective. Some agreement exists concerning key quality and satisfaction attributes, but there are real differences among some of the assessment schemes. Transportation operators need a complete understanding of how their services are perceived in

the eyes of their riders—which service components are given high-quality marks and which components need quality improvements.

A third consumer satisfaction issue, one that specifically relates to older travelers, is that past studies of customer satisfaction with public transit services have paid very little attention to the specific needs of older travelers. Given that relatively few seniors use public transit and that seniors use public transit for a very small proportion of their total travel, it appears that the transit industry will have to devote much greater attention to what older riders desire and how to meet their demands in order for the transit industry to have a reasonable expectation of better serving the travel needs of older riders. Some older travelers are among the most frail transit riders and the least familiar with transit services.

This chapter examines some of the current work on measuring service quality and customer satisfaction and then expands these efforts into measures that older travelers report are significant to them.

## THE ROLE OF QUALITY ASSESSMENTS

There are four fundamental types of transportation measures:

- System characteristics,
- Service assessments,
- Service attributes, and
- Performance measures.

The system characteristics are considered the inputs required for service: funds, personnel, vehicles, and so forth. Service assessments reflect the outcomes of services, or how the services influence the lives of those who use them. Service attributes are the measures of quality such as reliability, accessibility, and affordability. The performance measures are the service outputs that can be measured in efficiency and effectiveness terms. Taken together, the service assessments and service attributes can be used to express customer satisfaction with the services consumed.

## QUALITY OF SERVICE MEASURES FOR THE TRANSIT INDUSTRY

The *Transit Capacity and Quality of Service Manual* states simply that

> Quality of service reflects the passenger's perception of transit performance. It measures both the availability of transit service and its comfort and convenience. Quality of service depends to a great extent on the operating decisions made by a transit system, especially decisions on where transit service should be provided, how often and how long transit service should be provided, and what kind of service should be provided. (Morpace International, Inc., and Cambridge Systematics, Inc., 1999)

The *Handbook for Measuring Customer Satisfaction and Service Quality* notes that "within most service industries, consumers use basically similar criteria in evaluating service quality" (Morpace International, Inc., and Cambridge Systematics, Inc., 1999). These criteria seem to fall into 10 key categories labeled "service quality determinants," which are the following:

- **Reliability** involves consistency of performance and dependability.
- **Responsiveness** concerns the willingness or readiness of employees to provide service. It also involves timeliness of service.
- **Competence** means possession of the required skills and knowledge to perform the service.
- **Access** involves approachability and ease of contact.
- **Courtesy** involves politeness, respect, consideration, and friendliness of contact personnel.
- **Communication** means listening to customers and keeping them informed in language they can understand. This may mean that the company has to adjust its language for different customers—increasing the level of sophistication with a well-educated customer and speaking simply and plainly with a novice.
- **Credibility** involves trustworthiness, believability, and honesty. It involves having the customer's best interests at heart.
- **Security** is the freedom from danger, risk, or doubt.
- **Understanding/Knowing the Customer** involves making the effort to understand the customer's needs.
- **Tangibles** include the physical environment and representations of the service.

The Morpace and Cambridge Systematics study also includes measures of customer loyalty and quotes Brandt (1996), who defines a secure customer as one who reports that he or she

- Is very satisfied with the service;
- Definitely will continue to use the service in the future; and
- Definitely would recommend the service to others.

The Morpace and Cambridge Systematics report further addresses how service quality measures are related to the various components of individual transit trips, which are defined as

- Trip planning,
- Cost of transit,
- Access to transit stop,
- Wait at transit stop,
- Travel by transit,
- Potential transfers to other transit services, and
- Egress to the final destination.

## Total Quality Management

Applying the principles of Total Quality Management (TQM) has been suggested as a means of increasing the quality of transit services. TQM is described as "a management philosophy concerned with people and work processes that focuses on customer satisfaction and improves organizational performance" (MacDorman and Associates et al., 1994). TQM has been suggested as a tool to improve the responsiveness of various products and services in the face of demographic changes, shifts in societal demands, increased competition and fiscal constraints, and the requirements of new technologies. MacDorman and colleagues explain that

> The principles of TQM appear to hold promise as a way to improve transit service, increase ridership, and fulfill transit's broad social mission. . . . TQM requires an enterprise to systematically energize, manage, coordinate, and improve all business activities in the interest of customers. (MacDorman and Associates et al., 1994)

The MacDorman study defined seven fundamental, interdependent principles to

guide the implementation of TQM principles for the transit industry. The first principle listed is that of "putting customers first":

> 'Putting customers first' is the basis for all quality management. TQM requires organizations to adopt the belief that service and product quality should meet—if not exceed—customers' expectations. All people and processes of an organization should be directed towards this goal.
>
> The success of public transportation depends on customer satisfaction—attracting and retaining customers to use or support its services. . . . Similar to many private sector services, public transportation has two types of customers: (1) consumers—the people who ride the service, and (2) stockholders—the general public who are taxpaying investors in the service. (MacDorman and Associates et al., 1994)

Key components of putting customers first are knowing the customer and responding to customer expectations. The other TQM principles listed are the following:

- Manage and improve processes;
- Manage by fact;
- Cultivate organizational learning;
- Train, empower, and recognize employees;
- Improve labor-management teamwork; and
- Lead the change in organizational culture.

The MacDorman report noted that most of the foundations for TQM applications were generally not in place in the transit industry. Problems in applying TQM principles to transit were said to include the following:

- Transit governing boards and union leadership are not generally involved in quality leadership;
- Transit employees are not yet sufficiently trained in tools and techniques for problem-solving and conflict resolution;
- Transit employees are infrequently rewarded for contributing to quality improvement; and
- Existing quality programs are not rigorous or thorough.

TQM offers a useful process for integrating service quality considerations into transit system management but does not necessarily identify the specific service quality measures themselves. The final report of MacDorman and colleagues (MacDorman et al., 1995) goes beyond the typical TQM exhortations by offering lists of "quality attributes" and subattributes and then relating them to various organizational functions of a transit system: administration, planning and marketing, finance, maintenance, and operations (see p. 36 of that report). This list of quality attributes and subattributes is shown in Table 16.

The final report of MacDorman and colleagues (1995) also discusses means of identifying customer satisfaction perceptions, priorities, and problems through customer and employee surveys and focus groups. Having transit system employees develop and conduct employee surveys is recommended as a technique for developing a customer focus among the employees. For the transit system, one approach to addressing customer satisfaction perceptions, priorities, and problems is to first design responses to those satisfaction measures with the lowest customer satisfaction ratings. Such actions might, for example, take the form of upgrading vehicles and transit stops in response to concerns about facilities,

**Table 16**

**Transit Quality Attributes**

| *Service Quality Attributes* | *Subattributes* | *Service Quality Attributes* | *Subattributes* |
|---|---|---|---|
| Availability | Service Level | Safety | Collision Accidents |
| | Headway | | Personal Injuries |
| | Coverage | | Fellow Passenger Behavior |
| | Service Speed | | Crime/Security |
| | Service Span | Comfort | Seat Availability |
| | | | Climate Control |
| | | | Vehicle Interior |
| Reliability | On-Time | | |
| | Performance | Plant and Equipment | Access to Stop/Shelter |
| | Service Interruptions | | Shelter/Station Cleanliness |
| | Operator Availability | | Vehicle Designs |
| | Vehicle Availability | | Vehicle Cleanliness |
| | | Information | Published Information Clarity |
| Operator Attributes | Courtesy | | Phone Information |
| | Appearance | | Information Availability |
| | Driving Behavior | | |

Source: MacDorman et al., 1995.

installing video cameras to deter crime in subway stations in response to concerns about safety, re-engineering the process the system uses to handle customer complaints in response to concerns about processing customer complaints, or creating more user-friendly schedules in response to concerns about the usefulness or legibility of schedules.

# TRANSIT ASSESSMENT MEASURES FOR OLDER RIDERS

## Transit Service Quality for Older Persons: The Research Perspective

Despite the wide range of useful measures available in other efforts, very little previous research has directly or explicitly considered the travel preferences of older persons. One of the few reports to explicitly consider the travel preferences of older persons is *Supplemental Transportation Programs for Seniors* (Kerschner and Aizenberg, 2001). In this report, Kerschner and Aizenberg present a useful summary of criteria for transportation service quality entitled "the five A's of senior-friendly transportation." These were defined as follows:

- **Availability:** Transportation exists and is available when needed (e.g., evenings, weekdays, and weekends).
- **Accessibility:** Transportation can be reached and used (e.g., bus stairs are negotiable, seats are high enough, vehicle comes to the door, and transit stops are reachable).
- **Acceptability:** Transportation is clean and safe (e.g., the transporting vehicle is clean, transit stops are in

safe areas, and drivers are courteous and helpful).

- **Affordability:** Transportation is affordable (e.g., fees are affordable, and vouchers or coupons are available to defray out-of-pocket expenses).
- **Adaptability:** Transportation can be modified or adjusted to meet special needs (e.g., the vehicle can accommodate a wheelchair, trip chaining is possible, and escorts can be provided). (Kerschner and Aizenberg, 2001).

This report further identifies a number of "supplemental transportation programs" (STPs) that provide high-quality mobility alternatives for seniors. These programs range from small and informal operations to extensive and complex services (the largest operating STP has an annual budget of $5.6 million).

## Transit Service Quality, as Seen by Older Riders

Using the research noted above and focus groups conducted for this project, assessment measures were created to evaluate the relative importance of various attributes of differing travel modes in the eyes of older consumers of transportation services. These assessment measures are described in detail in Table 17, which also lists some specific kinds of customer (traveler) assessments that were offered by older travelers.

Table 17 expands Kerschner and Aizenberg's (2001) original five criteria for senior-friendly transportation to eight elements of client satisfaction with transportation services. (Kerschner and Aizenberg's original five are the first five in the list below.) These eight primary travel attributes can be used to express the universe of travel mode attributes; each of these primary concepts contains a number of specific measures of service quality. The eight major travel attributes proposed for assessing transit service quality for older riders are the following:

- Acceptability,
- Accessibility,
- Adaptability,
- Availability,
- Affordability,
- Alternatives,
- Assessment, and
- Achievement.

In a complete assessment of transportation services (including both the customer and system operator perspectives), another factor should be added. This other factor is "accomplishment," which represents the performance measures commonly used by transportation planners and operators to assess transportation operations. Accomplishment includes factors such as

- Efficiency—cost per mile, cost per hour, cost per vehicle, miles per hour, and miles per vehicle;
- Effectiveness—trips per vehicle, trips per vehicle-mile, and annual trips per population served; and
- Cost-effectiveness—cost per trip and the ratio of farebox revenues to operating costs.

As much as possible, each of the eight concepts is defined in terms of operational measures that specifically apply to the transit industry. For example, one component of acceptable services is reliability: being able to count on announced departure and arrival times. Accessibility can be measured in both physical and informational terms, as well as in terms of distance to accessing a vehicle. Specific affordability measures should

## Table 17

## Assessment Measures for Transportation Options

| *Concepts* / *Measures* | *Customer Assessments* / *Alternative Assessments* |
|---|---|
| ***ACCEPTABILITY*** | |
| Reliability: departure and arrival times | *I can count on specific departure and arrival times.* |
| Origin/destination connectivity | *I can get to the places I want or need to go.* |
| | *I have greater access to this community and its services now than before I started using this mode of travel.* |
| Trust and confidence | *This mode cares about passengers and treats them fairly.* |
| Image/attractiveness | *This is a good mode of travel for someone like me.* |
| | *I am happy to be seen riding this mode.* |
| Comfort/amenities | *I'm protected from the weather.* |
| Security | *I feel safe when using this mode of travel.* |
| Service quality: vehicles | *The vehicles are clean.* |
| | *The vehicles are comfortable.* |
| Service quality: personnel | *The drivers and customer service staff are courteous.* |
| | *[See Trust and confidence assessments also.]* |
| ***ACCESSIBILITY*** | |
| Can physically use the system | *I can [see, hear, walk, stand] as needed.* |
| | *I can get help into and out of vehicles as needed.* |
| | *I can get help into and out of my home as needed.* |
| Proximity | *This mode is easy to access from here, door-to-door service.* |
| Can get information on services | *I can get all the information I need to schedule and take trips.* |
| ***ADAPTABILITY*** | |
| Flexibility | *I can go when and where I want to go.* |
| Responsiveness of service | *I can get a ride soon after I decide to travel.* |
| | *It is easy to schedule a ride.* |
| Assistance with special needs | *I can get help with packages as needed.* |
| | *Escort assistance is available when needed.* |
| Eligibility | *This mode is available to people like me.* |
| Public participation in service planning | *Planners and politicians will listen and respond to my needs.* |
| ***AVAILABILITY*** | |
| Service span (hours/days) | *I get rides at the times and on the days I need them.* |
| Sufficiency | *I get all the rides I need on this mode.* |
| | *Getting all the rides I need is a problem.* |
| Frequency | *The service is available often.* |
| | *I can get rides as often as I want to [i.e., no limits on frequency or purpose].* |
| Independence | *I can travel at my own convenience, not that of others.* |
| ***AFFORDABILITY*** | |
| $ cost per ride [or per month or year] | *I can afford all the trips I need on this mode.* |
| | *Trips are a good value for the price.* |
| Time required | *Trips using this mode are short and direct.* |
| | *I don't have to wait long before being picked up.* |
| Level of effort | *I don't have to expend a lot of effort to use this mode.* |
| Obligations to others | *I don't have to do favors to get a ride.* |
| | *I don't have to depend on or inconvenience others to get a ride.* |
| ***ALTERNATIVES*** | |
| Dependency on this mode | *I could use other means of transportation for my trips.* |
| | *I have no other means of travel.* |
| ***ASSESSMENT*** | |
| Overall rating | *I would rate the service I receive as … [excellent to poor].* |
| Recommends to others | *I would recommend this mode of travel to a friend.* |

*(Continued)*

**Table 17**

**Assessment Measures for Transportation Options (continued)**

| *Concepts*<br>*Measures* | *Customer Assessments*<br>*Alternative Assessments* |
|---|---|
| ***ACHIEVEMENTS/OUTCOMES*** | |
| Impacts on their lives | *I couldn't get to necessary/enjoyable places otherwise.*<br>*This mode increases my mobility and social interaction and decreases isolation.*<br>*With this mode, I can still live independently in my own home, not a nursing home.*<br>*With this mode, I feel secure and confident; I have more peace of mind.*<br>*With this mode, I'm happier, less depressed, less lonely.*<br>*Now I can save money by getting rid of my car.* |

include dollar costs, time costs, level of effort, and more personal factors such as obligations to others. Assessment means overall satisfaction and the willingness to recommend services to others, and achievements are measured in terms of the overall impacts on the lives of individual riders.

# CONCLUSION

This chapter described an overall framework for measuring transit service quality in terms of factors that make a difference in older persons' satisfaction with transit. Specific mobility preferences of older travelers will be discussed in Chapter 5.

# 5

# MOBILITY PREFERENCES REPORTED BY OLDER PERSONS

Focus groups were conducted with older persons to determine their mobility preferences and how these preferences might be expected to change in the future. Focus group methods are particularly well suited to research that attempts to uncover the motivations, perceptions, and needs of a particular group. Participants with similar characteristics respond to open-ended questions about a chosen topic. The group experience helps to foster an exchange of information, and often a response by one participant stimulates further discussion by others. A trained moderator guides the discussion along a predefined question path, ensuring that all the questions are fully covered and that all of the focus group participants have an opportunity to fully discuss their feelings about the topic at hand.

Key issues discussed in the focus groups concerning the mobility preferences of seniors included

- Factors the participants considered in deciding how to travel;
- Reasons why public transit is or is not used; and
- Attributes of an ideal public transportation service.

## FOCUS GROUP DETAILS

Focus groups were conducted in urban, suburban, and rural communities that had good transit services and what could be considered as "transit-friendly" environments. Locations for the focus groups were New York City, a Maryland

suburb of Washington, DC, a suburban area outside of Akron, Ohio, and a rural county east of Cleveland, Ohio. In each area, two focus groups were conducted: the first with seniors who were regular transit riders and the second with seniors who were non-transit users (except in New York City, where the second group was conducted with paratransit riders instead of people who did not use transit). Each group consisted of 8 to 14 seniors, 70 years of age and older. (Forming other focus groups—in communities with little or no public transit service or with people not yet classified as seniors—was an idea considered and rejected because of concerns about the quality of information that would have been produced.) Descriptions of the focus group sites are shown in Table 18.

# CHARACTERISTICS OF FOCUS GROUP PARTICIPANTS

Characteristics of all 88 focus group participants (who were not necessarily statistically representative samples of their communities) are listed below.

- Their average age was 77.5 years, with actual ages ranging from 70 to 89.
- 74 percent were female.
- 30 percent were married.
- 48 percent lived alone.
- 43 percent lived in their own home.
- Their usual mode of transportation was
  - Driving (50 percent);
  - Transit (51 percent);
  - Walking (17 percent);
  - Being driven by someone else in household (15 percent); and
  - Being driven by friend or neighbor (9 percent).
- 15 percent had never driven.
- Other than driving, travel modes used in the last year were
  - Public transit (57 percent);
  - Walking (44 percent);
  - Rides from family members (41 percent);
  - Taxi (28 percent);
  - Specialized transit (22 percent);

**Table 18**

**Focus Group Sites**

| *Site* | *Description* | *Transit Users* | *Non-transit Users* |
|---|---|---|---|
| New York City, New York | High-density central city core with moderate- and lower-income residents | | |
| | • Regular transit riders | 12 | |
| | • Specialized paratransit riders | 11 | |
| Rockville, Maryland | Relatively high-income suburban portion of metropolitan Washington, DC | 8 | 10 |
| Summit County, Ohio | Suburban portion of smaller metropolitan area (Akron); moderate- and lower-income residents | 10 | 11 |
| Geauga County, Ohio | Rural community east of Cleveland; moderate- and lower-income residents | 12 | 14 |
| ***Total Interviewed*** | | ***53*** | ***35*** |

  - Commercial van, private van, and carpooling (each 10 percent); and
  - Rides from volunteers, religious groups, and others (7 percent).
- Their median family income was in the $20,000 to $30,000 range.
- 11 percent were non-White.
- 71 percent had children living nearby.
- Health conditions limited the following abilities:
  - Driving a car (23 percent);
  - Riding a bus (13 percent); and
  - Walking a ½ mile or more (36 percent).

# DIFFERENCES BETWEEN FOCUS GROUP PARTICIPANTS

## Transit Riders and Non-Riders

In comparison with non-riders in the focus groups, riders were much more likely to

- Live in single-person households;
- Get around by walking and transit, rather than by driving;
- Have used transit, taxis, rides from family members, specialized transit, and walking; and
- Have health or physical conditions that affect their abilities to drive a car or ride a bus.

## Site-to-Site Variations

Comparing focus group participants across the various sites revealed the following:

- People from New York City tended to be older; to drive less frequently; to use taxis, transit, and walking more often; and to have health conditions affecting their ability to walk a ½ mile or more.
- People from the Maryland suburbs of Washington, DC, more often lived with others, more often drove, less often used transit as their usual means of transportation, more often were in the higher income brackets, and less often had health conditions affecting their ability to drive.
- People from the suburbs of Akron, Ohio, were near the average on many factors—they were in the lower income brackets and more often had health conditions affecting their ability to drive or ride a bus.
- People from the rural areas in Geauga County more often lived alone, more often got rides from someone else in the house or from friends and neighbors, less often used taxis or walked, and were in the lower income brackets.

# CURRENT TRAVEL PATTERNS

The usual travel mode of the focus group participants varied considerably from site to site. Significant variations were also attributable to individual capabilities as well as to the detailed needs associated with specific trips.

## Travel Modes for Transit Users

In the New York City focus groups, regular transit users primarily rode the bus. Their other frequent modes of transportation were subway and taxi. A number of the focus group members had problems using the subway. Many of them walked, but one-third of the group could walk only for short distances.

The paratransit riders in the New York City focus groups primarily used the paratransit services. Nine of the 11 participants used Access-A-Ride (the New York City ADA

paratransit service) and no other form of public transportation. These nine people were officially certified as mobility-limited and seldom walked far.

In the Maryland suburbs of Washington, DC, focus group members who were regular transit riders most often traveled using their own car, followed by the local county bus service, the metropolitan subway/bus service, and lastly, by taxi service. For trips to downtown Washington, the subway was the preferred mode; for errands, most group members would take the car or walk. These older persons said that they would not use public transportation in bad weather, during riots or demonstrations, and if transit did not stop close to their destination.

In the Akron suburbs, most of the focus group members who were transit users primarily used SCAT (a specialized transit service for older people with disabilities run by the Metro Regional Transit Authority which serves the Akron area) or the regular bus service run by the Metro Regional Transit Authority. Unlike the members of other focus groups, many of the participants in this focus group used public transportation to get to the focus group. Some regularly got rides from household members, family members, or friends and neighbors. A Red Cross transportation service and a private transportation service were also mentioned. Several members of the group indicated that they use both fixed-route and paratransit service depending on the trip they are making. The trip destinations, the amount of advance notice available for the trip, the time of day for which travel was planned, and the schedules of other drivers were the major factors listed in deciding how to travel.

In rural Geauga County, the focus group participants who were transit users used the public transportation service regularly. Virtually no other choices were available because transportation services have been consolidated under Geauga County Transit. All participants used public transportation to reach the senior center where the discussion was held. Several members of the group continued to drive to meet some of their travel needs, but others have ceased driving and now rely on public transportation. Some group members travel with family and friends, but do so reluctantly. Many focus group members used public transportation because family members either live too far away or are not available during daytime hours. One member of the group no longer drives but lets several friends use her car to drive her around.

## Travel Modes for Non-Transit Users

In Maryland, those focus group members who were not regular transit riders most often traveled using their own car. The next most common travel mode was using the local county bus service, followed by riding in a friend's or relative's car, and lastly, using the metropolitan subway/bus service. Although public transportation was available to 7 of the 10 focus group members, half of the group had not used public transportation even once in the previous year. They often reported that they "did not know where it went" or that it did not go where they wanted to go.

The members of the focus group from the Akron suburbs who seldom rode transit usually drove to meet their travel needs. Several used public transportation (fixed-route and paratransit) on occasion and also relied on family and friends. Members of the group were aware of public transportation

services, but were generally uninformed about where service was available, where it went, or how they could access it. Interestingly, one member indicated that her suburban residence, where she had lived for 32 years, was fine, but she now finds herself concerned about the six-block walk she would have to make to catch the fixed-route bus. Seniors expressed similar views in rural Geauga County.

In rural Geauga County, members of the non-transit-users focus group primarily drove to meet their travel needs. Some relied on family members and friends to travel. A few used public transportation occasionally, under conditions such as bad weather. Several members of the group used public transportation to get to the senior center in the county but not for other trips.

# ADVANTAGES AND DISADVANTAGES OF VARIOUS MODES OF TRAVEL FOR OLDER PERSONS

## Assessments of Specific Modes

### *Automobile Driver*

The major advantage of driving one's own car, according to focus group participants, is the accessibility of a wide range of destinations—the ability to go anywhere at any time. These attributes create very strong feelings of freedom and independence, which are highly valued in American culture. As one senior said, "You are your own boss." Other very positive attributes were door-to-door convenience and the comfort of protection from the weather while traveling. Some other positive attributes often mentioned were short travel times, the ability to carry packages, the ability to conduct linked trips (trip chaining or side trips), not having to depend on others, safety, and the sense of independence afforded by driving. Many persons summed up these advantages under the heading of "independence." One senior also noted, "It is a pleasure to drive a car . . . not just going from here to there, but actually [enjoying] the journey."

Some focus group participants saw driving as a relatively inexpensive way to travel, but others were quite concerned about the costs of owning and operating a car. Some seniors felt very secure in their cars; others worried about being targets for crime (like carjacking) and aggressive drivers. Focus group members said that a key negative feature for older drivers is other drivers. Older drivers are extremely concerned about unsafe and aggressive behaviors by other drivers. They were highly disturbed by road rage, cellular telephone use while driving, and lack of courtesy, and they also had problems navigating roads clogged with sport utility vehicles. Seniors reported a lot of stress in driving and seemed quite mindful of the physical requirements (like good eyesight) for successful driving. Parking problems were mentioned as a somewhat less important factor.

### *Automobile Passenger*

Many studies show that, after automobile driver, automobile passenger is the most frequent travel mode for older travelers. Focus group participants saw the major advantages of this mode as the connection to a wide range of destinations and the door-to-door service. Other positive factors mentioned included protection from the elements, being able to see the world around you, being able to relax (by not having to drive), and companionship. Common

negative factors included having to travel at the convenience of the driver, being under some kind of obligation to the driver for the trip, and worrying about the driver's driving skills. One focus group member noted that one had to "love thy neighbor so that they will be around to take you."

## *Transit*

The older persons' focus groups included both subway and bus riders; their assessments of transit's attractions and weaknesses were in some ways similar and in some ways different. Subways were seen as quicker and more often on time than buses but more expensive; buses were seen as connecting to more destinations and (particularly among New York City focus group members) more often accessible to persons with mobility limitations than subways.

Not many seniors in these focus groups identified strong positive transit attributes, but a suburban rider in Ohio spoke highly of the punctuality of the drivers: "You can set your watch by them." Somewhat positive attributes were the elimination of parking expenses, quick journeys (for subway), independence ("I do not wish to have my family take off work to take me to where I need to go . . ."), and the ability to watch the world go by (bus). One participant noted, "One thing with public transit—you do learn the city." Companionship was also seen as a positive attribute, as it was with several kinds of passenger modes. Accessibility features were seen as both positive and negative—very good when available, but not reliably available. Transit was seen as sometimes economical (bus) and sometimes not (subway). Seniors saw subways as "the most efficient means of travel in a large city," but also thought that subway stations were too far apart and too far away from them.

Focus group members reported that transit drivers played a strong role in their assessments of transit services. Driver attitudes toward seniors were said to be a problem in New York and a source of comfort in Ohio. Members of the older persons' focus groups in Ohio made the following comments about transit drivers:

- "The drivers are so pleasant and nice."
- "Oh, the drivers are beautiful; I mean we have no complaints about the drivers. It's the transit service, the transit office [that is the problem]."

Strong negatives across all the older persons' focus groups were associated with the parts of transit systems that are not as visible as the drivers, such as the dispatchers. Some focus group members commented:

- "The dispatching is most of our problem. The routes are not set up so that they are economical and efficient."
- "Get somebody in there that knows what they are doing."

Such complaints fit into the other major service issue, which is on-time service:

- "I wish their time was more regulated—that they would come more the same time every morning."
- "I wish the transit system would run and take us somewhere."

Strong negatives were also associated with other transit attributes. Seniors in the focus groups would not travel at certain times of day, to avoid the crowding of rush hours and to avoid interactions with teenagers, who were seen as disrespectful of the elderly. The unreliability of arrival times for buses was a very large concern: "You can't plan down to the minute. I don't want to wait, and it's just as easy to walk." Lack of comfort was another negative attribute, including the unwillingness of some transit

riders to offer seats to older passengers. Obtaining easily understood information on transit services was often mentioned as a large problem and was intimidating to some seniors:

- "You have to study a lot to figure it out. How can I know how to get there? I could walk easier than figure it out."
- "The bus is a puzzle."
- "I like to use them, but I cannot read their schedule. It is hard to figure out what their schedule is."

Other seniors were more successful in interpreting schedules, although they still had some difficulties:

- "I will get out my little magnifying glass, and I can find it [the times of the vehicles] on this little thing [the printed schedule]."

One senior who had figured out how to use the bus spoke very positively:

- "I know all about all of the buses, and wherever I want to go, I just get on the one from Stow (a suburb), and I go into Akron, and I get my transfer, and I just get on the other bus if I need to go somewhere else. And, you know, there is one that will take you just about anywhere."

The lack of service during evenings and weekends was often a problem for seniors:

- "My problem is getting home. I can get to a place, but the buses have quit running by the time I want to come home."
- "You can get a bus on Sunday if you walk up the hill. But not very many of us can walk up the hill anymore."

Problems with heating and ventilation were important comfort problems for some transit riders. Waiting outside was extremely difficult for some seniors. Excessive travel time was a problem for bus riders.

### *Paratransit*

Focus group participants in different communities reported different paratransit experiences. Paratransit riders in the New York City focus groups reported serious problems with waiting times, travel times, and unprofessional or untrained drivers. The serious delays in pickups resulted in many other problems. One participant explained, "I have had so many bitter, bitter disappointments with Access-a-Ride that there are places I don't go, and my life has become limited. I can't stand the tension of waiting downstairs."

Focus group members from the Akron suburbs said that waiting times could be a problem, but drivers were given high marks for assistance, friendliness, and courtesy. One member remarked: "I give them an 'A' because I call them my guardian angel. They are guarding me; they are leading me where I want to go because I don't know where I am going if I go to an unfamiliar place." Responsiveness to demand was seen as a positive feature, increasing independence. As one focus group member remarked, "It is good because my kids don't have to take off to take me to the doctor; I can go on my own." However, the lack of responsiveness on return trips led to complaints about excessive waiting times. Some paratransit services were seen as designed especially for the needs of seniors, and accessibility features were appreciated when they worked. In the rural Geauga County focus groups, one senior spoke of the socialization benefit: "I do have a car, and I can drive, but I enjoy coming on the transit to be with the people, with my friends every morning."

Restrictions on eligibility for service, number of trips, trip frequency, travel times, trip purposes, and destinations were problems for many potential riders. Problems in scheduling return trips, especially when dealing with the uncertainty of waiting times at doctors' offices, was a frequent problem. Focus group members also found the paratransit requirement of advance notice problematic:

- "Not good in an emergency: You have to call at least 24 hours in advance."
- "Transit is bad because you have to call them a week in advance. And how do you know [you'll need a ride] a week in advance?"
- "You get up in the morning, and you want to go [into town]. It's a nice day . . . you can't go that day, not by bus."

A number of the non-transit riders in Geauga County longed for the "good old days" when the inter-urban trolleys (on fixed routes and schedules) connected them to Cleveland. Cost of service ($4.00 for a one-way trip) was seen as a real problem in Geauga County: "It's cheaper to drive!"

Customer service was often seen as a key problem. Some paratransit providers were not responsive to complaints; some even refused service to persons who complained. Although older persons generally have a high regard for drivers, they are rather uniform in their criticism of the staff that take trip reservations and schedule the trips. Seniors do not feel that they are treated with patience. Timeliness in getting through on telephones to schedule a trip is a problem as well. Additionally, many seniors did not seem to understand (perhaps because the transit system did not explain) that pickup times may be approximate.

### *Taxis*

Participants in the older persons' focus groups viewed taxis as possessing both strongly positive and strongly negative attributes. The strongly positive aspects of taxis are much like those of driving a car: accessibility to a wide range of destinations and the ability to go anywhere at any time. Other very positive attributes were door-to-door convenience and the comfort of protection from the weather while traveling. Positive attributes were short travel times, the ability to carry packages, and having a professional driver.

The costs of taxi rides were generally seen as highly negative. (But one focus group member remarked: "A taxi is really not that expensive . . . this is going to be cheaper than owning a car.") Concerns about the drivers were also expressed in strongly negative terms. Many older persons were afraid that a driver would not speak English, would charge them unfairly, would discriminate against them based on race or disability, or would fail to show up at all. Problems with driver hygiene and attitudes were mentioned. Accessible vehicles were often lacking.

### *Walking*

For seniors who are physically able, walking is a feasible travel mode for short trips. They enjoy the exercise but worry that other pedestrians might try to hurt or rob them: "Don't be in the wrong place at the wrong time." Problems with poorly maintained sidewalks and highway construction also interfere with the pleasures of walking.

## Overall Assessments

The ratings of various travel modes by seniors, according to the service attributes of those modes, are shown in Table 19. Results of all focus groups are combined in this table, which rates specific travel

## Table 19

## Assessments of Travel Modes by Older Persons

| *Concepts* / *Measures* | *Travel Modes* | | | | | |
|---|---|---|---|---|---|---|
| | *Automobile* | | *Transit* | *Paratransit* | *Taxis* | *Walking* |
| | *Driver* | *Passenger* | | | | |
| **ACCEPTABILITY** | | | | | | |
| Reliability: departure and arrival times | ▒▒▒ | | ////////// | ////////// | | |
| Origin/destination connectivity | ▓▓▓ | ▓▓▓ | | | ▓▓▓ | |
| Trust and confidence | | /// | | | /// | |
| Image/attractiveness | | | | /// | | |
| Amenities: passenger experience | ▒▒▒ | ▒▒▒ | ▒▒▒ | | | |
| Safety/security | /// | /// | /// | | | /// |
| Service quality: vehicles clean | | | /// | | | |
| Comfort: vehicles | ▒▒▒ | ▒▒▒ | /// | | | |
| Comfort: protection from weather | ▓▓▓ | ▓▓▓ | /// | | ▓▓▓ | |
| Service quality: drivers | | | | ▒▒▒ | mixed | |
| Service quality: dispatchers | | | ////////// | ////////// | | |
| **ACCESSIBILITY** | | | | | | |
| Can physically use the system | | ▒▒▒ | mixed | ▒▒▒ | /// | /// |
| Proximity | ▓▓▓ | ▓▓▓ | /// | | ▓▓▓ | |
| Can get information on services | | /// | ////////// | | | |
| **ADAPTABILITY** | | | | | | |
| Flexibility | ▓▓▓ | ////////// | | /// | | ▒▒▒ |
| Responsiveness of service | ▓▓▓ | | | mixed | ▓▓▓ | |
| Assistance with special needs | ▒▒▒ | | | ▒▒▒ | ▒▒▒ | |
| Eligibility | | | | /// | | |
| Public participation in service planning | | | | | | |
| **AVAILABILITY** | | | | | | |
| Service span (hours/days) | ▓▓▓ | | /// | /// | ▒▒▒ | |
| Sufficiency | | | | | | |
| Frequency | | | | | | |
| Independence | ▓▓▓ | ////////// | ▒▒▒ | | ▒▒▒ | |
| **AFFORDABILITY** | | | | | | |
| $ Cost per ride [or per month or year] | /// | | ▒▒▒ | | ////////// | |
| Time required | ▒▒▒ | | mixed | ////////// | ▒▒▒ | |
| Level of effort | | | | | | /// |
| Obligations to others | ▒▒▒ | ////////// | | | | |

Measures most highly valued by seniors

**KEY:**

- ▓▓▓ Strongly positive
- ▒▒▒ Positive
- Neutral
- /// Negative
- ////////// Strongly negative

attributes for a given mode from strongly positive to strongly negative. Looking at the table, it is immediately evident that the seniors in these focus groups had a much more favorable opinion of automobile travel than they did of travel by public transportation. Many attributes of travel by automobile received strongly positive ratings including connections with many origins and destinations, protection from adverse weather conditions, door-to-door connections (proximity), flexibility, responsiveness, availability at all hours, and personal independence. Automobiles also received positive ratings on a number of other factors; the only negative ratings were in terms of cost and personal safety (primarily concerns about other drivers). Taxis had the next most strongly positive ratings, but had strongly negative ratings on trip cost.

Traveling as an automobile passenger shared many of the strongly positive ratings with driving an automobile and riding in taxis. However, traveling according to the schedules of others (independence) and being obligated to those persons were strongly negative features of automobile passenger travel.

Older persons viewed public transit services as having very few positive attributes. These were low cost, the ability to come and go on one's own schedule (independence), and the amenities associated with traveling as a passenger (reading, watching the world go by, etc.). Strong negative attributes of transit were the lack of reliable service, difficulties in getting travel information, and problems in dealing with transit staff (other than drivers). Paratransit services received positive ratings on assistance from drivers, door-to-door service, and assistance with special needs, but these services had strongly negative ratings on reliability, interactions with dispatchers and other non-driving staff, and trip speeds (trips were too slow). Transit and paratransit services had negative ratings for hours of service availability, and paratransit services had negative ratings on eligibility requirements.

The contrast in preferred travel attributes could hardly be more striking. At least for those seniors participating in the focus groups, the strengths of automobile travel are often juxtaposed directly against the weaknesses of public transit—at least, as public transit services are offered at the present time. But there are ways of addressing transit weaknesses. These will be discussed in subsequent sections and chapters.

A few caveats are worth noting (but probably do not change the overall conclusions presented here). First, the ratings of specific modes of travel are based on the results of the older persons' focus groups conducted for this project (these results might differ somewhat in other communities, but they generally correspond with the findings of other researchers). Slightly different ratings might also be obtained if seniors were asked to rank each of the travel modes on each of the specific attributes.

## DRIVING AS AN OPTION

Seniors in all but the New York focus groups—both those who did and those who did not use transit—were strongly attached to their cars. (All but one of the focus group participants in New York City did not drive. The lone driver drove primarily on long-distance trips, not around the city.) One of the women in the transit users' focus group said, "When they tell me I can't drive, that will be one of the worst events of my life!"

Other comments about cessation of driving were the following:

- "If Maryland tells me I can't drive, I'll move to Florida where they'll let me drive."
- "When you can't drive, you go into a deep malaise."
- "I don't want to hear about it."
- "What a horrible thought!"
- "It is the hardest thing in the world [giving up the car keys]."
- "I'd stay in bed!"

As found in focus groups for numerous other reports, almost no one plans to stop driving. One woman commented, "We're always going to be drivers, but we could be bus riders TOO." In other words, transit would be used as a supplemental mode when it has a demonstrable advantage over driving.

This suggests that hopes of seeing a large number of older persons "transitioning" from driving to public transit use may be disappointed. A more likely pattern is that older persons will continue to drive until that time when continued driving is physically impossible. At that point, the infirmities that prohibit driving are also highly likely to prohibit the use of many current mass transit services—especially those configured with large vehicles on fixed routes and schedules.

# FEATURES OF IDEAL TRANSPORTATION SERVICES

## Site-by-Site Assessments

### *New York City*

Three-quarters of the focus group members from New York City who were transit users thought that the reliability of service was the most important attribute of an ideal transportation service. No other factor was even close in terms of preferred attributes.

The paratransit users in New York City thought that ideal transportation services would provide greater driver awareness of the needs and vulnerabilities of the elderly, door-to-door service, on-time reliable service, places to sit while waiting for the vehicle to arrive, and the flexibility to change schedules.

### *Suburban Maryland*

The most important features of an ideal transportation service to the transit-rider focus group in Maryland were frequency, reliability, well-managed services, and adequate equipment. Even if an ideal service were implemented, most members of this group would prefer to use their own automobiles for their travel, but they would use public transit more often than they do now.

For those focus group members from the Maryland suburbs who did not regularly use transit, the most important attributes of ideal service were door-to-door service, frequent service (every 15 to 20 minutes),[2] services accessible to people with disabilities, comfortable services (reserved senior seating, well air-conditioned vehicles, clean equipment), reliable and predictable service, and low costs ($0.50 per ride). If such services were available, most of the focus group members would use transit

[2] In England, headways of less than 10 or 12 minutes are considered to be frequent enough that passengers do not need to know the timetable and can arrive at random times (thus waiting 6 minutes is average). For headways of greater than 10 minutes, passengers time their arrival at the stop to the timetable (and the average wait is still 6 minutes).

more often, but two persons would still not use it at all.

### *Akron Suburbs*

The focus group members in the Akron suburbs who regularly used transit thought that ideal service would include trips available on the same day as called, (especially in emergency situations), service on weekends and late in the day, courteous treatment from customer service representatives and drivers, and reliable on-time service. ("You don't want to stand around, especially where you can't sit down. You don't want to stand and wait and wait, especially when you don't feel good or something.") A comfortable place to wait indoors was preferred.

The focus group members in the Akron suburbs who seldom used transit thought that ideal service would include the following attributes:

- Frequent and flexible service (service that was available 7 days a week and responsive to same-day requests for travel);
- Door-to-door service ("By the time you can't drive anymore, you can't walk that much anymore.")
- Accessible service ("If it is not easily accessible, then it is of no value to us, because the people who need this service are people who are not driving any more. And they need the help.")
- Affordable service ("If it is very expensive, then you won't ride anything. So nothing else would be relevant anymore . . . my pay isn't going to go up . . . and if all of the utilities are going to double like they say, all of our income is going to be going in other directions.")

One respondent summed this up as "everything that a car can give us."

### *Geauga County, Ohio*

In rural Geauga County, the participants in the transit-user focus group saw an ideal service as one that would offer convenient pickup and dropoff times 7 days a week; offer convenient and reliable service; provide personal attention in both scheduling and providing rides (this includes assistance on and off the vehicles); offer long-distance trips (for example, to Cleveland); and use vehicles with comfortable rides. Advance reservations should not be required: "But we don't want to have to sign up for it!" Some respondents felt that such ideal service would be difficult to achieve.

For seniors in the Geauga County focus group in which few participants were transit riders, the most important feature of an ideal service was convenience. Door-to-door service, reliability, travel when and where needed, comfort, and safety were the other features mentioned.

## Overall Assessments

The focus groups of older travelers discussed which components of the long list of transportation system attributes are of the highest priority. Table 20 shows which transportation features were classified as "first priority" and which were classified as "other priorities." This classification was based on the priorities reported by the focus groups and the frequency with which specific items were mentioned as key features. According to the combined results of all the focus groups, the most important service attributes of transportation systems to older travelers are

- Reliable departure and arrival times (one "first priority," six "other priorities");

## Table 20

## Key Features of Ideal Transportation Services

| | *Transit users* | | | | | *Non-transit users* | | |
|---|---|---|---|---|---|---|---|---|
| | ***New York Transit*** | ***New York Para-transit*** | ***Maryland*** | ***Akron*** | ***Geauga*** | ***Maryland*** | ***Akron*** | ***Geauga*** |
| | | | | | | | | |
| **ACCEPTABILITY** | | | | | | | | |
| Reliable departure/arrival times | | | | | | | | |
| Origin/destination connectivity | | | | | | | | |
| Trust and confidence | | | | | | | | |
| Image/attractiveness | | | | | | | | |
| Comfort/amenities | | | | | | | | |
| Security | | | | | | | | |
| Cleanliness | | | | | | | | |
| Courteous treatment | | | | | | | | |
| | | | | | | | | |
| **ACCESSIBILITY** | | | | | | | | |
| Can physically use the system | | | | | | | | |
| Proximity | | | | | | | | |
| Can get information on services | | | | | | | | |
| | | | | | | | | |
| **ADAPTABILITY** | | | | | | | | |
| Flexibility | | | | | | | | |
| Responsiveness of service | | | | | | | | |
| Assistance with special needs | | | | | | | | |
| Eligibility | | | | | | | | |
| Public participation in service planning | | | | | | | | |
| | | | | | | | | |
| **AVAILABILITY** | | | | | | | | |
| Service span (hours/days) | | | | | | | | |
| Sufficiency | | | | | | | | |
| Frequency | | | | | | | | |
| Independence | | | | | | | | |
| | | | | | | | | |
| **AFFORDABILITY** | | | | | | | | |
| $ Cost per ride [or per month] | | | | | | | | |
| Time required | | | | | | | | |
| Level of effort | | | | | | | | |
| Obligations to others | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| ***Legend*** | | | | | | | | |
| First priority | | | | | | | | |
| Other priorities | | | | | | | | |

- Door-to-door service (two "first priorities," three "other priorities");
- Flexible service available on demand (no 24-hour waits for trips) (one "first priority," four "other priorities); and
- Comfortable vehicles and waiting areas (five "other priorities").

It is important to note that, although there are other features that are not highlighted in Table 20 (meaning that they were not identified as the most important ideal transportation service attributes), seniors still expected acceptable levels of performance on nearly every one of the remaining transportation system attributes.

# FINDINGS FROM OTHER FOCUS GROUPS

The findings from the focus groups with older persons conducted for this research project were compared with the findings of other transportation studies that have conducted focus groups of older persons. The findings of the other studies are nearly identical to those reported here.

One of the most well-documented studies is the *Transportation in an Aging Society Focus Group Project* conducted by the Beverly Foundation (Kerschner and Aizenberg, 1999). The Beverly Foundation interviewed a total of 203 men and women; nearly half were from Florida, with about one-quarter each from California and Michigan. About 41 percent of the respondents were 65 years of age or older and from transportation-rich environments (defined as areas known to provide seniors with access to transportation at least 6 days of the week within 1 mile of their homes). Thirty-five percent were age 65 and older and from transportation-deprived communities (defined as areas known to not provide seniors with access to transportation at least 6 days of the week within 1 mile of their homes). Twenty-four percent of the respondents were family and friends of older persons who were concerned about an older person's driving or ability to get around.

Four overall themes emerged from the Beverly Foundation work (Kerschner and Aizenberg, 1999).

- The automobile is the most frequently used mode of transportation for seniors, and other transportation options are perceived to be inadequate.
- Most people do not make plans for how they will travel late in life; this lack of planning can adversely affect the quality of life for some seniors.
- Some older persons have serious problems traveling to the places they need to get to.
- Older people who no longer drive for health reasons don't become walkers.

The recommendations that participants said were of the highest priority were those addressing alternative transportation options. Sixty-four percent asked for transportation specialists that provide "one-call-does-it-all" information; 54 percent asked for personalized transportation services using vans; and 50 percent asked for assistance on how to use public transportation including special kits, map routes, and free passes (Kerschner and Aizenberg, 1999, p. 16). These findings are consistent with the findings of the older persons' focus groups conducted for this project.

Although local transportation resources and problems are somewhat different from community to community, the Beverly Foundation researchers did not find significant region-to-region differences on overall transportation issues regarding older persons. More important determinants

of travel needs are factors such as density of development, recency of development, length of residency in the community (obtaining rides from friends, neighbors, and families is easier for residents who have lived in one place for a long time), and available transportation options. This finding is consistent with the results of the older persons' focus groups conducted for this study. This suggests that basic high-priority issues of travel for older persons—automobile dependence, high levels of concern about transportation issues, significant travel problems for people who do not drive, and the need for user-friendly and high-quality transportation options—depend little on geography or climate and more on settlement patterns and transportation options available.

## CONCLUSION

The transportation services that seniors most highly value are reliable, frequent, comfortable, low-cost, door-to-door, spontaneous services that access a large variety of destinations over extended periods of time. Responding to these values may be difficult for some transit systems. According to the reports of seniors on ideal transit system features and their assessments of travel modes, transit services are weak in the four primary ideal service features: reliability, proximity, flexibility, and comfort. It is relatively easy to imagine how to improve reliability and comfort. Addressing accessibility and flexibility will most likely be a greater challenge. Moreover, many current transit operators have found it difficult to provide door-to-door services or services that are highly flexible for changing demands.

If the "best of all possible worlds" scenario—reliable, frequent, door-to-door, spontaneous, extensive, low-cost service—is not now available, there are still many steps that transit providers can take to make their services more attractive to current and potential older riders. These steps are discussed in subsequent chapters.

Participants in the older persons' focus groups emphasized both their common and unique features. They asked, "Are the travel needs of seniors really that different from anyone else's?" Then they remarked, "Don't put seniors all in one category—we come in all flavors, colors, abilities, and disabilities." Perhaps a key is recognizing the personal variability that aging can impose on any of us: "Whether and how I travel on a given day depends on if my body feels like it." Some visible, obvious acknowledgment that older riders might be facing such considerations could be one of the best definitions of senior-friendly public transportation services.

# 6

# TRANSIT INDUSTRY PERSPECTIVES ON THE MOBILITY PREFERENCES OF OLDER PERSONS

Transit industry professionals were contacted to determine their perspectives on the mobility preferences of current and future older persons and how these preferences might be met by public transportation providers. Focus group discussions were held at industry conferences with professionals in the fields of transportation and aging, and personal interviews were completed with leaders in the public transportation industry (see the Appendix for details).

The 42 participants in the transit industry focus groups represented local, state, and federal agencies, and transportation systems serving urban, suburban, and rural areas across the country. The participants were in top and middle management positions. A significant number of participants were the key decisionmakers or assistants to the key decisionmakers at the transportation system. Management staff were typically in charge of transit services, paratransit services, marketing, or service development. The discussions were conducted in a standard focus group format, following a structured discussion guide. Areas of questioning included

- Personal interests in travel needs of older persons;
- Transportation services presently offered to older persons;
- Features and characteristics of ideal transportation services for older persons;
- Potential benefits to older persons of ideal transportation services;
- Responsibilities for implementing ideal services (especially, the role of transit operators); and

- Key messages to local leaders regarding improvements to transportation services for older persons.

Personal interviews were completed with 38 people, some representing public transportation, and some representing aging agencies. Of those people who were interviewed, 22 were general managers or executive directors of their agencies. The others were managers of paratransit systems or special transportation services within larger organizations. They represented transportation systems serving urban, suburban, and rural areas across the country. Discussion topics in these interviews included

- Transportation services presently offered to older persons;
- Marketing programs to introduce older persons to services available;
- Travel needs of older persons;
- Partnerships and linkages formed in developing transportation services;
- Opportunities and barriers associated with developing and implementing services;
- Creative and innovative approaches to services;
- Features and characteristics of improved transportation services; and
- Visions of transportation services for older persons in the future, barriers to achieving these visions, and steps required to achieve these visions.

# TRAVEL NEEDS OF OLDER PERSONS

Many transportation professionals see the travel needs of older persons as similar in nature to the travel needs of other individuals. Those contacted recognized that, like others, older persons need to travel around their communities to engage in life-maintenance and life-enriching activities. Some differences in travel needs were also recognized, but the idea that travel needs can change as people age has not been reflected in a variety of transit options or services for the public. Changes to health, activities, living arrangements, and other conditions may alter the ways seniors travel, the circumstances under which they travel, how they view travel, and the place of travel in their lives as they grow older. Many people working in the public transportation industry consider fixed-route bus service as their best opportunity to help older persons meet their travel needs, but some transportation professionals recognize that older persons may need a variety of travel modes to meet their travel needs. Contacts with transit industry professionals produced comments on personal circumstances, weather, accessibility, safety and security, transitions from driving, socialization, and service and area travel patterns.

## Personal Circumstances

Transit industry personnel see fixed-route bus service as possibly very responsive to the travel needs of older persons. If seniors are healthy, a ¼-mile walk to a bus stop is a reasonable expectation. However, more than one-third of the respondents in our focus groups reported that they are unable to walk that far.

Some public transportation providers recognize that older persons may need assistance getting to and from a vehicle and assistance getting on and off a vehicle. Low-floor buses are seen as a significant way to improve boarding and alighting for older persons. However, low-floor buses improve access for everyone, not just for

older persons. Thus, they represent a good example of the benefits of universal design.

Depending on their health, older persons may require more time in boarding or alighting from a vehicle. Further, experience shows that a number of people, including those who are not elderly, use a fixed-route bus to reach a destination but need paratransit service to return home. Examples include grocery shopping and kidney dialysis treatment.

Older persons who are cognitively impaired are not able to read and understand public timetables and maps, nor are they able to access customer information via telephone and teletype (TTY) lines to get the information they need to travel. Personal assistance is required. One provider specifically acknowledged that serving older persons requires compassion.

Many older persons may become disabled later in life. They may not be able to adjust and adapt to their disability as easily or effectively as a younger person can. Older persons who have lived with a disability for many years may have already developed strategies to deal with that disability.

Transportation professionals expected seniors to have more flexibility in when they travel than other riders, for example, people who work or have fixed schedules. Transit personnel also expected seniors to be less sensitive to overall travel times than other travelers. The seniors interviewed in the focus groups probably would not have agreed with these assessments.

## Weather

Weather variation is a key factor in the ability of older persons to use specific transportation options. In northern climates, older persons may not be able to walk to a bus stop in extremely cold weather or under snowy or icy conditions. Similarly, older persons may not be able to stand and wait for a bus in the hot sun in a warmer climate. In both climatic extremes, shelters and seats provide significant comfort, as do strategies such as building waiting areas inside commercial establishments (e.g., coffee shops).

## Accessibility

Travel modes other than a personal automobile usually require that an older person walk, at least a short distance, to the designated stopping point. Older persons who are frail or have a disability may not be able to walk to catch a fixed-route bus, even if that walk is ¼ mile or less. Even the walk to a curb outside a person's home may not be possible without some personal assistance. Consequently, regardless of the frequency of fixed-route transit service, some older persons may not be able to access such service. Few transit operators are enthusiastic about providing door-to-door paratransit services. As travel is important to maintaining quality of life, not being able to access public transit service would mean depending on travel options offered by other providers.

## Safety and Security

Public transportation providers recognize that older persons are concerned about their safety and security when using public transportation services. Part of this is due to their potential exposure to crime in certain neighborhoods; part of the concern is probably due to heightened feelings of vulnerability that many older persons experience. Fears regarding personal safety are significant but may be difficult

for transit providers to address. One transit provider observed that seniors may have a need to travel, but because of physical limitations, they may have fears about negotiating stairs, missing a bus stop, or getting lost on the transportation system. In some communities, seniors have expressed fears about using taxi services. They are reluctant to be picked up or dropped off at home because they believe that if some taxi drivers knew where an older person lived they might try to rob him or her.

Some older persons may fear using public transportation services simply because they are unfamiliar with the services that are available and how to use those services. This unfamiliarity with transit services is generally due to a previous reliance on automobile travel (and is not due to cognitive problems sometimes associated with aging). Seniors may not know where they need to go to reach a destination or where the closest destination may be. Some older persons will need help in becoming comfortable enough to learn about and use available transportation services.

## Transition from Driving

Transportation providers need to recognize that very few older persons make plans for a time when they are no longer able to drive. Older persons who have not made plans for the time when they can no longer count on traveling by automobile may be quite concerned if they find themselves unable to drive, or if they no longer have a relative or friend available to drive them. These older persons will need help in finding other effective modes of transportation to meet their travel needs. This means that transportation providers need to have the information that older persons require—such as timetables and maps that are easy to read (large type) and understand—so they can successfully begin to use available public transit services.

Given that some older persons lose their ability to drive as they grow older, public transportation services can become increasingly important to them. One transportation provider recognizes the need for older persons to maintain their driving skills and, therefore, encourages participation in training programs such as AARP's 55 Alive Program. Participation in such programs can extend driving skills later in life and introduce considerations of other, non-driving options.

## Socialization

Travel can represent an older person's connection to the world; it may be one of the important ways by which they stay connected to other people and community activities. Transit providers see the use of public transportation services as an important opportunity for older persons to socialize with all kinds of people, not just other older persons.

## Service Area and Travel Patterns

Older persons need to reach specific locations that may be different from locations that other riders need to reach. Examples include local grocery stores and banks, adult daycare centers, nursing homes, doctor's offices, and other medical facilities. Although work is becoming an increasingly important reason that older persons travel, their other trips are still far more frequent than their work trips. Some transit professionals recognize the need for public transportation providers to connect to the destinations that older persons need

to reach and provide service responsive to the activities at those destinations. Fixed-route bus service may not go where older persons need to travel, and it may not provide the kind of service required by some activities.

Depending on the structure and frequency of fixed-route bus services, older persons may be able to use public transit for their trips, but they may be unwilling to travel by this mode because of the complexity and challenge of using these services. In this regard, older persons are no different than non-elderly people who look at public transportation services and choose not to use them. Some negative perceptions about public transportation services may be based on problems (for example, service or safety problems) that seniors hear about. If such perceptions are widespread, some older persons will choose not to even try transit services. Seniors may also need to deal with driver attitudes and public criticisms (and even ridicule) that serve to discourage public transit usage.

Older persons are a diverse segment of the population, have a range of travel needs, may have needs that differ from other travelers,[3] and should not be expected to be able to meet their needs through a single travel mode such as fixed-route bus service. Additional modes may be appropriate and necessary for helping older persons effectively meet their travel needs.

Where older persons choose to live can affect their ability to meet their travel needs. This is true especially if and when they cannot rely on driving or riding with someone else to meet their travel needs.

[3] Regarding paratransit services, one transit operator reported that older persons travel less frequently than younger persons with a disability.

Transit operators believe that older persons should check on the level and availability of public transportation services before they make a decision about moving into a new residence.

# PERCEPTIONS OF SENIORS' PREFERRED TRAVEL ATTRIBUTES

## Key Service Attributes

During the transit industry focus group discussions, participants were asked to design an ideal transportation system for older persons. Most participants felt that an ideal transportation system for older persons would be driven by a consideration of customer needs, with services designed and provided in response to those specific needs.

The transportation service attributes that transportation industry professionals expected to be highly valued by older persons were, in fact, nearly the same attributes that emerged from the focus groups of older transit users and non-users. The top-ranked features, selected by 100 percent of the industry group participants, were

- Reliable departure and arrival times;
- Flexible service available on demand;
- *One central number to call to meet any transportation needs*;
- *Reduced walking distances to fixed-route bus stops*; and
- Door-to-door service.

(The attributes shown above in italics were not on the list of most important or key attributes selected by seniors, although these attributes were often discussed in depth in the focus groups of seniors.) Many

transportation system features were discussed in the transportation industry focus groups and interviews, but only about one-quarter of them were selected by even half of the respondents as attributes of ideal systems. These often-mentioned service attributes are shown in Table 21.

The industry professionals agreed that transportation services that would be attractive to older persons would be widely available on weekdays and weekends to meet all travel needs. Customer information would be easy to understand and use. Information on services and schedules would be available through a single telephone number. This telephone number would access a coordinated, brokered system of transportation services that would appear as one seamless operation to older persons and anyone else calling for service.

## Other Transportation System Features for Older Travelers

Some of the transportation system features that were discussed in the transportation industry focus groups appeared to have real promise, even though they were not mentioned by large numbers of industry representatives. Ideas appearing to have some promise, based on the focus groups with seniors and other research, included

- Regularly assigning drivers to the same routes so that riders and drivers could get to know one another;
- Ensuring that services for older persons were also open to other members of the general public;
- Not restricting trips for older persons to any specific purposes;
- Allowing and encouraging trip chaining and multiple stops;
- Training drivers to identify and understand older individuals with special needs and problems, such as persons with dementia;
- Developing a cadre of volunteers, or perhaps even paid older drivers, who could provide special assistance for certain trips (including those too expensive for transit agencies to supply with regular transit staff);
- Creating service features that would provide improvements for all riders, not just the elderly (known as universal service design);
- Offering assistance (perhaps through special personnel, not drivers) for persons who needed special help boarding and alighting;
- Offering taxi vouchers for trips hard to serve with regular transit vehicles and staff;
- Providing services that would stop closer to a person's home in nighttime hours; and
- Creating the capability for passengers to communicate directly with drivers regarding trip needs and pickup times, perhaps by using cellular telephones.

Although some of these service features could not be applied in all communities, some transit operators are providing services like these today to their older riders and other passengers.

## Industry Perspectives on Specific Service Attributes

The following sections describe the perspectives of transportation industry professionals on key specific service attributes including acceptability, accessibility, adaptability, availability, affordability, and alternative travel options.

### *Acceptability*

Older persons should have reliable, on-time service provided by drivers who are

## Table 21

## Ideal Transportation System Features for Older Persons: Composite Industry Association Focus Group Results

| *Transportation Features* | *Feature Category* | *Percent of Respondents* |
|---|---|---|
| ***100%*** | | |
| One stop shopping—call one number to meet any transportation needs | Local Service Delivery Organization | 100.0% |
| Spontaneity: "call today for trip today" – same for elderly as disabled | Service Features | 100.0% |
| Door-to-door | Service Features | 100.0% |
| Reliable | Service Features | 100.0% |
| Reduce walking distance to stops | Service Features | 100.0% |
| ***85-99%*** | | |
| Safety issues – well-lit, security, visibility | Service Features | 91.7% |
| Any trip counts – purpose not important in trip regulation | Service Features | 91.7% |
| Need well-trained, sensitive staff | Drivers | 90.0% |
| On-time service | Service Features | 90.0% |
| Place services to minimize travel; livable communities | Geographic Area | 87.5% |
| Go to other groups or organizations to help meet needs – collaborate | Local Service Delivery Organization | 87.5% |
| Vehicles: accessible, low-floor, padded seats, wide aisles, clean, arm-rests, small latrine on board, parcel carriers, soft ride | Vehicles | 87.5% |
| ***75-84%*** | | |
| Wonderful drivers, charming, safe, multilingual, patient, appreciative; not just a "job," but a customer-service position | Drivers | 83.3% |
| Easy for customer to use: info, service design, fare structure and payment | Service Features | 75.0% |
| Pedestrian-friendly, sidewalks and benches | Service Features | 75.0% |
| Service 7 days a week, 24 hours a day | Service Features | 66.7% |
| ***60-74%*** | | |
| Keep elderly independent – provide services and marketing that appears to maintain independence, is customer-friendly/oriented | Education, Training, Outreach | 62.5% |
| Travel training | Education, Training, Outreach | 62.5% |
| Adequate funding so no one would be left out because of inability to pay | Funding | 62.5% |
| Incentives; e.g., free monthly bus pass to get people started | Fares | 60.0% |
| Frequent service/global positioning of vans for service | Service Features | 60.0% |
| ***50%*** | | 50.0% |
| Transportation accounts transfer per month – families could pay | Fares | 50.0% |
| Funded through partnerships – all public/private organizations | Funding | 50.0% |
| Services offered across county lines | Geographic Area | 50.0% |
| Cooperation with other agencies; integrated with zoning and land use decisions | Local Service Delivery Organization | 50.0% |
| Services available when elderly need rides | Service Availability | 50.0% |
| Mirror a car – there when you need it; wait for you while in the store | Service Features | 50.0% |
| Services would meet range of needs among elderly according to functional ability, desire, and ability to pay – "personalized" | Service Features | 50.0% |

well-trained in customer service skills. Services (and marketing materials) should be structured to help older persons maintain their independence. Information about services should be readily available in a simple and easy-to-use format. Older persons should feel safe and secure in getting to and from services and in using them. Vehicles should be easy to access; low-floor vehicles would be preferable.

### *Accessibility*

Transportation services should be easy to access, whether the services require a walk to a fixed-route bus stop or operate on a door-to-door basis like paratransit.

### *Adaptability*

Recognizing that an older person may need paratransit for one trip, could ride in a car for another, and might be able to use fixed-route service for still another trip, transportation services should provide a variety or family of transportation services responsive to specific travel needs. These various services should be designed to meet a range of needs determined by functional ability, desire, and ability to pay. Transportation options should give older persons a choice in how best to meet their travel needs. These options should be coordinated through a central or brokered system.

### *Availability*

Transportation services should be flexible, widely available, easy to understand and use, and open to meet travel needs without regard to trip purpose. Service should be available 24 hours a day, 7 days a week.

People should be able to get information on transportation services through a single source with one telephone call. With proper coordination and collaboration, older persons should easily get the information they need to find the best transportation option to meet their needs.

### *Affordability*

Transportation providers felt that their services—fixed-route, paratransit, or another mode—should be priced so that those customers with the best ability to pay are charged the highest fare, and those with limited economic means are charged lower fares (through the use of subsidies). Older persons could be introduced to transportation services through the provision of temporary incentives that lower fares.

### *Alternatives*

Transportation providers felt that travel options should be as responsive to specific travel needs as possible. Whether services are fixed-route, paratransit, or some other mode, the service should be available when a trip needs to be made. Older persons place a high value on spontaneity. Access should not require making trip reservations long in advance or a long wait at a bus stop.

## CONCLUSION

Most industry representatives that were contacted felt that an ideal transportation system for older persons would be driven by a consideration of customer needs, with services designed and provided in response to those specific needs. It is noteworthy that the transportation service attributes that transportation industry professionals expected to be highly valued by older persons were, in fact, nearly the same attributes that emerged from the focus

groups of older transit users and non-users (as discussed in Chapter 5).

Transportation industry professionals contacted for this study generally recognize that older persons may have special travel needs that differ from the needs of other travelers. There was some recognition that a gap exists between the transportation service attributes desired by older persons and the characteristics of public transit services now available to the older residents of most communities. Means of closing this gap are discussed in subsequent chapters.

# 7

# PUBLIC TRANSIT IMPROVEMENTS THAT WOULD BETTER SERVE OLDER PERSONS

What makes some transit services better than others in terms of their abilities to meet the needs of older travelers? The first step must be recognizing the specific needs and demands of older travelers. The next step, responding to those needs and demands, involves reconfiguring current services, practices, and organizations. A final step would be establishing and providing viable, cost-effective services. This chapter discusses elements of the first two steps and looks at improvements to public transportation in near-term and long-term timeframes.

## PREFERRED TRAVEL ATTRIBUTES: BOTH USER AND OPERATOR PERSPECTIVES

As described in the previous two chapters, older persons and transportation providers see the key features of ideal transportation services in nearly the same terms:

- Reliable departure and arrival times;
- Door-to-door service;
- Flexible service available on demand (no 24-hour waits for trips);
- Services available during more hours of the day and more days of the week; and
- Connections between a wider range of origins and destinations.

Other key improvements recognized by transportation providers include one central number to call for "one-stop transportation shopping" and reduced walking distances to fixed-route bus services.

Older persons also see comfortable vehicles and waiting areas as key features. The focus groups of older persons and the groups of transportation providers agreed that all of these transportation system attributes were important service features.

Materials from other sources showed a high level of congruence with the findings of this study. Other research has indicated that the mobility preferences of older persons are focused on reliability (on-time services with a guaranteed ride home) and door-to-door service (which includes little or no exposure to inclement weather). Service quality has also been a key issue, particularly with respect to personal safety and "consideration" shown to older passengers by transit drivers. Cost has often been mentioned, but not as the highest priority item (at least for most potential older passengers). A significant obstacle to transit use for many older persons is needing to learn how to use the system. Most current methods of disseminating information on routes, schedules, and fares are not meeting the needs of the older traveler market.

To better serve older travelers, the public transportation industry needs to change the negative perceptions of public transportation held by many seniors into perception of public transportation as a customer-oriented and friendly industry. The concept of fitting the service to the needs of the customer—instead of fitting the customer's needs to the service—is one that senior focus group participants urged for the transportation industry.

# NEAR-TERM RECOMMENDATIONS FOR IMPROVING PUBLIC TRANSIT SERVICES

Participants in the senior focus groups were asked what they would recommend to their local public transit authority if they were asked for their advice on how to make public transportation better for seniors.

## Consensus Near-Term Transit Improvements

On the basis of the results of all the focus groups of older persons, an overall consensus list of near-term transit improvements was developed and includes the items listed below.

- Improve schedule reliability (or find means of providing accurate information on departures and arrivals, such as technologies that provide real-time information on actual arrival times).
- Provide "guaranteed ride home" services.
- Find ways of welcoming persons who are unaccustomed to using the service.
- Find ways to help seniors board vehicles when needed.
- Improve information and provide much more of it, both for trip planning and during travel.
- Add customer service features such as calling out stops, reserving more seats for older persons, providing more friendly and more detailed travel information, providing more telephone lines for information, and making systems more responsive to complaints by performing the following:
  - Working with human service organizations and volunteer agencies to better service the more specialized travel needs and

  - Partnering with representatives of the aging community to build additional community support for more local transit funding.
- Provide special vehicles for special events.
- Develop programs to encourage seniors to try using public transportation.
- Minimize physical barriers such as steep or long stairs, and standing and waiting outside in all kinds of weather for long periods.
- Put an emphasis on polite, courteous drivers.

A number of public transportation providers currently provide such service features; were these features provided more widely, public transportation could be significantly more attractive to older travelers.

## Recommendations from Particular Focus Groups of Older Persons

Distinctions among the results from the various focus groups of older persons may be useful in suggesting different strategies for differing kinds of communities and the kinds of transportation options available.

### *Maryland: Higher Income, Suburban Metro Area Residents*

Participants in the transit-riders' focus group in Maryland suggested

- More advertising on radio, television, and the Internet;
- More programs in senior centers showing how the system works;
- Subsidies for seniors;
- More and better parking facilities;
- Good maps and timetables in grocery stores and other locations where they can be easily seen and accessed;
- Enhanced information services; and
- An Internet service in which transit riders could enter their origin and destination and then receive full travel instructions and directions.

The Maryland seniors who did not regularly use transit emphasized the need for better information: "How do you find out what it costs?" "How do you find out where they are going?" Information for trip planning was seen as crucial, particularly for determining how close transit would stop to the desired destination. There were several reports of frustration with the telephone information services. Members of the group also called for better directional signs.

### *New York City: Moderate- and Low-Income Center City Residents*

Recommendations of the bus riders in New York City included

- Reserving more seats for elderly riders;
- Eliminating the articulated buses;
- Announcing all stops;
- Making the buses kneel for everyone;
- Improving schedule reliability;
- Providing shelters at all bus stops;
- Putting street signs lower so that they can be read from inside the buses;
- Extending handrails to full length in trains and buses; and
- Improving accessibility features on all parts of the transit system.

Recommendations from the paratransit riders in New York City mirrored their perceptions of ideal transportation services:

- Greater driver awareness of the needs and vulnerabilities of the elderly;
- Door-to-door service;

- On-time service;
- Safe and clean services;
- More information and education about the paratransit service;
- Places to sit while waiting for paratransit; and
- The ability to change schedules when using the ADA paratransit service.

### *Akron: Moderate- and Lower-Income Small Metro Suburban Residents*

Recommendations for improving transit services for seniors from the transit riders in the Akron suburbs included the following:

- Make more service available on an emergency basis (same-day scheduling);
- Improve services;
- Provide better training for the staff who schedule rides;
- Improve customer service;
- Extend transit service 2 hours later into the evening (that is, end at 8 p.m. instead of 6 p.m.); and
- Provide better on-time performance, especially for return trips.

Many of the transit riders in the Akron suburbs were well satisfied with the services they were receiving and did not have specific suggestions for improvements. One transit rider stated: "My message to the transit authority would be, thank you, I need you at this time in my life. That is what I would say."

The seniors who did not regularly use transit in the Akron suburbs suggested that transit could be improved in the following ways:

- Instituting the ability to respond to emergency calls;
- Being on time;
- Providing accessible door-to-door, real-time scheduling (not having to call ahead);
- Providing the ability to make multiple trips (Geauga permits this, with an extra charge);
- Providing easy to understand information;
- Providing service at a reasonable cost;
- Employing drivers and other staff who care about older riders;
- Providing improved customer service (a big problem area, as previously noted); and
- Making service available in evenings and on weekends.

### *Geauga County: Moderate- and Lower-Income Rural Residents*

The focus groups in Geauga County looked for improvements such as the following:

- Same-day scheduling;
- More certain pickup and dropoff times;
- Fixed-route service in addition to paratransit service;
- Regular service at regular times;
- Access to destinations in neighboring counties; and
- Evening and weekend service.

# LONG-TERM IMPROVEMENTS TO PUBLIC TRANSIT

## Strengths and Weaknesses of Current Transit Services

Public transit performs many critical functions in our society. It moves large numbers of travelers efficiently, is often more environmentally friendly than other modes, and makes possible a density of land use development that is highly valued

by many people. However, the ways in which our public mass transit systems are presently configured do not meet many of the travel needs of our older citizens.

In the focus groups of older persons, the most positive attributes of fixed-route public transit services were seen as low cost, the ability (independence) to come and go on one's own schedule (when one's personal schedule matched with the schedules for transit service), and the amenities associated with traveling as a passenger (reading, watching the world go by, etc.). Paratransit services received positive ratings on assistance from drivers, door-to-door service, and assistance with special needs. All of these attributes were expressed as somewhat positive rather than as strongly positive attributes.

The negative attributes of public transit services were generally expressed in strongly negative terms. Strong negatives for transit were the lack of reliable service, difficulties in getting travel information, and problems in dealing with transit staff (other than drivers). Paratransit services received strongly negative ratings on reliability, interactions with dispatchers and other non-driving staff, and slow trip speeds. Transit and paratransit services also had somewhat negative ratings for hours of service availability, and paratransit services had negative ratings on eligibility requirements.

The contrast in preferred travel attributes between automobile travel and transit travel—shown in Table 22—could hardly be more striking. At least for those seniors participating in the focus groups, the strengths of automobile travel are often directly juxtaposed against the weaknesses of public transit—at least, as those transit services are most frequently offered at the present time. On all the travel attributes that seniors reported as most highly valued—reliability, proximity, flexibility, and comfort—automobiles were rated very highly and transit modes were rated poorly.

Many travel attributes of automobiles received strongly positive ratings, including connections with many origins and destinations, protection from adverse weather conditions, door-to-door connections, flexibility, responsiveness, availability at all hours, and personal independence. Automobiles also received positive ratings on a number of other factors; the only negative ratings were in terms of cost and personal safety (primarily concerns about other drivers). Table 19 showed that taxis had the next most strongly positive ratings, but had strongly negative ratings on trip cost. The automobile passenger mode shared many of the strongly positive ratings with driving and taxis, but traveling according to the schedules of others and being obligated to those persons were strongly negative features of the passenger mode.

Public mass transit—usually meaning big buses operating on fixed routes and fixed schedules—has trouble matching these and other attributes of private automobile transportation. Compared with the private automobile, public mass transit has these problematic characteristics:

- **Connects fewer origins and destinations.** The availability of public transit varies from community to community, indeed even from one neighborhood to another. Traditionally, inner cities have had the most accessible public transit services, with the suburbs and the rural areas following far behind. As more older persons are living in the suburbs, and many are relocating even farther away to more rural or sparsely populated areas, the issue of the availability and efficiency of public transit takes on new meaning. Many

## Table 22

## Automobile vs. Transit Assessments by Older Persons

| *Concepts* / *Measures* | *Travel Modes* | | | |
|---|---|---|---|---|
| | *Automobile* | | *Transit* | *Paratransit* |
| | *Driver* | *Passenger* | | |
| **ACCEPTABILITY** | | | | |
| *Reliability: departure and arrival times* | **Positive** | | **Strongly negative** | **Strongly negative** |
| Origin/destination connectivity | **Strongly positive** | **Strongly positive** | **Negative** | |
| Trust and confidence | | Negative | | |
| Image/attractiveness | | | | Negative |
| Amenities | Positive | Positive | Positive | |
| Safety/security | Negative | Negative | Negative | |
| Service quality: vehicles clean | | | | |
| *Comfort: vehicles* | **Positive** | **Positive** | **Negative** | |
| *Comfort: protection from weather* | **Strongly positive** | **Strongly positive** | **Negative** | |
| Service quality: drivers | | | | Positive |
| Service quality: dispatchers | NA | NA | Strongly negative | Strongly negative |
| **ACCESSIBILITY** | | | | |
| Can physically use the system | | Positive | Mixed | Positive |
| *Proximity* | **Strongly positive** | **Strongly positive** | **Negative** | |
| Can get information on services | | Negative | Strongly negative | |
| **ADAPTABILITY** | | | | |
| *Flexibility* | **Strongly positive** | Strongly negative | | **Negative** |
| Responsiveness of service | **Strongly positive** | | | **Mixed** |
| Assistance with special needs | Positive | | | Positive |
| Eligibility | | | | Negative |
| Public participation in service planning | | | | |
| **AVAILABILITY** | | | | |
| Service span (hours/days) | **Strongly positive** | | **Negative** | **Negative** |
| Sufficiency | | | | |
| Frequency | | | | |
| Independence | Strongly positive | Strongly negative | Positive | |
| **AFFORDABILITY** | | | | |
| $ Cost per ride [or per month or year] | **Negative** | | **Positive** | |
| Time required | **Positive** | | **Mixed** | **Strongly negative** |
| Level of effort | | | | |
| Obligations to others | Positive | Strongly negative | | |

***Legend***

| | | | |
|---|---|---|---|
| Measures most highly valued by seniors | *italic text* | Large differences in automobile/transit assessments | **bold text** |

locations outside of central cities are not served at all by public transit or are served so poorly that travel to and from these locations requires many times the travel time required by automobile.

- **Provides service at fewer times of the day and on fewer days of the week.** Most public transit services do not operate late at night, on weekends, or on holidays. People such as the elderly, who wish to travel at these times, are

seldom able to make public transit connections. As more jobs shift away from the standard 9 a.m. to 5 p.m., Monday through Friday pattern, fewer and fewer work trips will be able to be accommodated by public transit; this means that extended service hours can benefit both younger workers and older persons.

- **Appears to be more costly than automobile trips on an out-of-pocket basis.** Many automobile users do not realize the full extent of the costs they pay to operate an automobile because many of the major relevant costs—insurance, maintenance, and depreciation—are not directly associated with the cost of one specific trip but are spread out over many trips. Even some specific per-trip costs, such as parking, may be subsidized by businesses and others so that the driver may believe the trip is "free." In fact, for most people in most communities, owning and operating a car is actually a good deal more expensive than using public transportation. The vast majority of transit systems in the United States collect their fares as a person boards the vehicle. This makes the cost of each transit trip highly visible. In contrast, parking costs and highway tolls are the only automobile expenses that are visibly associated with a particular trip; most gasoline costs are spread over multiple days and multiple trips.
- **Requires certain levels of physical and cognitive abilities for its use.** For the elderly, some of the attendant requirements of mass transit are difficult or impossible: walking to the bus stop (49 percent of those responding to Straight's survey (1997) said that they could not walk to a bus stop if they had to), waiting in various kinds of weather (often without shelter), climbing the stairs of the bus, maintaining balance while the vehicle is in motion, and determining when and where to exit. Many people whose declining physical and cognitive abilities preclude the operation of a car are also unable to use public transportation.

Public transit may be at its greatest disadvantage when considering non–monetary, travel-related costs and benefits. Most transit services, particularly those that operate on fixed routes and schedules, do not appear to be responsive to individual needs. Indeed, because the routes and schedules of these systems are, by definition, established on a mass or system-wide basis—rather than on an individual basis—the lack of individual control or influence on factors such as departure or arrival times is a reality. Service quality is an area in which public transit could conceivably exceed automobile travel, but on-time performance, cleanliness of vehicles, friendliness of drivers and other staff, and comfort are areas in which many transit operations need improvement. Flexibility is an arena in which automobile travel triumphs, both in terms of scheduling and routing. Many of these factors come together under the more global heading of control of one's environment and activities, with very little control in the hands of the consumer of mass transit services. Now that we live in a world where custom orders for food, clothing, and even computers are becoming the norm, a product that is not particularly responsive to individual consumer preferences will be at a distinct disadvantage against products that focus more directly on the individual consumer.

## Long-Term Improvement Objectives

Steps to long-term public transportation improvements that would provide better services for older persons appear deceptively simple; of course, they are really anything but simple. Basically, the necessary steps needed are to (1) fix the problems and (2) upgrade services. These strategies are discussed in more detail in the next two chapters.

To keep those persons involved in the public transportation improvement process

firmly grounded in reality, it's important to recognize that (1) the main competitive mode is the automobile and (2) the automobile will most likely continue to be used by the majority of older persons for the majority of their trips. Therefore, it will be necessary for public transportation providers to adopt "reasonable expectations" for the relative attractiveness of their services, particularly in contrast to the attributes of automobile travel. Still, it is possible to make improvements to services that will attract a much larger share of both older travelers and their trips than transit currently serves today.

Three fundamental objectives are likely to be the "guiding lights" of public transportation services of the future:

- More choices in travel modes and their corresponding attributes, especially price;
- A greater focus on higher quality services; and
- A greater degree of service articulation, in which travel services are more closely tailored to the specific travel needs of the individual traveler and a specific trip.

Long-term approaches to meeting a large proportion of the travel needs of tomorrow's older persons will most probably need to focus on reliable door-to-door services. These approaches may involve more use of one particular transportation mode for certain types of trips or destinations and other modes for other travel needs. These transportation modes may be combined in certain trips, resulting in more transfers but more cost-effective use of each individual mode. (Of course, transfers would have to be made more comfortable and expeditious than they are today.) As trip patterns become more varied—less work-oriented, less central business district–oriented, more spatially and temporally dispersed—they become more difficult to serve with fixed-route transit services. Also, a greater need for specific information on the choices available for the specific trip will arise. This will necessitate a much greater role for the information function in local transportation service, probably requiring increased staff and technology to process the demands.

In the long run, multiple types of services offered at varying prices could go a long way toward replacing the "one-size-fits-all" approach to public transportation that now exists. More travel options would allow riders to choose travel services that best fit the specific demands of individual days and trips. Shared-ride, demand-responsive services, dispatched and controlled through advanced technologies, could provide higher levels of service than are now available at higher levels of productivity and cost-effectiveness. Transit industry professionals often view demand-responsive services as excessively expensive. (Ways of addressing this concern are discussed in later chapters.) Frequent, comfortable, affordable, spontaneous service to a wide variety of origins and destinations over a wide range of service hours is what seniors desire. Providing trips with these attributes may prove challenging for some transit agencies, but services of these types will be rewarded with patronage.

Overall management will be needed to organize and direct the provision of a larger variety of travel modes and services. One would expect to see some public transportation operators readily embracing this expanded "mobility manager" role, whereas other public transit providers may be content to offer work-oriented, fixed-route, fixed-schedule services. In that case, community-wide transportation management would then shift to another agency with the broader perspective.

## CONCLUSION

The transportation service attributes that seniors most highly value may be difficult for some transit systems to provide: comfortable, low-cost, reliable, frequent, door-to-door, spontaneous service that serves a large variety of destinations over extended periods of time. However, even if this "best of all possible worlds" scenario is out of reach, the focus group participants—both seniors and transportation professionals—reported that there are still many steps that transit providers can take to make their services more attractive to current and potential older riders. Near-term improvements could include improving schedule reliability (or finding a means of providing accurate information on departures and arrivals), providing "guaranteed ride home" services, finding ways of welcoming persons who are unaccustomed to using the service, helping seniors board vehicles when needed, improving travel information and providing much more of it, and adding customer service features. Long-term improvements, which may be more difficult to implement, should include offering more choices in travel modes and their corresponding attributes, focusing on higher-quality services, and creating a greater degree of service articulation.

# 8

# INDUSTRY PERSPECTIVES ON CHALLENGES TO OFFERING BETTER TRANSIT SERVICES FOR OLDER PERSONS

The transit industry professionals interviewed for this study were generally very interested in providing better services to older persons, but many see challenges or barriers hindering the transit industry's ability to respond more completely to the travel needs of older persons. On the other hand, a few operators have already designed services that successfully meet many of the travel needs of the elderly. This chapter reports on challenges that public transit providers see in offering better transportation services for older persons.

The challenges described in this chapter were reported in group discussions held at industry conferences with 42 professionals in the field of transportation and aging and 38 personal interviews with leaders in public transit and aging.

When public transportation providers are considering improvements to better serve the travel needs of older persons, they say they expect to face a variety of significant challenges. These current or future challenges fall into two main categories:

- Transportation system services and features and
- The travel needs and limitations defining the older consumers' marketplace.

Some transportation service challenges are internal to the public transportation provider. These internal challenges are those over which the provider has the most control. Other transportation system challenges involve working within the constraints of community resources and regulations. The challenges of providing improved service to

older riders are mostly external to a transportation organization and may include elements that are more difficult for transit providers to directly address or alter.

# TRANSPORTATION SYSTEM CHALLENGES

Challenges to providing better transportation services for seniors are sometimes internal to the organization that is trying to improve services. These challenges may be related to the organization's structure or procedures, or they may be specific to a certain type of service or approach to services. Current transportation service configurations within specific localities have resulted from the previous actions of public transportation providers in response to opportunities presented to them. Transportation services and delivery strategies may also exist in a certain way because of particular local conditions or circumstances. Sometimes, even when prior opportunities, conditions, or circumstances do not continue to exist, prior decisions continue to impede progress toward making changes to improve services.

In this report, transportation system challenges to meeting the travel needs and desires of older persons have been categorized into two areas: (1) funding, resources, and priorities; and (2) system and service constraints.

## Funding, Resources, and Priorities

Funding was the most frequently cited challenge. The cost of providing service, particularly the complementary paratransit services required by the ADA, and the related lack of funding to cover the increased costs that transit providers have incurred because of the ADA, are seen as major challenges. Funding programs at the state and federal levels are viewed as insufficient, and funding at the local level is recognized as a problem as well. One public transportation provider has not seen an increase in local funding for nearly 10 years. Without sufficient funding, providing an adequate level of service is obviously difficult.

Lack of a local, dedicated source of funding (dedicated property or sales tax revenues, for example) constrains the ability of public transportation providers to respond to growing travel needs. If local funding does not come from a dedicated source, public transportation providers must compete with other local programs for scarce local financial resources, usually on an annual basis. Even if transit programs need to justify their funding and any potential increases every 2 or 3 years instead of each year, this can hardly be considered a stable funding situation. Without stable funding, more effort needs to be devoted to fundraising and less to other activities. Without stable funding, long-term investments that could increase overall cost-effectiveness are extremely difficult to make. Investments in higher-quality vehicles and other equipment, which costs more initially but saves money over the long term, will be difficult or impossible to make in the absence of stable funding.

Apart from the need for local, dedicated sources, adequate funding was cited many times by transit professionals as the most significant challenge to improved services. The strong feeling expressed was that meaningful improvements in transportation services for older persons would not occur without new and expanded sources of funding at state, federal, and local levels of

government. Although funding can be viewed as a systems problem, it is also a community problem in terms of the level of local support that is or is not made available to local public transportation operations.

## System and Service Constraints

System and service constraints are by far the majority of the internal challenges that public transportation providers are facing or will face in the future when responding to the need for improved transportation services for older persons. Public transportation providers feel that their systems are pushed to capacity to meet current travel needs. Taking on the additional assignments and responsibilities associated with an aging society will be challenging.

### *Overall Service Designs*

Transit professionals report that current public transit operations lack sufficient service capacity. Transit providers also are concerned that fixed-route services might not adequately meet future travel demands, and that, therefore, paratransit may be required to a greater extent than many current transit industry professionals would prefer.

Among some providers, there appears to be real reluctance to consider changes in the structure and delivery of public transit services. Others feel that additional transportation options must be developed but are concerned that thinking within the industry is too narrow and not sufficiently imaginative to develop these options.

Although public transportation providers might conceivably turn to contracts with taxi companies as a locally available option to expand their range of service, many public transit providers see taxi companies as not always providing a professional level and quality of service. Furthermore, the transportation providers interviewed felt that taxi companies are generally reluctant to provide transportation services under contract to public transit operators.

### *Equipment and Resources*

Other challenges are more operational and related to service delivery. Transit providers reported that drivers are often not specifically educated to meet the needs of older persons, including the need to take extra time and care when serving them. Professionals reported that pay levels for drivers are often not sufficient to ensure a quality of service. (Human service agencies, with pay scales for drivers about one-half of those for public transit agencies, would probably disagree with this claim.) One transportation provider that relies heavily on volunteer drivers reported difficulties associated with developing and maintaining a core of volunteers.

The size and configuration of vehicles in a fleet might not be optimal for responding to the needs of particular market segments. It is also important to recognize that time and effort, in addition to funding, are required to understand, develop, and benefit from technological capabilities now present and expected to be available in the future.

### *Access to Services*

Weather conditions sometimes make it difficult for people with disabilities or people who are frail to get to a bus stop or to wait there for a bus to arrive. For many older persons, simply walking long distances is a problem; severe weather makes this problem worse.

Changes in service configuration and operating policies might make public transit services more responsive to the needs of older persons and persons with disabilities. For example, service routes are specifically designed to reduce walking distances to the bus and may constitute better service for some people. Operating policies that limit paratransit service to curb pickup might not be responsive enough for individuals with the needs described above; older persons may require personalized assistance to and from a vehicle, in addition to help in boarding and alighting.

### *Consumer Education and Travel Training*

Transportation professionals viewed customer education as a key element in responding to growing travel needs, but many public transportation providers feel that they have not done a good enough job to date. Public transportation providers feel that older persons simply do not know enough about the transportation services that are available and how to use them successfully. Many public transportation providers believe that they have not found effective ways to communicate with potential older customers about public services and to encourage trial uses of those services. Some examples of improved communications strategies are discussed in Chapter 10.

## Community Needs, Laws, Policies, and Regulations

Public transit systems may also face obstacles or challenges that are external to the organization, that is, obstacles or challenges over which a single transit organization may have little direct control or influence. Examples of external challenges include federal and state laws and regulations, community attitudes toward public services, and local fiscal strengths and limitations.

### *Collaboration and Partnerships*

The most significant community challenge identified by public transportation providers is the difficulty and complexity of bringing local leaders together to find a common, shared approach to implementing improved transportation service for older persons. This issue is not new and has been a focus of federal, state, and local concern for many years. Its significance is that it is still viewed as a critical problem even after substantial past efforts.

The challenges cited fall into three areas: difficulty getting local agencies to come together to solve problems collaboratively, failure of public transportation providers to think and act broadly, and a lack of understanding of key issues among local elected officials.

Transportation professionals identified the following specific challenges associated with local agencies coming together:

- The general lack of good interagency relationships;
- "Turfism" and the problems it causes for working together to reduce costs;
- Agencies that want control and are afraid of change;
- Privatization of social services, resulting in contractors not being responsive to client needs;
- Attitudes among social service agencies that foster dependence among clients;
- Time required to develop working relationships with local organizations;

- Lack of agency interest and initiative in taking a lead role to organize and coordinate services;
- Competition among local agencies; and
- Lack of cooperation from agencies and organizations with public transit providers on daily operational issues such as scheduling trips.

Transit industry professionals now engaged in providing public transportation services in their localities reported several specific challenges associated with public transportation providers thinking and acting too narrowly. These included

- Public transportation providers' lack of broad vision in addressing needs;
- Failure on the part of public transit providers to take responsibility beyond their traditional services for meeting the needs of older persons;
- A lack of service alternatives (said to create an unnecessarily high level of reliance upon transit system–operated paratransit services); and
- Failure to realize that there is no single transportation solution that will meet all of the travel needs of older persons.

Finally, specific challenges associated with a lack of understanding among officials included

- A lack of understanding on the part of local elected officials regarding the need for increased funding and the transportation service implications of the growth in the number of older persons;
- Apathy and a lack of understanding that older persons have transportation needs;
- No significant investment from the business community; and
- Failure to enforce state mandates for coordination of transportation services once the mandates are in place.

### *ADA Requirements and Their Impacts on Service Development*

The ADA has changed the way public transportation providers deliver transportation services. Public transit providers had to change fixed-route vehicle fleets to move to full accessibility. Passage of the ADA required some public transit providers to offer paratransit service for the first time. The ADA placed additional demands on those public transit providers who were already offering paratransit service, sometimes requiring a broadening of eligibility for services, changing operating policies to comply with new service standards, or expanding the days and hours that paratransit services were available.

Demand for paratransit service grew as people with disabilities discovered that they had access to new or improved paratransit service. Without new funding to implement these service improvements, service capacity was strained, and financial pressures resulted. One outcome, seen in many localities, has been that paratransit services have shifted away from meeting the travel needs of older persons, unless those older persons also meet strict ADA-eligibility criteria.

## CHALLENGES OF THE OLDER CONSUMERS' TRAVEL MARKET

Obvious challenges exist for transit agencies that want to provide travel services for older riders. Satisfying customers is generally challenging in any industry: marketplaces are competitive, and consumers make choices among competing goods and services (just as when they travel). If an organization's

services do not match a potential customer's needs, those services will not be used.

Public transportation providers see the challenges to responding to the needs of older travelers to be

- Customer preferences and service expectations of older persons and
- Special needs of older travelers.

## Customer Preferences

Previous chapters have discussed in detail the travel preferences of older persons. Older travelers are essentially interested in those qualities that attract all kinds of consumers to any product or service: control, autonomy, and choice. The specific travel attributes that older persons reported as most important to them were reliability, door-to-door services, flexibility, and comfort. These service attributes are also recognized by transit providers as necessary to attract older travelers (and other travelers as well).

Public transportation providers recognize that the demand for their services will grow as the population of the United States ages and the number of older persons grows in future years. In fact, transit providers are already seeing a growth in trips taken by older persons. They expect that growth to continue.

Many older persons in future years will be more educated, have higher incomes, and have higher expectations for service availability and quality than today's older persons. If public transportation services attract only a small proportion of the older travelers of today, who currently have fewer travel options and less experience with high-quality services, how will current forms of public transportation attract older riders when these potential riders have more choices and greater demands for quality services?

Part of the solution to addressing the service expectations of the older traveler market will be recognizing that older persons have significant mobility needs and that fulfilling these travel needs is important to them and to society as a whole. Simply encouraging older persons to reduce or cease driving will not be sufficient to change travel behavior; offering new and improved services will be more productive.

### *Provider Perspectives on the Travel Preferences of the Elderly*

Many public transit providers see real challenges in attracting large numbers of older riders because of the perspectives of the older riders. Public transit providers expect that older persons who are able to drive will often prefer to drive to meet their travel needs. Driving provides a sense of freedom and independence that cannot easily be matched by public transportation alternatives. Older persons are seen as strongly linked to their automobiles and reluctant to give them up. Public transit providers believe that current public transportation services, both transit and paratransit, are viewed by many seniors as inadequate to meet their travel needs.

Transit providers feel that seniors often do not understand public transportation or accept it as a means by which they might meet their travel needs. (Not considering transit as a valid travel option probably reinforces the reluctance of older persons to stop driving.) Older persons may have trouble overcoming the stereotypes of bad service and unhelpful drivers that have been

associated with public transit service. Many older persons tend to view public transportation service as fixed-route services only, which is too narrow a perspective in some communities. In communities where older persons are denied access to paratransit, they typically do not turn to fixed-route service to meet their needs.

### *Provider Perspectives on the Elderly Transit Market*

Some transit industry perspectives on the market of older travelers also create challenges to providing better transit services for the elderly. When transit providers view public transportation service as fixed-route services only, that perspective is just as limiting as when older travelers hold that view. Older persons have diverse needs and should not be lumped together under any one category. Assuming that fixed-route services could meet all the travel needs of older persons, if only they would use it, is a perspective that will fail to attract large numbers of older riders. Finally, it would be a mistake not to recognize that younger population groups will be older persons in the next 20 years or so. Providing good transportation services to younger persons now would be a significant strategy for attracting older riders in the future.

## Special Needs of Older Travelers

Transit providers are faced with a number of challenges in responding to the special needs of older travelers. These challenges can be organized into three categories: physical limitations, financial limitations, and lack of travel information.

Whereas many older persons are somewhat limited in their ability to independently perform certain activities of daily living, these limitations are often not severe enough for them to be officially classified as disabled. If an older person is not officially classified as disabled, he or she often may not qualify for ADA-complementary paratransit services. If ADA-complementary paratransit service is not available to older persons, they may have so much trouble walking to a bus stop, waiting for the bus, climbing the stairs necessary to board the vehicle, or maintaining balance while the vehicle is in motion that that they seldom attempt using fixed-route transit service.

Although some seniors are financially independent, some are not. Those seniors who are not financially independent will need assistance of some sort to enjoy a reasonable level of mobility.

Finally, almost 90 percent of older travelers have not used public mass transit services in the last year. Should they have some need to begin using transit services, many older persons would not know how to do so and would not try because of their lack of knowledge. These kinds of special needs must be addressed if transit providers are to serve a greater proportion of the trips of older persons than is now the case.

# CONCLUSION

A surprising discovery from the contacts with public transit providers—in focus groups and expert interviews—was the degree to which these individuals reported feeling overwhelmed by the current demands of their jobs. This led to the observation that new roles, responsibilities, and service markets—such as the emerging travel demands of older persons—were not being actively pursued and certainly would not be

pursued without substantial additional funds and other resources.

Significant levels of energy and resources will be required for the resolution of many of the challenges to better meeting the needs of older travelers in the future. Although prospects for the investment of significantly enhanced levels of energy or resources appear dim to some public transportation providers, the good news is that other public providers are charging ahead with new and improved services. Strategies and procedures for addressing the challenges of meeting older persons' transportation needs are presented in Chapter 9. Chapter 10 describes transportation systems that have implemented some of the services and strategies needed to address the travel needs and demands of older travelers.

# Section 3

## STRATEGIES FOR IMPLEMENTING BETTER TRANSPORTATION SERVICES FOR OLDER PERSONS

Public transportation providers who wish to capture a significant proportion of the trips of tomorrow's older persons will need to address a number of challenges. These challenges include those of user preferences, user limitations, and system improvements. The combination of these factors poses substantial, but not insurmountable, tests for public transportation providers.

Innovative transportation services are beginning to appear in many communities. Specialized services operated for human service agency clients and public and private paratransit operations, as well as innovative services offered by major transit authorities are some of the new service types being provided in small and large communities across the United States and in other countries. Many current sources of inspiration and operational experiences can guide the development of future transportation options for older persons.

This section examines how improved public transit services for older persons have been implemented in various communities. These improved services demonstrate that, with appropriate public support, necessary changes can be made to serve much larger numbers and proportions of older persons than are now served by public transportation. The ultimate approach to providing improved public transit services for older persons is to directly face the challenges of user preferences and the user, system, or community problems that inhibit service improvements. There are now programs and practices in place that address all of these issues and can serve as inspiration for

people interested in real improvements to public transportation services for older persons.

Although the potential approaches to the challenges identified are often unique to each specific challenge, some patterns are discernable. The common patterns include

- Adopting customer- and trip-oriented, rather than vehicle- and staff-oriented, service strategies;
- Expanding and improving current patterns of operations and services;
- Providing new types of services;
- Obtaining additional resources;
- Obtaining the participation of new and different partners in service delivery;
- Training transportation system personnel in the needs and demands of older travelers; and
- Providing more traveler information and more user-friendly traveler information.

These examples of approaches to enhancing public transit services for older persons indicate the possibility of short-term improvements and also point the way to new program concepts for the future. This section concludes by examining operations that could provide better services for older persons in the future.

# 9

# ADDRESSING USER PREFERENCES AND EXPECTATIONS REGARDING TRANSIT SERVICE ATTRIBUTES

## INTRODUCTION

Older persons highly value transportation services that are reliable, frequent, door-to-door, comfortable, low cost, and spontaneous, and which serve a large variety of destinations over extended periods of time. Particularly in light of other commitments and constraints, services exactly like these may be difficult for some transit systems to provide. Even so, there are still many steps that transportation providers can take to make their services more attractive to current and potential older riders.

Many potential transit improvements related to user preferences were discussed in transportation industry focus groups and interviews. These discussions resulted in a long list of service challenges and potential improvements, which are shown in Table 23. This chapter reviews activities that transit operators can take regarding reliability, flexibility, and comfort. Door-to-door services are addressed in Chapter 10.

## RELIABILITY

The number one concern voiced in the focus groups of older persons was reliability. Among transit users and non-transit users alike, issues relating to reliability were repeated time and time again. Some were dissatisfied with on-time performance and schedule adherence. Some were upset about missing appointments because of late-arriving vehicles. Others were afraid of (or

## Table 23

## Potential Service Improvements Related to User Preferences

| *Challenges* | *Potential Improvements* |
|---|---|
| ***Customer Preferences/Concerns*** | |
| Need for reliable services | Reconfigure schedules; increase monitoring of on-time performance; implement technologies that provide real-time arrival information for passengers |
| Desire for more flexible services | Contract with taxi companies for these services; provide premium (short notice) service for premium prices; implement policies allowing escorts and assistance with packages and boarding/alighting |
| Enhanced comfort | Increase seating capacity; provide padded seats; conduct travel training workshops with seniors for familiarization; train drivers to be more courteous and more sensitive to needs of older passengers; add shelters and other amenities |
| Lack of sufficient service | Increase service levels during peak hours, evening hours, and on weekends |
| Preference of older persons for driving | Develop a full understanding of the materials in earlier chapters of this report; conduct effective market research to understand why older persons prefer driving and develop service features that are responsive to those preferences |
| Public transit's features do not match features and benefits of personal travel | Shift thinking from operating fixed-route bus service, including paratransit only because ADA requires it, to a focus on service development that is driven by a thorough understanding and acceptance of customer needs and desires |
| Older persons may not understand public transportation services | Implement effective programs that encourage successful trial use of service; develop new programs based on models in other industries |
| Drivers need more sensitivity to the particular travel needs and constraints of older persons | Improve or introduce customer service and sensitivity training for drivers |
| Reluctance of older persons to stop driving | Educate older persons to see the service alternatives that other older persons have used to reduce their driving; lead by example; implement effective training programs in collaboration with other partners with interests in encouraging older persons to reduce or stop driving |
| Negative stereotypes associated with public transit | Look inward first; provide education and outreach with success stories |
| Older travelers need to be viewed by transit operators as a market opportunity | Change thinking from a focus on operating buses to one of serving customers |
| Public transportation viewed as fixed-route service only | Change thinking from a focus on operating buses to one of serving customers |
| Assuming that the only alternative to paratransit is fixed-route service | Develop an understanding of the diversity of older persons' travel needs. Recognize that older persons, like others, use different means of transportation to meet travel needs; recognize that one size does not necessarily fit all people and all trips. Look to the automobile industry for lessons in addressing the travel preferences of various submarkets of travelers |
| Service not sufficiently flexible to permit trip chaining and other desired activities | Offer paratransit services; offer supplemental transportation services for certain riders or certain types of trips |
| Lack of sufficient paratransit service for transit needs of older persons | Expand paratransit eligibility to include all older persons and charge premium fares for premium services |
| Reluctance to consider changes in the structure and delivery of transportation services | Improve customer-centered service planning based on thorough market research regarding customer needs and interests; shift focus to customers, their needs, and a family of services to meet those needs; make public participation in service planning more meaningful |
| Need for broader view and imagination in designing and delivering services | Training and education workshops, conferences, seminars to encourage out-of-the-box thinking and action; dissemination of information on best practices; additional recognition for high-quality services |

**Table 23**

**Potential Service Improvements Related to User Preferences (continued)**

| *Challenges* | *Potential Improvements* |
|---|---|
| ***Service Expectations of Older Persons*** | |
| Customers of the future may have higher service expectations | Conduct forward-looking market research and service development planning to anticipate and plan for the needs and expectations of the market |
| Older persons have significant and important mobility needs | Recognize that travel needs exist and that local organizations need to take leadership responsibility in meeting those needs |
| Inadequacy of services in supporting programs to encourage older persons to cease or reduce driving | Understand the market and modify services to meet existing and anticipated needs; develop mobility planning and training programs to help older persons make a transition from driving to public modes of travel |

upset about) being stranded. Essentially, the focus groups reported that on-time performance is a critical factor for seniors. The crucial question is what to do to improve reliability.

Schedule adherence has always been a primary concern for transit operators. For decades, transit operators have searched for ways to reduce delays, reduce waiting times, and improve the reliability of their systems. Because of factors beyond anyone's control, such as variable traffic and demand levels, schedule adherence remains a difficult problem for nearly every transit system.

## Technological Innovations

A variety of advanced technologies can improve the efficiency, effectiveness, and reliability of transit operations. Some of these technologies are

- **Computer-Aided Scheduling and Dispatch Software.** This software automates scheduling, maximizes resources by promoting ride sharing, avoids some schedule conflicts, and can improve customer billing. With this software, customers can get accurate information quickly about service availability. Although reliability should be enhanced, cost can increase with the level of product customization desired. This software is effective with a centralized dispatch using toll-free telephone numbers.
- **Geographic Information Systems (GIS).** GIS assists organizations with mapping routes and utilization patterns. It can benefit the consumer through the provision of information on route options, ride times, and other trip factors.
- **Automatic Vehicle Locator (AVL) Systems.** These tracking systems can provide information about vehicle location and arrival times to consumers and system operators and can even provide contact in the event of an emergency. For medium to large operators, one of the biggest benefits of using AVL and automatic passenger counting is the overnight production of performance reports for each route, for the appropriate manager. The operator in Hull, Quebec, has had AVL since about 1985 and determined that improved performance through better management information was much more important than real-time control of bus headways or other operating features (Lessard, n. d.). The cost of AVL systems can be a serious issue for small transportation providers; some of AVL's communications efficiencies can be achieved through radio and cell phone dispatcher to vehicle contact.

Recent Intelligent Transportation System (ITS) developments present an encourag-

ing new approach to the problem of reliability. Several companies are now marketing systems designed to provide instant information on actual—not scheduled, but actual—vehicle locations and arrival times. AVL technologies are used to track the speed and location of buses in service; this information is used to predict arrivals at specified locations, and this arrival information is then sent to electronic signs on shelters, posted on Internet websites, and sent to Personal Digital Assistants (PDAs) and other wireless devices. A number of metropolitan and small urban sites are now initiating real-time arrival systems. These include Ann Arbor, Baltimore, Dayton, Philadelphia, San Francisco, Seattle, and a variety of sites in California, Massachusetts, and Virginia. There are sites as well in Austria, Germany, Switzerland, and other European locations.

### *Advanced Public Transit Applications in Cape Cod, Massachusetts*

The Cape Cod Regional Transportation Authority (CCRTA) has been engaged in what is termed "a full-featured intelligent transportation system deployment" for a number of years. Functioning as a non-operating brokerage agency that executes contracts for service with private providers, CCRTA oversees the operation of a 90-vehicle fleet (two-thirds of which are scheduled in a demand-responsive fashion) that provides service to a 15-town region.

Services are multimodal and include ferries and intercity buses as well as more common public transit modes. A computer-aided dispatching system, an AVL system, and a smart card and mobile data terminal (MDT) system are among the technologies being implemented. Information available on the web (at www.e-transit.org) indicates the current location and speed of vehicles that operate on fixed routes and lets individuals plan specific trips by specifying origins and destinations.

### *Arrowhead, Minnesota*

The Arrowhead region of Minnesota is a rural area that covers 18,000 square miles in the northeastern area of the state. It is characterized by a sparse population and severe winter weather, which lasts from October until April. Rural public transportation in the Arrowhead region involves 3- and 4-hour trips. Until recently, drivers were without radio contact for nearly the entire duration of these journeys. Given the harsh winter weather in this area, this circumstance caused some concern.

Since October of 1997, communication between transit vehicles and the central dispatch facility has been coordinated by the Advanced Rural Transit Information and Coordination (ARCTIC) system. AVL systems allow the central facility to track the exact location of transit vehicles. In addition, the automated scheduling system handles reservations and routing for the region's fixed-route, paratransit, and subscription services. The benefits provided by the ARCTIC system are twofold. First, the safety of drivers and passengers is dramatically increased, as there is constant communication between the vehicle and the dispatching center, and the location of the vehicle can be tracked. Secondly, the ARCTIC system allows more potential passengers to ride the rural transit system, as reservations can be made in real time. Potential passengers can make their trip decisions based on the immediate weather conditions and then call the dispatching center to find the exact location of the nearest vehicle. Although this capability will not provide thousands of new riders overnight, it will contribute to the long-term

growth of rural paratransit in the Arrowhead region of Minnesota.

The key to the success of the ARCTIC system is the sharing of technology and resources between state and local agencies. This spreads the cost among the various participating groups (snowplows, state patrol cars, state DOT maintenance vehicles, transit buses, and volunteer-driven vehicles). In addition, it creates benefits across the board, which offset the total cost. For example, the Arrowhead region only has 38 snowplows to cover 18,000 square miles. Efficiency is a paramount concern. If snow is allowed to compact and freeze on the surface of the road, it will remain there until spring. It is therefore necessary to dispatch the snow-removal vehicles before snow begins to fall. This is accomplished through coordination between the ARCTIC system and advanced weather forecasting systems. The AVL capabilities of the ARCTIC system enable pinpoint accuracy in the placement of the snowplows, which leads to a more efficient use of salt, sand, and other resources. According to the ARCTIC project manager, the savings generated by the ARCTIC system (especially in the areas of sand and salt) were expected to reach $1 million in 1998. A possibility of reducing the number of snowplows and drivers was also anticipated. These expectations were not realized because of hardware and software problems regarding the mobile data terminals (U.S. DOT, 2002).

During its planning stages, the original concept of the ARCTIC system was not well received in Minneapolis and in localities in and around the Arrowhead region. At first, citizens and elected officials criticized the idea of spending $1.5 million on a high-technology system. However, after seeing the savings generated by the ARCTIC system, other areas in Minnesota are becoming interested in having an ARCTIC system of their own.

# FLEXIBILITY

Older travelers in this project's focus groups reported frustrations with the limited service hours and destinations generally available through fixed-route public transit services. In addition, according to focus group participants, one of the most aggravating and inconvenient aspects of the paratransit services offered by public transit agencies was the lack of flexibility with regard to scheduling. Several seniors complained that the standard paratransit 24-hour advance notice requirement makes it nearly impossible to adapt to changing conditions and denies them any sort of spontaneity. One focus group participant said that he only needs paratransit when weather conditions prevented him from driving. Unfortunately, by the time he finds out that bad weather is imminent, it is too late to schedule a trip. Others complained that the advance notice requirement robbed them of any spontaneity in their trip choices, which made them feel "trapped" and "powerless." In addition, 100 percent of the transportation industry focus group participants mentioned "spontaneity" as an important feature in an ideal system.

Transit services could become more flexible in a variety of ways. Key examples of new or additional services are extended service hours, increased abilities for trip chaining, and new kinds of services such as service routes, contracted services, and other innovative services.

## Extended Service Hours

Many participants in the older persons' focus groups complained about the lack

of weekend and evening service in their area. Very few transit systems that were interviewed provide weekend and evening paratransit service. Metro Regional Transit Authority (RTA) in Akron, Ohio, provides paratransit services from 5:30 a.m. to 10:30 p.m. on Saturdays and 7:30 a.m. to 7:30 p.m. on Sundays. Tri-Met in Portland runs their fixed-route and paratransit service from 4:30 a.m. to 2:30 a.m., 7 days a week. In a quick survey, no small, rural systems were found that provided extensive evening or weekend service.

Transit systems (especially smaller ones and those operating in rural or suburban areas) generally cannot afford to provide service on weekends and evenings, as there are simply not enough riders to justify the operating expenses. Several examples of innovative programs to serve older passengers in the evenings and on weekends are described in later chapters.

## Increased Trip Chaining

Another common complaint among participants in the older persons' focus groups was the inability to combine trips. Several paratransit users complained that there was no way to "make a stop at the pharmacist on the way home from the doctor" or to run two errands at the same time. Again, this refers back to the concept of flexibility. Older persons are looking for a convenient way to accomplish more than one task in one day by trip chaining. Transit providers, understandably, do not normally provide that sort of service through fixed-route, fixed-schedule operations. Public transportation is most often rooted in the concept of many people traveling to few destinations. Public transit entails pickups and dropoffs. Traditionally, if you wanted someone to drop you off, wait, and take you somewhere else, you would need to use a cab. If transit systems suddenly started allowing users to lay out several trips at a time, they would be overwhelmed with demand and would only be able to serve one person at a time.

Supplemental transportation programs, such as The Shepherd's Center Escort Transportation Service and the West Austin Caregivers in Austin, Texas, (Kerschner and Aizenberg, 2001), provide a type of "one-on-one" service. These programs use volunteer drivers to transport seniors to medical appointments, shopping centers, activities, and personal errands. If the client requires assistance, the volunteer will escort the client inside his or her destination and back to the vehicle. The key benefits of these escort-based supplemental transportation programs are that the volunteer driver will wait for the client to finish his or her appointment and will allow the client to make multiple stops. Escort-based supplemental transportation programs provide for a high-quality and highly personal level of service. To provide this service, suitable volunteer drivers and other staff must be found and trained. These programs should probably be adopted as a supplement to regular public transportation services and not be seen as a replacement for transit or paratransit service.

## Service Routes

The concept of "Service Routes," a transit service type that can be seen as an intermediate level of service between traditional fixed-route, fixed-schedule service and demand-responsive paratransit operation, began in Sweden. A main objective is to minimize walking distances

to and from bus stops. Service Routes are local or community bus services in which a wheelchair-accessible small bus operates a scheduled service on a route that runs close to housing and destinations used by elderly and disabled people (Ståhl, 1991). The bus typically has a low floor, a ramp for wheelchair access, and an entrance with an initial step from the road of about 8 inches (200 to 230 mm). The bus drivers are allowed ample time for their routes, and they are able to provide personal service for passengers if required. The first Service Routes proved attractive to many elderly and disabled people who had previously used special dial-a-ride services. Service Routes can be used by anyone and are more economical to provide than dial-a-ride services. By attracting passengers from dial-a-ride services, Service Routes can reduce the total cost of providing public transportation.

### *Initial Tests in the United States*

There have been limited tests of Service Routes in the United States (McLary et al., 1993). This form of service is generally operated with smaller vehicles with low floors, kneeling features, and ramps. According to McLary and colleagues (1993), "this system serves mainly the elderly and persons with disabilities who cannot cope with public transportation involving large vehicles, long distances to the bus stop, and the stresses encountered during the trip. These people either do not use public transportation or can use it only with great difficulty." Initial tests of these services in Madison, Wisconsin, did not draw riders away from paratransit services as was hoped but seemed to generate new transit riders attracted to the availability and convenience of the new service (McLary et al., 1993).

### *Community Circulator Service: Cleveland, Ohio*

Like Service Routes, Community Circulator routes operate in communities or neighborhoods. Routes are designed and implemented to connect areas where high-propensity transit riders reside with destinations that they need to reach. Destinations may include shopping centers and malls, hospitals and other medical facilities, community centers and other social service agency locations, and locations to transfer to fixed-route service. Community Circulator service is open to the general public. The service is provided with small, accessible buses that can operate on neighborhood and community streets and get close to the entrances of the activity centers that are served.

The Greater Cleveland Regional Transit Authority (GCRTA) has run Community Circulator routes since it implemented its first route in 1990. GCRTA is presently operating 10 Community Circulator routes in Cuyahoga County and has pending requests for 10 more. GCRTA's Community Circulator service generally operates on weekdays between 6 a.m. and 7 p.m. and on Saturdays between 8 a.m. and 6 p.m. Typically, buses operate every 20 to 30 minutes. Passengers are picked up and dropped off at the door of residential concentrations and activity centers. The buses operate on a fixed route, but passengers can catch a bus at any location along the route, not just at established bus stops. Fares are less than half the fare for fixed-route service. Transfers from fixed-route to Community Circulator service are free. An all-day family pass is available.

To plan and implement its Community Circulator routes, GCRTA employs a

community-based planning process. GCRTA staff uses a *Rank Index for Community Circulators.* This index was developed (1) to meet increasing requests for circulator routes in the face of limited resources and (2) to identify which circulator routes have the best potential to succeed and be cost-efficient.

The *Rank Index* enables GCRTA staff to rank route requests against one another and to rank requested routes against existing routes. The *Rank Index* has three elements:

1. Concentrations of people in the route's service area with the highest propensity to use Community Circulator services;
2. Traffic generators that would be directly served by the proposed route; and
3. A 25-percent increase in the final score if 50 percent or more of the cost of a proposed route can be covered by associated fixed-route service adjustments, or a 25-percent reduction in the final score if such a savings cannot be achieved.

In the ranking, concentrations of people with a high propensity to use Community Circulator routes include the density of people over the age of 65. Traffic generators include senior housing and locations that older persons have a desire to reach such as shopping centers and medical facilities.

In its community-based planning, GCRTA works with local stakeholders to identify an advisory group that it can work with in developing the service. Ideally, the advisory group will include people representing key stakeholders so that consensus and ownership can be developed through the planning process. Once a request for service has been received and a decision is made to consider a new route, GCRTA's process includes the following steps:

1. An advisory group is organized and convened.
2. In initial meetings:
   - Members of the advisory group are asked to discuss why they feel a circulator route is needed and who would use it and why;
   - Alternative route alignments are developed and reviewed;
   - GCRTA staff review the technical analysis that results from application of the Rank Index;
   - After alternatives have been narrowed to a proposed route, GCRTA takes a bus to test-run the route with members of the advisory group on the bus (GCRTA has found this to be particularly helpful in building consensus on the best route to operate and resolving issues related to where buses can and cannot effectively operate); and
   - Existing fixed-route service is reviewed to determine the opportunity to modify fixed-route service and the extent to which cost savings would be able to cover Community Circulator route costs.
3. A service recommendation is developed, endorsed by the advisory group, and forwarded to GCRTA, key stakeholders who requested the service, and the general public.

Development and implementation of Community Circulator service requires the support of key stakeholders and the advisory group. Local support is important, especially if fixed-route service will be modified or reduced with implementation of the Community Circulator service. GCRTA introduces new Community Circulator service into a community or neighborhood with a community event, media attention, and the distribution of brochures and bus schedules.

GCRTA has found that performance of its Community Circulator service closely tracks the ranking that comes from its Rank Index methodology. Further, performance is

best where there is a strong base of existing fixed-route riders who are already using fixed-route service to make local trips. With changes and reductions in fixed-route service to minimize or eliminate duplication of service, these local trips shift to the Community Circulator service.

### *Rider Request Service: Fort Worth, Texas*

Rider request service is door-to-door transportation service that is implemented to replace fixed-route service in areas where fixed-route service is performing poorly, and a performance evaluation would suggest that the service be eliminated. Just like the fixed-route service it replaces, rider request service is open to the general public.

The Fort Worth Transit Authority implemented a comprehensive restructuring of its fixed-route services and modified the radial structure of routes with the introduction of non-downtown routes. To address the elimination of routes and the resulting increased walking distance to remaining routes, Fort Worth introduced its rider request service.

The objectives in implementing rider request service were to

- Increase service area coverage to accommodate more people;
- Reduce the frequency of service;
- Reduce the number of vehicle miles of operation; and
- Make service available to whole neighborhoods with the broader image, awareness, and advertising of the transit system that would result.

Presently, Fort Worth operates rider request service in seven areas. This service is curb-to-curb in each of these areas like complementary paratransit service. Customers within the service area call to schedule pickups the day before a desired trip will be made. Approximate pickup and dropoff times are scheduled. Fort Worth permits same-day scheduling of trips during lower demand midday hours, as well.

Within each of the rider request areas, time points are also established where customers are able to simply wait for a bus to get to a desired destination within the rider request area. Destinations can include locations for transfer to fixed-route service out of the rider request area. Customers who are making the same trip on a daily basis can schedule the trip as a subscription so that a daily call to schedule the trip is not required.

Service is generally available on weekdays between 6 a.m. and 8 p.m. and on Saturdays between 7 a.m. and 7 p.m. Limited rider request service is available on Sundays between 6 a.m. and 8 p.m. The fare structure is the same as that for fixed-route service. Transferring between rider request and fixed-route services is free.

The character and patterns of use differ among the rider request areas, with use being characteristic of the need in the area or community. Use is characterized by area as follows:

- Access to local schools;
- Transfer connections to get to downtown;
- Travel to local shopping centers; and
- Local travel for a variety of needs.

In one area, older persons who are no longer able to use fixed-route service to meet their needs use the service extensively.

### *Service Routes in Sweden*

The Service Route concept appeared in Sweden in 1983 when the Borås Transportation Company introduced a new type of public transportation called Service Routes (Ståhl, 1991). Service Routes are one component of what is called in Sweden a "market-adapted public transport system." Another component of this overall public transit system is Sweden's Special Transportation System (known as STS, which is the equivalent of ADA paratransit services in the United States), on which the passenger must meet eligibility criteria and often also pre-book trips. A third component is regular fixed-route mass transit services.

Planning a Service Route network requires particular care. The Service Route network places priority on bringing buses near to where residents live, whereas the conventional fixed-route transit network is usually constructed in the form of straight radial lines that quickly connect different residential areas with one or more central business districts.

Service Routes in Sweden usually begin service between 8 a.m. and 9 a.m. and operate until 6 p.m. or 7 p.m. daily. There are hourly headways on weekdays and Saturdays, reduced to 2-hour service on Sundays. The Service Route must accommodate route layout, operating times, trip intervals, vehicles, and service to meet the conditions and needs of the elderly and people with disabilities. It can utilize thoroughfares such as pedestrian malls, broad bicycle paths, and even market squares that are not used by other traffic. Bus stops are at the entrances to shops, hospitals, and care centers, and the distance to stops in residential areas is minimized. Vehicles are small and fully accessible, and staff are specially trained.

By 1991, more than 50 cities in Sweden had introduced Service Routes, either as supplements to mainstream public transport or, in some places, to replace seldom-used public transport routes. When Service Routes are introduced, the number of elderly public transit passengers increases, generally by 10 to 15 percent. In addition, up to half of those eligible to use STS (taxi and dial-a-ride) choose instead to use Service Routes, with savings for local government of 25 to 40 percent of operating costs. Surveys in 1995 showed that almost 80 percent of the elderly passengers using Service Routes were people entitled to STS, whereas only 10 percent of the elderly passengers on low-floor buses on mainstream public transport were entitled to STS.

For people entitled to STS in Sweden and living in an area served by low-floor transit buses, 85 percent of their travel was by STS. For people entitled to STS and living in an area served by Service Routes, 48 percent of their travel was by Service Route. Thus, Service Routes are very attractive to people entitled to specialized paratransit services and forms a good complement to STS. People in Sweden served by Service Routes make twice as many trips per week (1.7 one-way trips) as those served by low-floor buses (0.9 one-way trips) (Ståhl, 1998).

## Contracted Services

It can be a highly attractive and effective option for transportation authorities to purchase specialized transportation services from other providers instead of providing these services themselves. Many transit providers are purchasing ADA services, late-night services, feeder services, end-of-the-route services, and other services from

private providers (including taxi operators) and human service agencies. So-called "brokerage" operations have become commonplace: public transit authorities write contracts with other organizations that include service quality standards, shifting some typically difficult issues like wage scales and work rules to those other organizations.

### *Collaborative Relationships and Contracting in Fort Worth, Texas*

In developing its transportation services, the Fort Worth Transit Authority has developed collaborative relationships and agreements with agencies within its service area. The relationships described below are representative.

**Lighthouse for the Blind.** Lighthouse for the Blind, a non-profit agency, is paid by the Fort Worth Transit Authority to conduct orientation and mobility training for sight-impaired people who wish or need to learn to use fixed-route bus service. Their training is provided by certified orientation and mobility instructors and uses curricula developed by the American Foundation for the Blind. Lighthouse reports that transportation is, by far, the biggest obstacle that sight-impaired people face on a daily basis. People with disabilities can often negotiate virtually every aspect of their daily lives, except for transportation. Lighthouse has been working with sight-impaired people in the Fort Worth area for nearly 30 years and finds that the age of its clients is growing older as the population ages. In fact, most (89 percent) of its clients have been sighted and experienced an age-related loss of sight.

Training focuses on the following activities:

- Moving around the external environment;
- Planning a bus trip in advance;
- Crossing streets;
- Using a cane;
- Using the soles of feet to recognize place; and
- Asking people for aid.

Some of the people Lighthouse trains are those who use or have used complementary paratransit service; others are people who have not used fixed-route or paratransit services prior to their loss of sight. Lighthouse finds that the older a person is when sight is lost, the greater the difficulty in developing confidence in starting to use fixed-route bus service.

**WHEELS (American Red Cross).** The American Red Cross operates one of the few county-wide social service agency transportation systems in Tarrant County. The Red Cross has a contract with the Fort Worth Transit Authority to provide some of its complementary paratransit service on weekdays and weekends. WHEELS provides the transit authority with additional service capability when its own capacity is exceeded. WHEELS has a negotiated fixed-rate reimbursement for each trip provided.

### *Taxi Services*

Taxis provide door-to-door public transport services for the general public at a higher price than other public transit options. However, taxis are often less expensive to operate per passenger journey than specialized dial-a-ride, door-to-door services. A recent study (Gilbert et al., 2002) found that transit agencies were contracting with taxi companies and similar organizations (all referred to as "private for-

hire vehicles," [PHVs]) to provide the following kinds of services:

- Community Circulators;
- Feeders or replacements for fixed-route services;
- Primary providers of ADA paratransit services;
- Human service demand-response transportation;
- Rural transportation;
- Specialized transportation services for seniors; and
- Guaranteed ride home services for carpool and vanpool participants.

Gilbert's study listed the benefits realized when transit operators contracted with PHV operators as

- Cost savings;
- Efficient means of meeting peak-period demands;
- Flexibility to incorporate changes into a beginning program;
- Provision of transportation services to the general public as well as subsidized transportation to residents who are elderly or have disabilities; and
- Additional annual as well as seasonal business for PHV operators.

**User-Side Subsidies for Taxi Services.** In places where city or national authorities provide alternative transport services for people who cannot use mass public transit, it has been found that about 90 percent of the journeys of those who can't use buses can be made by conventional taxis. Conventional taxi service means large chassis cars, which sometimes have a swivel seat for the front passenger to make entry and exit easier.

Because of the high fares for taxis, in places where they are used as an alternative to mainstream public transport, approved users have their taxi journeys subsidized to reduce the fare to about the standard bus fare. Older persons may be restricted in the number of trips per year they are allowed to make.

Taxis with user-side subsidies form part of STS throughout Sweden and have been operating for many years in London as "Taxicard." Passengers pay the subsidized fare, and the balance, typically 80 percent of the total, is paid to the taxi operator by the local authority. Users in some areas are limited in the number of journeys per year that are subsidized, and in most areas the maximum subsidy per trip is limited. On journeys longer than the subsidy limit, the passenger pays the full cost of the additional distance.

**Accessible Taxis.** In places where taxis are accessible to people in wheelchairs, they allow spontaneous travel that is difficult or impossible to achieve by specialized dial-a-ride services. A particularly important role is for access and egress trips to and from airports and railway stations. As air and rail services become easier to use for passengers in wheelchairs, the access links to the line-haul terminal become the main barrier to accessibility. Accessible taxis can cater to these links.

Since 1989, all new vehicles for the "black cab" trade in London have been required to be accessible. In 2000, only accessible taxis were allowed to operate in London. Because the special London taxis are built to the same standard for the whole of the United Kingdom and are the only permitted type of taxi in most large urban areas, the taxi fleet is becoming accessible for all the urban areas of the United Kingdom. The extra cost of making the London "black cab" accessible has been minimal.

In several European countries, accessible taxis are being developed whose design is based on larger vehicles. These provide even easier access and more space for a wheelchair than does the London taxi (Ståhl et al., 2001).

## Other Innovative Services

There are other innovative services (some of which are more predominant in countries other than the United States) that transit authorities might ask agencies in their communities to organize and provide. A number of these are discussed as "supplemental transportation services" by Kerschner and Aizenberg (2001). Others are discussed below.

### *Shared Services*

For many years in Australia, Britain, and Switzerland, certain mail collection and delivery services have used vehicles that are able to carry passengers. This service is called the Post Bus. Post Buses run to schedules set by the requirements of the postal service, usually in rural areas, but they do provide minimal public transport services where otherwise there would be none (Watts et al., 1978).

The British Post Bus services were originally started to exploit a taxation loophole, which refunded fuel tax to the operators of buses on scheduled local services. This tax refund made it less expensive for a mail distribution service to operate as a bus than as a mail van, even if it carried no passengers. The services do not carry many passengers, but they have proved sufficiently popular to continue after the withdrawal of the tax concession.

There is now a postal bus service operating in the United States. Operated by private contractors in association with the Council on Aging Specialized Transportation (COAST) system in eastern Washington state, this service provides two round trips daily. Passengers are carried on trips when mail is not being carried.

### *Informal Services*

**Hospital Cars.** Many hospitals have moved to sites at the edges of towns that are difficult for patients to access. One method of providing transport for patients at low cost has been to pay volunteers a small mileage allowance to use their own cars to take patients to and from the hospital. In England, these "hospital car" services are organized professionally by the hospital and can provide efficient and economical services for patients who do not require paramedical care during their journeys. The hospital provides any additional insurance required by the volunteer drivers.

**Support Services.** In England, "shopmobility" is a service that helps disabled people access to town center shops and facilities by providing motorized scooters on loan. Local authorities and/or charities often fund shopmobility. In 1995, there were around 100 such schemes operating in Britain, varying in size and the services they provided. Most provided wheelchairs and volunteer escorts; some had electric scooters, and all but a few are linked to parking areas or public transport (Morris et al., 1995).

Disabled users and decisionmakers responsible for shopmobility programs speak very positively about them. Decisionmakers are enthusiastic about the benefits to the town's economy and status. Before these programs, one-fourth of the program users either did not go shopping or had to rely on someone taking them. Shopmobility has

provided freedom and independence and contributed to town center prosperity.

**Luggage Services.** In France, a luggage service is organized by the national railway system, Société Nationale des Chemins de Fer Français (SNCF), to carry luggage from a person's door to the train and from the train to the final destination. The service is booked with an extra fee at the same time as the train ticket, from the point of departure to the final destination. This service has proved popular and is frequently used by older persons.

# COMFORT

Comfort issues are important in the travel decisions of older persons. Comfort factors include physical issues such as having a seat on a vehicle, having a comfortable and padded seat, not having to wait long periods of time in inclement weather conditions for vehicles to arrive, and not having to climb steep stairs. They also include perceptual or psychological issues involving items such as safety and friendliness.

A major dilemma for transit operators is how to overcome the initial apprehensions of the senior population. Seniors may believe stereotypes about crowded and unfriendly environments that might involve some physical risks. The question is how to change such perceptions.

Apprehensions about unfamiliar experiences, such as using public transportation for the first time, can be overcome once the new rider becomes familiar with the service and surroundings. However, if these fears keep an elderly person from initially trying the transit, then the fears can never be overcome. Travel training and driver training programs can address some of the usual apprehensions about transit use; shelters for public transportation users address issues of physical comfort.

## Travel Training

Travel training programs have become a popular way for transit systems to reach out to older passengers. Travel training programs are intended to acquaint older persons with the transit system, showing them how easy it is to board the bus and ride to their destination. In most cases, a travel training program involves "classroom" time, in which they learn about transit options, and "field" time, in which the seniors try out riding the bus. Sometimes the transit system will park a bus at a senior center or senior facility and invite the residents to board the vehicle and try out the seating. There may also be a seminar on reading maps and schedules or a discussion of bus pass options and discounts. The most successful travel training programs take it a step further, showing the trainees that transit can be a gateway to independence and recreation.

### *Some Successful Travel Training Techniques*

**Travel Buddies.** Some travel training programs encourage the participating seniors to find "travel buddies" in their group. These travel buddies will accompany each other on trips and outings, looking out for one another. The buddy system serves several purposes: it dramatically increases the comfort level for both participants, it increases the safety level for both participants, and it makes the bus trip into a social outing.

**Seniors Choose the Destination.** Both Great Falls Transit District (GFTD), in Montana, and LIFT, in San Diego, report

that allowing travel training participants to choose the destination for a "training trip" is a very successful selling point. A lot of times, the elderly participants will be surprised to find out that a bus can get them where they need to go. Additionally, it is exciting for the seniors to choose a destination, which makes the training experience less strenuous and tense.

**Group Leaders.** An enhancement to the travel buddy system is to assign a group leader to each group of seniors that undergoes travel training. The group leader is a senior who rides transit regularly and is familiar with the system. When a group of seniors takes their first trip in the travel training process, the group leader will ride along with them to answer their questions and concerns. The leader also provides an example for the seniors, demonstrating things such as how to ask for a seat, when one should stand up to exit, and the proper way to pay the fare.

**Peer Training.** In some areas, senior volunteers are employed as "travel ambassadors" to assist with travel training programs. In exchange for a year of free transit service, volunteer travel ambassadors work one-on-one with other seniors as peer-trainers. Travel ambassadors assist trainees with their trip planning, answer their questions and concerns, and accompany them on the bus. Travel ambassadors often must complete a specified training session and commit to a certain amount of training service.

**Follow-Up.** Follow-up calls to each of the seniors participating in a travel training program are said to be important. These calls are generally made 3 and 6 months after the completion of the program. The purpose of the calls is twofold: (1) to ensure that the seniors are comfortable with riding on the system and (2) to evaluate the success of the travel training efforts.

### *Travel Training for Older Persons at the Fort Worth Transit Authority*

Customers who do not qualify for complementary paratransit service may be able to use fixed-route service for some trips. Even customers who use complementary paratransit service may be able to use fixed-route service for some trips that they presently make on paratransit service. Two elements are key in successfully encouraging customers to make the change: (1) a price incentive and (2) effective training in how to use unfamiliar, fixed-route service.

The Fort Worth Transit Authority offers travel training to older persons and others to learn how to effectively use fixed-route bus service. The program began in 1994, with a grant from the Federal Transit Administration. The objective was to train customers to switch from using complementary paratransit to using fixed-route service. Since its introduction, program eligibility has been expanded to include older persons and refugees. Some older persons sign up for training because they would rather learn how to use fixed-route service than use complementary paratransit service.

Training focuses on the following:

- Conducting an initial visit with the trainee to establish familiarity and assess personal travel capabilities;
- Executing a travel training agreement that establishes trainer and trainee responsibilities;
- Taking the client on a planned trip and conducting training during the trip;

- Repeating planned trips as required to establish confidence in independent travel;
- Conducting telephone follow-up to understand and resolve concerns; and
- Observing travel without the knowledge of the client.

Whenever changes are made to routing and scheduling that may affect a client, refresher training is provided to maintain knowledge and confidence.

Trainers and trainees have separate and distinct responsibilities:

#### THE TRAINER

- Travels with the client during the training program;
- Learns required bus routes to and from specified places of travel;
- Assists the client in understanding and correctly assuming the responsibilities of independent bus travel;
- Facilitates the client's learning in an atmosphere that promotes confidence, skills, safety, and problem-solving abilities;
- Identifies actual/potential problems and works with the client and significant others to resolve them;
- Maintains a good working relationship with the client; and
- Keeps an accurate written log of training time with a client and significant events during training.

#### THE TRAINEE

- Works cooperatively with the trainer to learn to travel independently;
- Accepts supervision and agrees to work to solve any problems that may arise; and
- Abides by policies, procedures, and regulations.

The Fort Worth Transit Authority estimates the number of trips made by people who have received travel training. In the period between 1994 (when the program was started) and 1996, approximately 25,000 to 32,000 trips were made annually. In recent years, trips have increased to between 55,000 and 70,000 per year.

### *Travel Training in Eugene, Oregon*

One of the really successful components of the Driving Decisions for Seniors (DDS) program in Eugene, Oregon, was the Bus Excursion Program, in which seniors trained other seniors on how to use the county transit system. One participant said, "Nobody except another senior seems to understand what it takes to get us interested [in taking the bus]." The transit system was presented to DDS participants as a highly complex technical system. Thus, those older persons who successfully navigated the system were encouraged to give themselves credit for having the skill to master a complex system. The purpose of this presentation was to "turn bus riding from a low-status act into a high-status one" (Heckman and Duke, 1997). A senior volunteer who was familiar with the local transit service took other seniors on "bus excursions" to restaurants or picnic spots within walking distance of bus stops. The bus excursion leader instructed the participants on planning the trip, boarding the bus, making transfers, and enjoying the trip. Of the DDS participants studied by Heckman and Duke, 64 percent (14 out of 22) of those seniors who voluntarily surrendered their driver's licenses did so after participating in the Bus Excursion Program. The Bus Excursion Program was described as "important, if not pivotal, in their decision to quit driving."

Part of the success of this program was the transit system's support and attitude. The

seniors saw that they were being treated with respect, and that by understanding the service, they could make it responsive to their individual needs. DDS thus successfully overcame the common perception that many older persons "detest the bus because of what it means: one more 'demerit' toward a demotion in social status that accompanies aging in our society. . . . [In contrast,] the Bus Excursion 'honors' bus riding by promoting intelligent transit system use as an achievement of high skill" (Heckman and Duke, 1997). One DDS participant said, "I used to think that riding the bus was so undignified . . . I just didn't know any better . . . It sure has made my life easier" (Heckman and Duke, 1997).

Harper and Schatz (1998) report more common images of transit, images that were confirmed in this project's focus groups for older persons: "A few seniors viewed public transportation as an option reserved only for the lower socioeconomic classes, and most viewed it as an inconvenient option" (Harper and Schatz, 1998).

Some social marketing may be needed to convince seniors and others that travel by means other than driving or riding in an automobile has real value. Public transit is often seen as an "inferior economic good," a service for low-income and disadvantaged people, including the foreign-born, foreign-language-speaking, worker class. More people could be attracted to public transportation services if these services adopted a greater customer focus, a more user-friendly attitude, and began to cater to riders who ride by choice, not because they have no other choice. Travel training on how to use public transit services can be a key marketing element. The travel training program was a very successful component of the DDS program in Oregon. Travel training programs have been extremely effective in increasing the usage of public transit services among people with disabilities, including individuals in mental retardation and developmental disabilities programs.

### *Passenger Training in Edinburgh, Scotland*

Edinburgh is in the process of evaluating a passenger training program called "Elfbus." The aim of the program is to assist people with disabilities in trying out new wheelchair-accessible, low-floor buses so that they can gain experience in the short term, and they can gain confidence in using buses independently in the long term.

Volunteers are being provided to accompany people with disabilities on bus journeys from their homes and back again. In the first stages, the program will be piloted by wheelchair users who are relatively confident in getting around. Lessons from the pilot trial will then be assessed before considering whether the project can be extended to other people with disabilities. The responsibilities of the participants have been defined as listed below. The whole program is a partnership among the participants listed.

#### Responsibilities of the Local Government (the Council)

- Provide a loan to the voluntary organization to cover reasonable expenses incurred in delivering the project including administration fees agreed to between the Council and the voluntary organization;
- Provide monitoring forms for use by the volunteers;
- Write to the bus operators to ensure that the company is aware of the project; and
- Nominate a contact officer for liaison with the voluntary organizations.

### Responsibilities of the Voluntary Organization

- Ensure that volunteers are insured, trained, and briefed appropriately for their task;
- Match the volunteer and the rider;
- Maintain the confidentiality of the rider;
- Reimburse volunteers for expenses incurred in accordance with usual arrangements;
- Keep a record of each journey made for monitoring purposes and make this available to the Council;
- Account for the use of loans supplied by the Council at least quarterly;
- Nominate a contact officer for liaison with the Council; and
- Make contact with the bus rider (normally by telephone) in order to arrange a mutually convenient time for journeys.

### The Role of the Volunteer

- Provide reasonable physical assistance to the rider, such as pushing a wheelchair user and helping them to maneuver onto, inside, and off the bus. The type of assistance will be agreed in general terms between the user and the volunteer before the first test journey;
- Have funds available to enable bus fares to be paid (for both the volunteer and the user);
- Pay for taxi fares if necessary to complete the journey;
- Make sure that the rider gets home again after the journey;
- Complete a monitoring form for each journey to record any lessons or problems encountered along with user perceptions of the journey; and
- Claim expenses from the voluntary organization, and keep regular receipts and records.

### Responsibility of the Rider

- Notify volunteers of any difficulty in maintaining an appointment and give as much notice as possible in the event of a need to cancel a journey;
- Advise the volunteer of the extent of assistance, if any, anticipated during the journey;
- Attempt to undertake all aspects of the bus journey (boarding, paying fare, taking tickets, etc.); and
- Assist with the completion of a monitoring form in order to record observations and comments on each journey.

### Responsibilities of the Bus Company

- Ask drivers to provide assistance to disabled passengers by
  - Bringing the bus close to the curb; and
  - Using the ramps and lowering suspension if needed.

## Driver Training

In terms of helping seniors to feel comfortable on a bus, driver training is at least as important as passenger training. When the bus door opens, the driver is the first face that a passenger sees. In a way, the driver is the face of the transit system, and he or she is responsible for the first impression that the system makes. If the elderly passenger is confronted with an unfriendly face, he or she may turn around and go home, or he or she may not come back. Positive interactions with drivers go a long way toward establishing a strong customer relationship. Transit systems are aware of the importance of driver interaction, especially with seniors, and for this reason many systems have instituted extensive driver training programs. These programs normally include training in basic first aid, assisting passengers with frailties and disabilities, and emergency procedures. In order to improve interaction with elderly

passengers, some transit systems have expanded on the normal driver training curriculum.

## Shelters

Another major concern for elderly transit users is exposure to inclement weather. Long waits at bus stops can be uncomfortable or even unhealthy for a frail elderly person and will deter future transit usage. Many systems, especially those in colder climates, have taken steps to protect their bus stops from the elements. Seats are needed within shelters because not being able to sit while waiting for a vehicle is one of the large deterrents to transit use among older persons.

# CONCLUSION

Addressing the travel preferences of the older persons of today might be the most important strategy in meeting the travel needs of older persons in the future. The travel attributes most highly valued by older persons describe transportation services that are reliable, frequent, door-to-door, low cost, comfortable, and spontaneous, and that serve a large variety of destinations over extended periods of time. This chapter has reviewed actions that transit operators can take regarding reliability, flexibility, and comfort. Door-to-door services are addressed in Chapter 10.

Transit operators have several key opportunities for addressing the travel preferences of older persons. One involves the use of advanced technologies to improve reliability or provide real-time schedule updates. Others include extending service hours and augmenting trip chaining abilities to increase the flexibility of services. New forms of services, such as Service Routes, Community Circulator services, or contracted services, can also add flexibility. Travel training, driver training, and shelters for transit users are key means of adding to transit rider comfort.

# 10

# MEETING USER NEEDS AND LIMITATIONS

## INTRODUCTION

Public transit systems can better serve the travel needs of older persons by recognizing and then meeting their needs and limitations. Such improvements focus on accessibility issues. They address the needs of older persons who may have physical, financial, or other limitations. These are not issues of preference (such as those addressed in the previous chapter); they are issues of ability and accommodation.

A wide range of user needs and limitations were discussed in transportation industry focus groups and interviews. This range of issues is shown in Table 24. Issue areas and potential solutions are noted. This chapter discusses some of the more fruitful techniques now being employed for dealing with the user needs and limitations of older travelers.

## PHYSICAL ACCESSIBILITY ISSUES

No matter how much a senior wants to ride a bus, if there are physical barriers preventing him or her from meeting or boarding the bus, that senior cannot ride. For some people, there can be barriers to reaching the bus stop or transit station, barriers to boarding the vehicle, and barriers to riding the vehicle in comfort and safety. Major ways of addressing these issues are improving transit vehicles, improving pedestrian travel, and offering door-to-door services.

### Improvements to Transit Vehicles

Standard transit coaches can be readily reconfigured to provide easier access and

## Table 24

## Potential Service Improvements Related to User Needs and Limitations

| *Challenges* | *Potential Improvements* |
|---|---|
| ***Physical Limitations*** | |
| Difficulties in boarding transit vehicles | Purchase low-floor vehicles; deploy ramps for boarding; construct raised platforms at major passenger boarding locations; have drivers assist in boarding/alighting as needed |
| Difficulties in traveling several blocks to access transit vehicles | Provide or contract for door-to-door service (priced at a fare consistent with recovering the full cost of service); make infrastructure improvements to walking environment (sidewalks, curb cuts); offer escort services; feeder service via paratransit, Service Routes, and contract service providers, including volunteers and taxi cabs; more extensive service coverage |
| Problems traveling from a building to the curb to board a vehicle | Provide passenger assistance from the doors of buildings to vehicles |
| Inability to wait for extended periods outside | Provide shelters and benches at transit stops; improve schedule reliability; increase service frequency; institute automated vehicle arrival and departure technologies; establish short waiting times for transfers |
| Difficulties in identifying destinations | Audio and visual announcements of stops within the vehicle; augmented signage at stops |
| Inability to ride comfortably on certain vehicles | Provide reserved seating for older persons; provide that seats are of appropriate materials and condition |
| ***Financial Limitations*** | |
| Difficulties in affording the cost of travel | Reduce fares for needy older persons; seek subsidies for certain older riders or all older riders from local and state governments, merchants, professionals (smart card technologies assist in implementing these subsidies); contract for services with agencies employing volunteers as drivers and other staff to reduce the costs of individual trips |
| Overall public transportation subsidies make it difficult to target cost reductions to those riders most in need | Look to human service agencies to identify and provide financial support for those specific individuals in need of assistance through tokens or vouchers |
| ***Transit Knowledge of Older Persons*** | |
| Lack of knowledge about and understanding of transit services by older persons | Expand outreach and education programs; look for models in other markets; develop affinity relationships; develop peer-to-peer training programs; create special incentives such as free fares for using fixed-route instead of paratransit service |
| Ineffective customer education | Reach outside the transit industry for advice, counsel, and professional services in developing better programs for reaching customers |
| Failure to communicate with potential customers to encourage trial use of transit | Develop special customer training programs targeted to the particular needs, concerns, and interests of older persons |

use for many people, including those with some mobility limitations. Sweden and other European countries have made improvements to their transit vehicles such as easier entrance steps, good handrails, internal stanchions, and good color contrasts. Still, the most significant improvements to vehicle accessibility are likely to be gained from changing to low-floor vehicles.

## *Low-Floor Buses*

For many older persons, the act of boarding a standard fixed-route bus is anything but routine. Most people would find climbing a few tall stairs to be as simple as walking a few short steps. For older persons with physical ailments and pain, it can be as difficult as climbing a mountain. A bus step of 12 inches or more in height without a handrail excludes 40 percent of the elderly population from boarding the vehicle (Mitchell, 1988). Furthermore, when there is a busload of passengers staring at a person struggling up the steps and a driver waiting impatiently for that person to finish the climb, it can be a traumatic and embarrassing experience. For this reason, many older persons who are ambulatory, but have minor mobility limitations, will not ride a traditional fixed-route bus, opting instead for either paratransit or other transportation. Making fixed-route services accessible to ambulatory seniors might save money that would otherwise be spent on the typically more expensive paratransit services, and it would also provide older persons with increased freedom and mobility.

For the purpose of serving older persons and people with disabilities, low-floor buses possess several advantages over conventional buses. The most important advantage is the difference in height for the first step. Typically, the first step onto a conventional bus is between 9 and 12 inches above the curb. On the latest low-floor vehicles, the first step is less than 3 inches above the curb. Although a difference of a few inches may not seem like much, for an elderly person with hip and joint problems it is substantial. Many older persons who cannot board a regular bus can board a low-floor vehicle with less difficulty. Getting these older persons to use fixed-route service (rather than costly paratransit service) can easily offset the slightly higher cost of low-floor vehicles.

**Low-Floor Buses in the United States.** In the United States, low-floor vehicles have not been as widely adopted as they have in other parts of the world. Nonetheless, their use is growing rapidly. By the end of 1997, more than 2,800 low-floor buses were in use in transit systems in the United States and Canada, and more than 2,600 were on order (King, 1998). (The total in-use and on-order low-floor buses represented 9 percent of the total North American heavy-duty bus fleet.) Low-floor bus purchases in 1997 were

> estimated to be between 30 to 40 percent of all heavy-duty buses purchased by transit agencies in North America . . . [and] three of the bus manufacturers projected that by the year 2000 that 50 to 90 percent of their sales would be low-floor models. (King, 1998)

Transit riders, especially older ones, prefer low-floor buses to conventional transit vehicles, and operators have reported generally positive experiences when using these vehicles.

Ann Arbor Transit was one of the first systems in the United States to deploy full-sized, low-floor vehicles. A 1994 on-board survey found that 89 percent of passengers

who experienced difficulty with boarding a regular bus found the low-floor vehicles easier to board. Of that same group, 75 percent found the low-floor vehicles easier to exit. Ann Arbor Transit also reports that boarding and exiting times are reduced with low-floor vehicles by approximately one-third of a second per passenger. Although it may not seem like a substantial reduction, over the course of a day the accumulated time saved can lead to greater on-time performance and schedule adherence.

In addition to helping ambulatory persons with mobility limitations, low-floor buses also provide for improved service to passengers using wheelchairs. The boarding time is greatly reduced using the ramp on a low-floor vehicle, as opposed to the hydraulic lift on a conventional bus. Passengers also prefer using the wheelchair ramp to using the lift. According to a 1992 survey of wheelchair passengers, 81 percent found the low-floor wheelchair access to be "very easy," compared with only 28 percent of conventional lift users. Thirteen percent found the conventional lift to be "hard" or "very hard" to use compared with less than 2 percent of the low-floor users.

Low-floor buses are becoming a popular choice for fixed-route systems. One bus manufacturer estimates that low-floor bus sales accounted for 70 to 80 percent of the market in the year 2000. These vehicles are becoming especially popular in areas with a high concentration of older riders. Altoona Metro Transportation (AMTRAN) in Pennsylvania is purchasing low-floor buses exclusively. Capital Area Transit Authority (CATA) in Michigan purchased 10 New Flyer low-floor buses in 1996 and 48 more in the spring of 2001. Tri-Met in Oregon is purchasing 50 new low-floor buses each year, and its entire fleet should be low-floor within 3 years. It is no coincidence that each of these systems transports a larger than usual number of seniors.

**Low-Floor Buses in Europe.** During the 1980s in Europe**,** when Germany started to introduce low-floor urban buses, a major change in attitude occurred toward transporting wheelchairs on urban bus services (Blennemann, 1992). The low-floor buses used by Germany have a level floor between the front and center doors at a height above the ground of about 12.5 to 13.5 inches. A slight slope at the entrance reduced the floor height of 13.5 inches to a step height of 12.5 inches. The entry step could be further reduced to about 10 inches by kneeling the bus. These low-floor buses were introduced to reduce stopped time and to make urban public transport more attractive to everybody. It was quickly realized that they were much easier to use for adults with children, people with walking difficulties, and passengers encumbered with luggage or shopping bags.

As soon as low-floor buses entered service, it became clear that they could accommodate passengers in wheelchairs, and boarding aids were added. These were initially lifts, but the transit industry has now settled on ramps, almost always at the center door. This provides easier access and is also a more protected position for the ramp. The passenger in a wheelchair travels facing backwards, with the wheelchair backed against a soft bulkhead. In Germany, this wheelchair place is opposite the center door, a space that has traditionally been for standing passengers, luggage, and baby strollers. In Britain and France, a number of alternative wheelchair locations have been used. One real problem is that many buses have only a front door, which makes the wheelchair space and route from the entrance difficult to provide.

The dimensions and layout of the space for wheelchair passengers have been recommended by the European Community Cooperation in Science and Technology (COST) Action 322 "Low-floor buses" (COST, 1995; Dejeammes, 1996). Britain and France (but not Germany) use a stanchion between the wheelchair position and the aisle to prevent the wheelchair from moving sideways in turns. Studies on unrestrained wheelchairs in urban buses in both France (Dejeammes and Bonicel, 1993) and Germany (Kastern, 1991) have shown that the arrangement recommended by COST 322 prevents the wheelchair from moving or overturning during normal transit operations. Tests of simulated collisions show that the rearward-facing position is safe, provided the wheelchair is against the bulkhead rather than some distance from it because of luggage on the back of the wheelchair or because the wheels of the chair have encountered a seat pedestal.

Urban bus services have been opened to people in wheelchairs by the introduction of the low-floor bus with a simple ramp at one door and the ability of transportation services to safely carry a passenger in an unrestrained wheelchair. The ramp is helpful for many people who have walking difficulties, and the boarding time for wheelchairs is little longer than for other passengers. The driver does not need to leave his seat to attend to passengers in wheelchairs. Boarding times for passengers in wheelchairs are sufficiently short (usually less than 1 minute) that they can be carried in significant numbers without substantially delaying the bus.

Many cities are improving bus stops by building out the curb to prevent parking and to allow the bus to dock parallel to the curb (Institution of Highways and Transportation, 1999). This then allows the sidewalk at the stop to be built up to a height of 7 to 10 inches, allowing level or almost level boarding. Low-floor buses have allowed faster boarding and alighting (though only if ticketing is off bus), and ridership on low-floor services has increased (York and Balcombe, 1997).

In most European urban areas, almost all new buses are low floor. Many cities are also introducing low-floor trams. In 1996, low-floor buses accounted for between 75 and 85 percent of all new urban buses in Germany. Low-floor buses are also in service in Britain, France, the Netherlands, and Scandinavia.

Where the vehicles on a route have been replaced completely by low-floor buses, with no other changes to the service, ridership has increased. In Edinburgh, the Access Officer reports that in the 2 years after low-floor buses were put onto one service route in April 1997, ridership increased about 30 percent, with a particular increase among blind passengers. The parallel route, using traditional double-deck buses, lost ridership, but the total on the two routes increased about 2 percent.

The Transportation Research Laboratory in England monitored the introduction of low-floor buses in London and Tyneside, with no other changes to the service (York and Balcombe, 1997). The increase in ridership was modest—a few percentage points. Much of the increase came from people with baby carriages who had previously been unable to use the bus service. There was a small increase in the number of older passengers.

## Improvements to Pedestrian Access

All journeys involve an element of walking or assisted walking, and many local journeys

can be made wholly on foot or in a powered wheelchair. Pedestrian infrastructure that is easy to use is fundamental to independent mobility. This infrastructure includes paths and sidewalks, ramped curbs, protected street crossings, resting places, and access to buildings. Routes must be continuous, with resting places (seats or benches) at least every 330 feet and gradients or ramp slopes limited to 5 percent, if possible.

A variety of strategies can be used to make streets more pedestrian-friendly. These include sidewalks that are large enough, amenities for pedestrians, priority lanes for transit vehicles, and traffic-calming measures for automobiles. (See Project for Public Spaces, Inc., 1998, which includes case studies of transit-friendly streets in the United States and abroad.)

Most countries have standards or codes of practice for infrastructure. The British guidelines listed in *Reducing Mobility Handicaps* (1991), by the Institution of Highways and Transportation, have been found to work well. They include a checklist for auditing the accessibility of pedestrian infrastructure.

### *Pedestrian and Wheelchair Routes to Support Bus Services*

Pedestrian routes from residential areas to local centers or town centers are essential if older persons are to make local journeys on foot. In Britain, 35 percent of all journeys by people age 70 and older are on foot. For people of all ages, 80 percent of journeys of less than 1 mile are made on foot (DETR, 2000). The same network of pedestrian routes should serve bus stops to make the use of bus services easier.

Pedestrian routes need to be accessible. But they also need to be reasonably direct, monitored for security, well surfaced and drained, and lit. The requirements for pedestrian routes to bus stops and local centers are set out in several references from the United States and abroad (Project for Public Spaces, Inc., 1998; Institution of Highways and Transportation, 1999). It is not realistic to expect people to walk more than about 1 mile one way, and most walking trips are shorter than this. In Britain, the average one-way walk journey has been steady at 0.6 miles since 1975. In the United States, most transit patrons are found within ¼ mile of a bus stop or transit station.

Most European countries have national standards or guidelines on urban infrastructure that is accessible to elderly and disabled people. Many of these guidelines have been summarized by the Institution of Highways and Transportation (1991). This publication gives extensive advice on how to build and maintain an environment that is barrier free for the whole population. Information is available, for example, on curb cuts, stairs, and precautions to prevent people from walking into obstacles. The document includes a checklist for accessibility that has proved useful.

Guidelines also exist on making transport terminals available. The British Railways Board (1989) lists specific requirements for the design and execution of facilities for disabled passengers at British Rail passenger stations. Barham and colleagues (1994) provide design guidelines for public transport infrastructure with particular emphasis on bus stations and bus stops. Balog and colleagues (1992) have produced an accessibility handbook for transit

facilities that puts particular emphasis on the requirements of the ADA. As more accessible buses are introduced, either low floor or lift equipped, the accessibility of bus stops has proved to be a significant problem.

Ramped curbs began to be introduced in European countries in the early 1980s to make it possible for people in wheelchairs to use sidewalks to reach accessible buildings. In the United States, ramped curbs were introduced in 1970 in San Diego, California, when it was realized that inaccessible sidewalks were one of the barriers to the use of lift-equipped buses. In Britain, conflict between the requirement of people in wheelchairs for sidewalks without curbs and the requirement of people with impaired vision for curbs (to be warned of the edge of the sidewalk) led to the development of textured paving. Textured paving marks the edge of a sidewalk where there is no curb. Traffic signal controlled pedestrian crossings and junctions with pedestrian phases provide the pedestrian with an audible signal when the lights are in their favor. Since 1994, tests have been under way of pedestrian crossings with infrared detectors to extend the time for pedestrians if people are still on the crossing at the end of the normal pedestrian phase. This helps elderly and ambulatory disabled pedestrians, who often do not walk quickly enough to cross during the time allowed for pedestrians. The same equipment cancels the pedestrian phase if no one is waiting.

### *Independent Mobility*

People who can no longer drive to town centers, or choose not to drive, are increasingly using low-speed, powered wheelchairs, scooters, and golf-cart-like vehicles for local journeys. Under the right conditions, they can work as feeders to public transportation. A small survey of users of these vehicles (Mitchell and Smith, 1998) shows that in good weather 26 percent of users make journeys involving round trip distances of more than 5 miles. Suitable infrastructure is necessary because powered wheelchairs are not really compatible with road traffic, even if they are used on roads where there is no alternative. Most journeys are made on sidewalks, but, as numbers increase, it may be necessary to provide a dedicated lane or path so that these vehicles are separated from pedestrians.

## Door-to-Door Service

Ambulatory seniors with severe mobility limitations cannot be expected to ride fixed-route buses, no matter how accommodating the service. For these seniors, paratransit services are an important option. Most publicly funded paratransit service is provided on a “curb-to-curb” basis, that is, passengers are picked up at the curb in front of their residence and dropped off at the curb at their destination. For many paratransit passengers, this is sufficient. However, some passengers require an even greater level of accommodation. Door-to-door service provides extra assistance to elderly passengers: helping them get to the bus and helping them get from the bus to their final destination. This is especially important in areas with harsh climates and icy winters. Some transportation systems provide “door-through-door” service, which adds an extra level of assistance for very frail seniors. With door-through-door service, the passenger receives assistance with getting ready (e.g., putting on a coat, collecting a handbag, walking out the door and down the steps, and locking the door), getting to the bus, getting off the bus, and getting

inside at the destination. The passenger is then "handed off" to someone at the destination.

These higher levels of paratransit service come with additional costs. Trips take longer, drivers need extra training with assisting passengers, and fewer trips can be provided over the course of a day. There are several excellent examples of how door-to-door paratransit service can be provided cost-effectively, some of which rely on automated or semi-automated dispatching systems to assist in scheduling.

The scheduling efficiency provided by the automated or semi-automated dispatching systems and the planning capabilities offered by features such as demographic tracking systems have been able to increase productivity without additional vehicles or personnel. Examples of high-quality paratransit services are discussed in subsequent chapters.

# FINANCIAL LIMITATIONS

If the traveler cannot pay the required fare, financial limitations can be just as limiting on travel as any physical limitations. The majority of seniors now and in the near future will probably not find that financial limitations are their primary obstacle or deterrent to transit use. Still, for those with fixed incomes or serious income limitations, cost can be an overwhelming barrier to travel. Several options are available to assist seniors with the cost of transportation services.

## Co-Payment Sources

Various sources, often referred to as co-payment sources, can be used to help pay passenger fares and other expenses. Federal funds provide significant revenues for local transit operations, and state and local tax revenues are also significant. Human service agencies often pay substantial portions of the fares of their clients, up to and including 100 percent of the cost. Corporate sponsorships and third-party payments are also possible but less frequent. With SmartCard technologies, which allow a fare to be recorded on a fare card, a business like a grocery store can provide a customer incentive by underwriting some of the cost of customers' trips to their store. A shopping mall or medical facility can provide a similar incentive.

### *Pennsylvania's Transit Programs for Seniors*

Pennsylvania pays for two special transportation programs for older citizens: the Free Transit Program for Senior Citizens and the Shared-Ride Program for Senior Citizens. Established in 1973 and 1980, respectively, both programs are funded through the Pennsylvania State Lottery. Together, these two programs fund transportation for older persons in all of Pennsylvania's 67 counties with public transportation systems. The lottery-funded programs involve substantial coordination among the state Department of Transportation, the state Department of Aging, seven other state agencies, local governments, and local public transportation operators. Other state agencies work closely with the Pennsylvania Department of Transportation (PennDOT) and local public transit providers to minimize duplication and overlap and to maximize cost-effectiveness of specialized transportation services (Burkhardt, 2000).

Through the Free Transit Program for Senior Citizens, people 65 years of age and older can ride free on local fixed-route bus, trolley,

commuter rail, and subway elevated systems during off-peak hours on weekdays and all day on weekends and designated holidays. To participate in this program, an older person merely shows identification to the transit operator when boarding. Valid forms of identification include a Commonwealth Senior Citizen ID card (provided by PennDOT and issued locally by participating transportation providers), Medicaid card, or Railroad Retirement Card. There are no trip purpose restrictions.

The Shared-Ride Program is a paratransit program. People age 65 and older must register with the Shared-Ride transit operator to use the Shared-Ride Program. Trips must be reserved at least 1 day in advance. Anyone using this service must be willing to share the vehicle with other passengers. Door-to-door service is usually available. Riders generally pay 15 percent of the fares charged to the general public. Some local Area Agencies on Aging will pay the rider's portion of the paratransit fare. There are no restrictions on trip purpose or time of day of travel during regular system service hours.

Older riders have reported substantial economic benefits; in addition to saving the costs of the fares, more than one-half of the older riders in a 1977 survey (Millar et al., 1977) reported being more able to shop around and take advantage of lower-priced goods and services. The Free Transit Program increased mobility and decreased dependency on friends and families for rides. Human service programs with elderly clients have also benefited from lower transportation costs (Burkhardt, 2000).

### *Governmental Subsidies in Local Areas*

A number of localities provide transit services for no fare. Older persons are often seen as a group that receives substantial benefits from such a program. Communities in the state of Washington have the ability to use tax revenues to support programs such as transit. Several are offering what has been termed "pre-paid transit service" under the concept that payment has been made through tax dollars, and the service is available without paying a fare. Logan, Utah, instituted a free transportation service in the late 1990s, which is now recording 40 passengers per hour, a relatively high utilization rate for a community of this size (a population of 43,928 in 2001).

## LACK OF TRAVEL INFORMATION

As the physical accessibility of vehicles and infrastructure has improved and the financial resources available to elderly and disabled people have increased, it has been better appreciated that there are barriers to accessibility other than physical and financial ones. Elderly and disabled people may not know of the existence of services that they could use; they may not know how to use services, even if they know that they exist. Elderly and disabled people may be reluctant to delay other passengers by the time they take to board or alight, embarrassed to reveal their inexperience, or afraid of not being able to manage the journey. There is a growing trend in Europe to provide much better information about all aspects of transport to elderly and disabled people and their friends, families, and caregivers. This includes information on the existence of services, contacts with organizations that can help with journey planning, and real-time information at terminals, at bus stops, and in vehicles, to help select the correct vehicle and to monitor progress. Operators

are taking care to display information in formats that are easy to read and understand.

## General Strategies

External signs on buses have been improved to make them easier to read and to assist in identifying the service desired. Bus operators in a number of Scandinavian towns have equipped buses with internal signs that display the name of the next stop and whether a stop has already been requested. These are normally associated with public address announcements of the next stop and often with name signs at bus stops that can be read from inside the bus. Real-time information on the waiting time until the next train and its destination has been shown on dot matrix displays on the London Underground for some years. Similar displays at bus stops are beginning to appear in many European cities and some U.S. communities. These systems help all travelers but are likely to be particularly helpful for people who are uncertain of the system or require frequent reassurance. In Southampton, England, people with visual impairments can use a proximity transponder to make a display at a bus stop announce the information audibly. There is a great deal still to do in applying the technology available, but already the potential benefits of that technology can be seen.

Several case study systems have experienced success with marketing efforts designed to attract seniors to transit. Comments from focus groups and transit system interviews frequently mention that elderly clients were pleasantly surprised to learn about a particular service or destination. The most common marketing tactic was the dissemination of transit materials (such as maps and schedules) at senior centers, assisted living facilities, and departments of motor vehicles. Altoona Metro Transportation (AMTRAN) in Pennsylvania has some of the most advanced and successful marketing techniques. In addition to the above-mentioned tactics, AMTRAN also places radio advertisements on senior radio stations (Big Band, Oldies). AMTRAN advertises in the publications distributed by Blair Senior Centers, which have a circulation in excess of 25,000. AMTRAN has also had success targeting seniors with advertisements in the Penn State alumni publications.

Travel training efforts (discussed in the previous chapter as a means of promoting rider comfort with transit services) are another outstanding way of getting the word out to seniors. Travel training programs are also an excellent way of promoting "word of mouth" marketing.

## Marketing Techniques

Transit marketing strategies abound, but it is important to sort out those that have special appeal to older transit users. Some of these are the following:

- **Pay stub or utility bill insertions** to reach massive populations in a geographic region.
- **Regular announcements by corporate email** to reach working caregiver populations so adult children are equipped to engage in discussion on transportation options.
- **Visibility events** for both older adults and adult children in relevant locations for each population (workplaces, senior housing, medical facilities, meal sites, malls, etc.).
- **Creative use of community leaders** the Independent Transportation Network (ITN) in Portland, Maine, uses community leaders as volunteer drivers

with whom seniors could secure a ride (see Chapter 12).

- **Public Service Announcements** that target particular media outlets favored by older persons and their adult children.

A long list of transit-oriented marketing strategies is available in *A Handbook of Proven Marketing Strategies for Public Transit* (Texas Transportation Institute et. al., 1999). (See also OECD, 2001, Chapter 9.)

## Applied Marketing Techniques in Great Falls, Montana

Great Falls Transit District (GFTD) provides an interesting example of a multifaceted marketing program that pays special attention to older riders. The system directly operates fixed-route and demand-response service (via contract with Diamond Cab) within the transit district service boundaries. Service is provided 5:15 a.m. to 7:15 p.m., Monday through Friday, and 9:00 a.m. to 6:30 p.m. on Saturdays.

The state of Montana has the fourth fastest-growing senior population in the United States, with an annual 23 percent increase in the state's elderly population. In response to this dramatic increase, the state legislature recently passed a bill requiring the state Department of Health and Human Services to report annually on the aging population. Cascade County, which contains the city of Great Falls and GFTD, has a population of more than 78,000 (according to 1999 Census estimates) of which 14 percent are over the age of 65.

Elderly persons do not automatically qualify to ride the GFTD paratransit system. They must fill out an application, have a doctor verify a disability, and complete an interview with GFTD staff. Because of these restrictions, many seniors ride the regular fixed-route service. GFTD officials estimate that between 11 percent and 15 percent of their fixed-route riders are over the age of 65. Because the maximum length of GFTD fixed routes is only 30 minutes, it may actually be easier for some older persons to ride the bus, rather than use the dial-a-ride service.

In order to assist older persons with riding fixed-route service, GFTD has several programs in place. GFTD officials will bring a bus to senior centers and retirement facilities and demonstrate how easy it is for them to ride. They will take large groups of seniors on trips with a group leader, helping them to overcome any fears or apprehensions. They have also made their route maps easier to understand, added an indoor transfer station, and made improvements in their bus shelters. In addition, drivers have received extra training in assisting elderly passengers. All of this effort adds up to a significant reduction in cost for GFTD, as every elderly fixed-route passenger saves the system $15 in paratransit costs. With an estimated annual elderly ridership of more than 50,000, the annual cost reduction amounts to well over $500,000.

GFTD's involvement in their community has also been a strong component of their marketing program. They have worked closely with local groups and officials on various issues and projects. Their proactive approach has helped GFTD integrate themselves into every aspect of community transportation. (See Chapter 11, "Improving Community Relations," for a more detailed discussion of GFTD's community involvement.)

The system's general manager reported that a greater level of collaboration between GFTD and the local Area Agencies on Aging will be essential in providing the best possible service to older persons in the service area in the future. He felt that the Area Agencies on Aging were under-utilizing their vehicles in some cases and that these vehicles could be used in other areas. The general manager wants to move to a fleet of smaller vehicles, such as lift-equipped minivans, and extend service hours into the evening. This would allow seniors to go out to movies and attend symphony concerts in the park. These improvements and expansions will require additional funding. The general manager feels that most seniors have substantial amounts of disposable income because of savings and that the key to funding expanded senior services is tapping into those funds. The main difficulty will be in handling the disparity in treatment between the elderly "haves" and "have nots." A key question will be how to subsidize the trips of the 35 percent of seniors who have difficulty paying for these trips.

# CONCLUSION

Recognizing and meeting the needs and limitations of older travelers will be an important strategy in addressing the travel needs of older persons in the future. The key accessibility issues are physical, financial, and other limitations. Major ways of addressing physical accessibility issues are improving transit vehicles, improving pedestrian travel, and offering door-to-door services. Co-payment options will probably become more widely used to meet financial limitations; governmental subsidies may continue to be used but will probably become more targeted to individuals with specific needs, rather than older persons as a group. Enhanced marketing efforts that target senior citizens will be required to introduce those who have never ridden public transit services to the benefits of this mode of travel.

# 11

# MAKING FUNDAMENTAL IMPROVEMENTS TO PUBLIC TRANSPORTATION

## INTRODUCTION

To better meet the future travel needs of older persons, public transit improvements will be needed at the macro or systems level. These improvements address "big picture" issues such as system design, service philosophy, and public relations. Improvements in this category also deal with community issues that affect the environment in which a given system operates and a system's ability to provide services to the elderly. These strategies involve fundraising, management, coalition building, and public relations. Strategies in this category deal with issues of politics and practicality as well as issues of perception and customer service. Once again, a wide range of potential transit improvements related to systems issues was discussed in transportation industry focus groups and interviews. These discussions created a long list of system challenges and potential improvements, which are shown in Table 25. Potential improvements that may have the largest impacts are discussed in more depth.

## EXPANDING SERVICES

There are many system and service improvements that could better serve the travel needs of older persons. By basing these improvements on universal design concepts, transit providers could ensure that the vast majority of these improvements would serve other transit users as well as older riders. Key strategies for improving system and service characteristics include

## Table 25

## Potential Improvements at the Transit System Level

| *Challenges* | *Potential Improvements* |
|---|---|
| ***Service Expansions*** | |
| Lack of sufficient service | Increase service levels during peak hours, evening hours, and on weekends (see Chapter 9) |
| Fixed-route service not sufficiently frequent | Increase level of service by reducing headways and expanding service coverage; offer paratransit services |
| Service not sufficiently flexible to permit trip chaining and other desired activities | Offer paratransit services; offer supplemental transportation services for certain riders or certain types of trips |
| Lack of sufficient paratransit service for transit needs of older persons | Expand eligibility to include all older persons (age 65 and older) rather than just those who meet ADA-eligibility criteria |
| Reluctance to consider changes in the structure and delivery of transportation services | Improve customer-centered service planning based on thorough market research regarding customer needs and interests; adopt mobility-management techniques; shift focus to customers, their needs, and a family of services to meet those needs; make public participation in service planning more meaningful |
| Lack of broad view and imagination in designing and delivering services | Training and education workshops, conferences, seminars to encourage out-of-the-box thinking and action; dissemination of information on best practices; additional recognition for high-quality services |
| ***Funding for Transit Services*** | |
| Lack of local funding | Enlist support of older community to enact legislation allowing long-term dedicated funding sources for transit such as lottery/gambling funds, piggyback sales and utility taxes, and millages |
| Lack of state-level funding | Document the development of creative and effective state-level funding programs and enabling legislation that have created taxing authority at the local level, reporting how programs may have developed in the various states |
| Lack of federal-level funding | Integrate market-focused thinking and issues into the discussion of authorization programs; work locally to pool federal resources across agencies and programs; integrate services funded by a range of program or agency sources; focus on customer and market priorities first, then a search for funding partners and programs |
| ***Costs, Resources, and Priorities*** | |
| Costs of individualized services are high | Utilize volunteers as drivers and other staff to reduce costs of providing services; work to ensure that the combination of fares and funding sources fully recovers service costs |
| Cost of paratransit relative to fixed-route service | Broaden eligibility for paratransit services from older persons and persons with disabilities to include the general public; charge general public fares that cover greater proportions of service costs |
| Lack of funding, especially dedicated funding, to support expansion of services; need to compete with other local programs for funding | Develop strong, continuing relationships and partnerships with local officials who may be in a position to support funding requests; develop local funding partnerships through contractual relationships; referenda to support dedicated tax revenues for transit |
| Low pay levels for drivers | Increase wage rates for drivers, especially paratransit, reduce wage differential between paratransit and other drivers; provide parity in fringe benefits |
| Developing and maintaining a core of volunteer drivers | Outreach and education programs conducted by volunteer drivers; create incentive and recognition programs |
| ***Collaboration and Partnerships*** | |
| Local agencies need to come together and jointly work toward common solutions | Develop ongoing local structures to facilitate and ensure continuing communication and coordination on improving transportation services, recognizing that solutions may take a long time and come in small incremental steps and unexpected ways and that coordinated and collaborative action is necessary; encourage a search for opportunities that problems may bring to the table |
| Limited perspectives and action | Training seminars, workshops, conferences on strategic planning and creative problem-solving; peer-to-peer networks; close focus on goals and objectives; who are the customers and what are their needs |
| Improved understanding by local and state officials | Implement long-term education and outreach programs; develop informal channels of communication; include non-industry partners in the formal and informal outreach and education |

**Table 25**

**Potential Improvements at the Transit System Level (continued)**

| *Challenges* | *Potential Improvements* |
|---|---|
| ***Quality Control Measures*** | |
| Lack of attention to quality of services as viewed by the riders | Rider and non-rider surveys; "mystery riders"; focus groups; driver sensitivity training for needs of older passengers; driver training in supporting and interacting with older passengers; adopt "put customers first" goals |
| Involvement of drivers and other staff in improvement programs | Adopt Total Quality Management principles; reward and publicize drivers and information staff for exceptional service to older riders |
| Enhance information and information services | Revise/rewrite schedules and other information brochures; add to marketing budgets; replace automated call systems with live personnel; monitor information calls; follow-up surveys with first-time callers |
| ***Community Involvement*** | |
| Lack of general community support for transit | Raise transit profile by marketing and advertising campaigns, special promotions (e.g., "Free Fare Day"); conduct seminars/ presentations at high schools, civic groups, and senior centers; conduct community surveys to determine needs and desires |
| Lack of local political support for transit | Conduct tours and open houses for local political leaders; use products from transportation organizations to demonstrate economic benefits of transit services |
| Lack of involvement in planning decisions locating major activities and travel nodes | Develop relationships with local planning staff and major developers to ensure early participation in location decisions |

- Increasing the availability of service by increasing service levels during peak hours, evening hours, and on weekends (see Chapter 9);
- Increasing the level and types of service available;
- Expanding trip-making flexibility to permit trip chaining and other desired activities; and
- Expanding the level and availability of paratransit service for older persons.

## Increasing the Levels and Types of Services Available

Capital Metro Transportation Authority in Austin, Texas, has implemented an innovative program to serve elderly passengers in the evenings and on weekends. The EasyRide program is similar to a charter service and is provided free of charge. The program requires a group of 20 elderly persons over the age of 65 and 48-hour advance notice. Seniors can travel Monday through Friday, 10 a.m. to 2 p.m., and 7 p.m. to midnight. They can also travel on Saturdays from 6 a.m. to midnight and on Sundays from 8 a.m. to 8 p.m. Seniors can travel to any destination in the Capital Metro, 505-square-mile service area, and they ride on air-conditioned, lift-equipped, kneeling buses. Popular destinations have included shopping trips, picnics, and sightseeing adventures.

## Expanding Flexibility to Permit Trip Chaining

As discussed in Chapter 9, in the section titled "Increased Trip Chaining," participants in the focus groups for older persons want to be able to make multipurpose trips—what is known as trip chaining. Although most public transportation is not designed to

facilitate this kind of trip-making, there are some transit systems that have been able to accommodate these trips. Two of these systems, Shepherd's Center Escort Transportation Service and the West Austin Caregivers, have been discussed previously (see "Increased Trip Chaining" in Chapter 9). Another example of such a system is Mountain Empire Older Citizens (MEOC) in Virginia. MEOC provides one-on-one service to clients who are too fragile to endure a 3- or 4-hour bus ride. The system will take the passenger to the doctor, wait, take them to the pharmacy, wait, and then finally take them home. In other cases, Mountain Empire will take seniors to the grocery store, wait, and then take them home. In extreme cases, Mountain Empire drivers will pick up a shopping list and a blank check from a client and do the client's shopping for them. The key component that allows a small, rural transportation system such as Mountain Empire to provide such a high level of service is their extensive evaluation process. Transportation officials work closely with case managers from various departments (Social Services, Health, and Aging, for example). These case managers are responsible for interviewing, examining, and evaluating every client with regard to transportation needs. Mountain Empire is able to provide one-on-one service only to those who *need* it, without having to provide it to those who simply *want* it.

# ADDRESSING FINANCIAL ISSUES

Public transportation systems face many issues in their attempts to better serve older persons and other potential rider groups. Transportation operators across the nation reported overwhelmingly that funding issues were their greatest problem. Existing resources are inadequate for meeting current demand, even though it is widely recognized that many transit demands remain unmet. At the same time, federal operating funds have remained fairly steady since 1988, meaning that there have been no major adjustments to keep pace with inflation or to address the requirements of the ADA. States and localities have attempted to keep pace with rising costs by increasing their transit funding. Fares have also increased at a higher rate than inflation in an effort to keep up with rising costs. The key financial issues are opposite sides of the same coin: how to obtain sufficient, reliable, long-term funding and how to provide services cost-effectively. Both warrant examination to achieve the objective of full cost recovery.

## Overview on Funding Sources

Financing public transportation services is a subject with an extensive literature. (For example, see Price Waterhouse, LLP, et al., 1998.) Although few public transit financing issues are unique to providing improved transit services for older persons, some transit financing techniques have the potential for greater returns in a real dollar sense.

Table 26 provides an overview of a large number of possible transit financing strategies. *TCRP Report 31: Funding Strategies for Public Transportation* (Price Waterhouse, LLP, et al., 1998) noted that partnerships with the private sector and transit system users had some of the largest budgetary impacts for transit providers. It should be noted that the political support of groups of older voters is often a key component of obtaining approval for dedicated taxes or other fees.

**Table 26**

**Successful Transit Financing Techniques in the United States**

| | |
|---|---|
| ***External Funding Sources*** | |
| Local | • Dedicated local taxes<br>• Transit impact fees |
| State and Federal | • Creative use of federal funds<br>• State infrastructure banks<br>• Revolving loan funds |
| ***Revenues Generated by Transit Agencies*** | |
| Capital expenditures | • Turnkey procurement<br>• Advance construction authority<br>• Cross border leasing<br>• Progress payments<br>• Public-private partnerships for fuel and bus purchases |
| Fare revenue enhancements | • Cashless fare payments<br>• Eco pass program<br>• Partnerships with the community |
| Creative use of transit assets | • Station concessions<br>• Advertising<br>• Leasing rights of way<br>• Joint development |

Source: Price Waterhouse, LLP, et al., 1998.

The details of these options are described in *TCRP Report 31* (Price Waterhouse, LLP, et al., 1998) and the Federal Transit Authority's *Financing Techniques for Public Transit* (2000).

## Dedicated Funding Sources for Transit

Many states and localities are using dedicated funding sources as a means of filling in the gaps left by reduced federal funding. These sources include piggyback taxes on sales, real property, and utilities; casino taxes; and dedicated lottery revenues. Long-term, dedicated funding sources provide stable and much-needed resources to transit systems, often providing more than half of the operating expenses. These dedicated sources can be divided into the following categories:

- Dedicated lottery/gambling funds,
- Piggyback sales/utility taxes, and
- Millages.

There are several examples of situations in which the involvement of senior citizens was a deciding factor in implementing dedicated funding sources that have allowed localities and states to provide or improve transit services for the elderly.

### *Dedicated Lottery/Gambling Funds*

State lotteries have become an important source of revenue for 38 states and the

District of Columbia. Normally, lottery revenues are added to a state's general fund, but in many cases the lottery proceeds are earmarked for purposes such as education, capital projects, and environmental improvements. As previously noted, the state of Pennsylvania directs all of its lottery proceeds toward providing assistance to its elderly population. Pennsylvania has the largest rural elderly population of any state.

Overall, there are more than 1.9 million elderly persons living within its borders. Pennsylvania uses lottery funds to provide prescription drug assistance and property tax rebate programs, along with a variety of mobility enhancements for the senior population. The first lottery-funded transportation program for seniors was the Free Transit Program, which began in 1973. (See "Pennsylvania's Transit Programs for Seniors" in Chapter 10 for more detail on the Free Transit Program.) Most of the fixed-route systems participating in the Free Transit Program are found in urban areas, but there are 21 rural fixed-route systems that also provide free service to older persons in 26 rural counties. For Fiscal Year 1999, the Free Transit Program received more than $45 million in funding from lottery revenues and provided 41.3 million free trips.

As previously discussed, the other important elderly transportation program funded by the Pennsylvania Lottery revenues is the Shared-Ride Program (see "Pennsylvania's Transit Programs for Seniors" in Chapter 10). The Shared-Ride Program began implementation in 1981 for the purpose of providing demand-responsive transportation for people living in rural areas. The legislation's intent was to enhance the mobility of rural Pennsylvanians for purposes such as health care, shopping, education, recreation, public service, and employment by encouraging the maintenance, development, improvement, and use of public transportation systems. Currently there are 61 Shared-Ride operators who serve all 67 counties in Pennsylvania. Senior citizens receive a substantial subsidy on Shared-Ride fares. As previously noted, persons over age 65 pay 15 percent of the posted fare on Shared-Ride trips with the other 85 percent paid by lottery funds. In some cases, the 15 percent is paid or reimbursed by Area Agencies on Aging or other third-party sponsors. For Fiscal Year 1999, the Shared-Ride Program received more than $56.8 million in lottery funding and provided more than 6.4 million trips to seniors.

Whereas Pennsylvania uses lottery revenues to help seniors, the state of New Jersey uses an 8-percent tax on gross revenues from Atlantic City casinos. A ballot amendment to the New Jersey Constitution created the Casino Revenue Fund in 1982. The Casino Revenue Fund is used to provide additional or expanded services and benefits to seniors or people with disabilities. In 1999, the Casino Revenue Fund collected $330 million, which was used to fund programs such as Lifeline Credit, Property Tax Reduction, Pharmaceutical Assistance to the Aged and Disabled (PAAD), Community and Residential Care, Home Delivered Meals, and Transportation Assistance. Transportation Assistance is provided under the Senior Citizens and Disabled Resident Transportation Act, which was passed in 1984. For the most recent fiscal year, Transportation Assistance received approximately 7.5 percent of the Casino Revenue Fund, which amounted to $23 million. Eighty-five percent of

this money is split between the 21 counties in New Jersey for the purpose of funding coordinated, countywide paratransit systems and feeder services. Between 8 and 10 percent is spent on improving the accessibility of New Jersey's Bus and Rail systems, and the remaining amount is spent on program administration. In 1997, the Casino Revenue Fund paid for 1,794,669 of the 3,805,176 paratransit trips taken statewide, which amounts to 47 percent. The Casino Revenue Fund also paid for 406 of the 837 paratransit vehicles in service statewide.

### *Piggyback Sales/Utility Taxes*

Piggyback taxes are becoming a popular way for cash-strapped transit systems to secure a consistent and plentiful source of funding. These taxes, so named because they add a small percentage on top of existing taxes or "piggyback" on them, are a nearly invisible imposition on the taxpayer but provide massive financial support for the beneficiaries. When permitted by law, piggyback taxes can be added to almost any tax but are most commonly added to sales and utility taxes.

Washoe County, Nevada, provides an excellent example of how a piggyback tax can be used to enhance transit options for older persons. The Citifare transit system serves the cities of Reno and Sparks, along with the remainder of Washoe County, under the direction of the Regional Transportation Commission (RTC). Citifare, which was established in 1978, began to experience severe financial problems in 1982. The revenue sources for the system—fares and subsidies from Reno, Sparks, and Washoe County—had proven inadequate to meet the increasing demand for services. Citifare's executive director determined that a sales tax piggyback would provide an excellent source of revenue and could also be used to match federal funds. The state of Nevada agreed to authorize the 0.25-percent piggyback tax, provided that the voters of Washoe County approved. In order to obtain voter approval, RTC officials prepared a ballot measure that promoted transit service for the general public and specifically targeted services for elderly and disabled passengers. Washoe County and RTC officials stated that the emphasis on elderly and disabled mobility was a key selling point for the ballot measure, which passed with 70-percent approval. The piggyback tax now provides approximately two-thirds of the RTC funding, with more than $10 million received from the piggyback tax in Fiscal Year 1997. The piggyback tax has also allowed the system to grow significantly, with its fleet increasing from 5 vehicles to 64 buses since its inception.

Similar piggyback sales taxes have been passed to support transit systems in Fort Worth, Texas, and Atlanta, Georgia. In Fort Worth, transit and local business officials formed a coalition and hired a professional political consultant to assist with passing a piggyback tax ballot initiative. Voters in the Dallas-Fort Worth area had defeated a 1-percent piggyback tax proposal in 1980, which would have financed transit improvements and a light rail connector between the two cities. The 1983, 0.25-percent piggyback tax proposal was far less ambitious; there was no mention of light rail, and the consultant wisely decided on a low-key promotional campaign. Rather than using high-profile advertisements and marketing (which can sometimes stir up as much opposition as

support), the consultant utilized a telephone campaign, which was highly targeted at key demographics and communities. The piggyback tax passed in 1983, and it has allowed Fort Worth's transit operator, the T, to provide a much higher level of service than previously possible. Tax revenues provide the T with $25 million of its $42 million budget, which helps to offset the cost of the more than 260,000 paratransit trips provided by the system.

In Atlanta, a 1-percent sales tax provides more than one-half of the $240 million budget of the Metropolitan Atlanta Regional Transportation Authority (MARTA) system, which provides bus, heavy rail, and demand-responsive service. The sales tax was approved by each locality in the MARTA service area and financed the planning, construction, and operation of the system. Unlike the Fort Worth effort, local businesses and elected officials organized a strategy of high-profile outreach efforts. These included telephone, direct mail, and television campaigns, and extensive press coverage. Federal operating assistance to MARTA has declined substantially in recent years (dropping a substantial 55 percent between 1994 and 1996), which has forced MARTA to become more creative in leveraging their existing resources and applying for matching funds.

Dedicated revenue sources, such as special taxes, usually have the distinct advantage of reliability over many years. Long-term, earmarked funding frees up the transit operator to focus resources on long-range planning. For example, Ann Arbor Transit has established funding built into the property tax so they do not have to go back to the voters again and again for money. As a result, Ann Arbor Transit can afford to buy equipment, including tires, that will last a long time, with a lower life-cycle cost (even if there is a higher up-front cost). In contrast, the use of millages (see next section) typically requires going to great lengths to get the millage renewed every time it comes up. The SMART system in the Greater Detroit area depends on millage funding and, therefore, does not have the luxury of long-term investments. Consequently, SMART must buy cheaper tires that wear out sooner and have a higher life-cycle cost.

In Portage County, Ohio, the Portage Area Regional Transportation Authority (PARTA), the public transportation system in the county, sought voter approval in the fall of 2001 for a ¼-percent sales tax dedicated for transit services. On election day, Portage County voters approved the sales tax by a margin of 55 percent in favor and 45 percent against. The tax will generate $2 million annually to support expanded services for the general public and older adults.

PARTA provides fixed-route and door-to-door paratransit services to the general public. PARTA's comprehensive services were initiated in the fall of 1993 through a partnership of local communities, county commissioners, the Ohio Department of Transportation, the Federal Transit Administration, and a transportation demonstration project funded by the U.S. Administration on Aging (AoA). Through the transportation demonstration project, PARTA worked collaboratively with local communities and agencies, including agencies providing services to older adults, to implement new transportation services throughout the county. Services expanded from limited rural transportation services in a small region of the county in early 1993 to countywide urban and rural services in

1994. By 1996, PARTA was providing transportation services to 72,000 passengers annually with a fleet of 18 vehicles and an operating budget of $725,000. The AoA project demonstrated that transportation services for older persons could be significantly improved through the development of better public transportation services for the general public.

Development of new public transportation services, sensitive to the needs of customers, has improved the mobility and independence of older persons significantly. Transportation services for the general public and older adults will expand and improve in 2002 and beyond.

### *Millages*

Millage taxes have traditionally been a common source of dedicated funding for public transit, but they often need voter re-approval every few years. A "mill" is $1 per $1,000 of assessed value, and the "millage" is the number of mills charged to a property owner. Technically speaking, real property taxes are a type of millage, but the term "millage" in common usage refers to a special tax dedicated to a single purpose. Millages are usually dedicated for a purpose such as school construction, water and sewer construction, mosquito control, or public transportation.

The typical need to reauthorize millage levies through repeated voter referenda can lead to uncertainties about long-term funding possibilities. In the Greater Detroit area, the regional transportation agency, SMART, feels that they have to fight the same battles every time the millage comes up for renewal. For example, if a county that supports millage levies in one millage referendum decides not to support regional transportation in the next election, this shift in support can create major upheavals in the regional transportation system. Uncertainties in the millage renewal process also create uncertainties for people who depend on public transportation to get to their jobs and for the employers who depend on public transportation to bring their workers to work.

Ingham County, Michigan, contains the cities of Lansing, East Lansing, and Meridian. The Capital Area Transit Authority (CATA), a large fixed-route transit system, serves these urbanized areas. The outlying areas of Ingham County had no transit service until the late 1970s, when a federal grant provided for the purchase of demand-responsive service from CATA. The countywide demand-responsive service, known as Spec-Tran, provided enhanced mobility for elderly and handicapped persons, especially those in rural areas. By 1987, the federal grant money had expired, and Ingham County had no way of paying for service to outlying areas. In order to continue the Spec-Tran service, Ingham County proposed a millage to raise the necessary funds. The millage was put on the ballot in 1987 and has been renewed three times, each time receiving more than 60-percent approval from the voters. Ingham County officials stated that there was no special effort to promote or publicize the millage issue and that the majority of voters felt that providing service to elderly and handicapped persons was a good idea. Service in Ingham County has expanded in recent years, growing from 11 vehicles in 1994 to 19 vehicles in 2001. In addition to the Spec-Tran service, there is also CATA Rural Service. CATA Rural Service provides fixed-route feeder service from rural areas, linking passengers with CATA routes in urbanized areas, mainly for the

purpose of employment transportation. For the most recent fiscal year, the millage raised more than $2.3 million, most of which ($1.9 million) was spent on Spec-Tran service. Approximately $400,000 is spent on the CATA Rural Service. The remaining funds, approximately $70,000, are spent on vans for the county department.

## Fare Revenues

Who pays and how much they pay is a key issue for transportation services. Older persons are often highly concerned with prices of goods and services as well as with the procedures through which fares are (or are not) collected. A large variety of payment options are available, some of which are more attractive to seniors than others. This section looks at concepts related to passenger fares and at transaction types and media. Co-payment sources are discussed in Chapter 10.

### *Fare Payment Concepts*

Passenger fares typically cover only a small fraction of a transit system's total costs. A serious challenge for the transit industry will be finding ways of improving services while collecting revenues that cover the costs of improved services. Public education will be one potential revenue enhancement tool. If the public begins to understand that the actual cost per automobile trip usually ranges from $5 to $10 (or more), and transit operators can design some attractive services that could command fares of that level, then transit's financial capability for serving seniors and others will improve.

Charging less for greater periods of advance notice appeals to bargain hunters and helps maximize the trip-planning time of the organization. Charging a higher rate for trips requested with shorter notice lets the consumer know that on-demand service does exist for those willing to pay for it. It can be difficult to provide short-notice service if an organization is running close to full capacity.

Many nonprofit transportation providers struggle with the idea of charging fares at all. As with public transit providers, the fares typically charged by nonprofits often do not reflect the real cost of the service.

### *Transaction Types and Media*

Cash payment policies for transit fares usually require that the rider have cash to pay the fare upon boarding the vehicle. In most cases these days, exact fares are required, which creates the additional requirement that the rider know in advance the amount of the fare or carry change with them.

### *Alternatives to Cash Payments*

Debit cards, those that are "low-tech" and smart cards, provide the capacity for cashless transactions. Older passengers find that paying a cash fare as they enter a bus adds stress to an activity that is already stressful because of the need to move quickly. There are many ways to avoid paying cash while boarding. One is off-bus ticketing with a ticket-canceling device inside the bus. This can cause problems at peak times because older passengers do not like having to push through crowds to the ticket-canceling device. Another way to avoid paying cash while boarding is the use of period ticket cards or free travel cards for older passengers, but these have implications for the passenger paying in advance or the operator foregoing revenue. Another solution that is coming into use

is a contactless smart card. This is a card with a microchip for data storage that can be charged with money. When it is passed near a reader at the bus entrance, the fare is deducted. Contactless cards can be read while they are still in a wallet, purse, or handbag, minimizing the effort required by the passenger. Contactless fare payment cards have been introduced in Leeds, England, but it is too early to report on the benefits they provide for older passengers.

**Prepaid fare cards** can be purchased by people other than the rider. Adult children can purchase them as gift certificates to give to their parents, and human service agencies can provide them to their clients. Any individuals or organizations wishing to assist or subsidize the travel of others can purchase prepaid fare cards. Smaller scale transit programs may find the technology for smart cards too costly for their operations.

**Transportation accounts** give older consumers a prepayment option so that they do not have to carry cash, make change, and so forth. The transportation organization tracks debits and transfers into the account.

**Vehicle donations into transportation accounts** allow older adults to recoup the value of potentially underused resources and apply them toward their future transportation needs via a transportation account.

## Controlling Costs by Using Volunteer Drivers or Aides

Using volunteers to deliver service can expand service capability while reducing costs, both in terms of staff and vehicles. Cost savings could then be passed on to consumers. Careful training of volunteers is required so that they develop an appropriate customer service mindset. Volunteers may be difficult to recruit in times of low unemployment, as the United States has recently experienced. As volunteers are often older persons, issues of regular and sensitive skills tests may become more important. Creative risk/liability management may be necessary when initiating volunteer services; otherwise, organizations may be fearful about utilizing volunteers to provide transportation, and individuals may be fearful about potential insurance liability.

### *Portland, Oregon*

The cost of specialized transportation services is an element of keen interest for nearly all transportation providers. The use of volunteer drivers can be an excellent cost-saving measure if properly executed. Ride Connection in Portland, Oregon, provides an excellent example of how to implement this type of volunteer program.

A local nonprofit agency, Ride Connection (formerly Volunteer Transportation, Inc., or VTI), has developed a volunteer driver capability with 30 provider agencies (such as the American Red Cross) and more than 400 volunteer drivers. The volunteer transportation service concept resulted from a citizen review of transportation services for older persons completed in 1984. The citizen review concluded that a volunteer transportation service capability could significantly improve transportation services for older persons.

The local public transit system, Tri-Met, has entered into contracts with Ride Connection for delivery of a portion of its ADA-complementary paratransit service and additional services for older persons for a number of years. These contracts have enabled Tri-Met to expand its paratransit

service cost-effectively to fill in gaps in the service area beyond the ADA ¾-mile limits and to extend service to frail older adults who do not meet strict ADA-eligibility criteria. These contracts have been extremely cost-effective for Tri-Met. In 1998, VTI provided 22 percent of the trips that Tri-Met carried on its paratransit service but accounted for only 5 percent of the total cost of Tri-Met's paratransit service. In 1999, Ride Connection expected to provide 189,000 one-way trips at a contract cost of $600,000, a cost per passenger trip of $3.17.

The contract with Ride Connection has provided Tri-Met with a way to offer door-to-door transportation service to those customers who are unable to independently get to and from the curb to board Tri-Met's paratransit vehicles.

### *The Transportation Reimbursement and Information Project (TRIP) in Riverside County, California*

**Overview.** TRIP provides funds to transport persons who live in areas of Riverside County where no transit service exists or who are too frail to use other transportation. TRIP reimburses volunteers who provide trips to eligible persons. The use of volunteers allows service to be provided at a small fraction of what trips would cost if they were provided using regular transit or taxi services.

Riverside County is located in Southern California about 60 miles west of Los Angeles. Although the county includes several large cities, much of the 7,200 square miles that make up Riverside County consists of sparsely populated rural areas. For this reason, the average one-way trip provided by TRIP is 22.6 miles. Nearly a third of the county's 1.5 million residents live in unincorporated areas, and almost 13 percent are 65 years of age or older.

TRIP is one of the programs of the nonprofit organization called Partnership to Preserve Independent Living for Seniors and Persons with Disabilities. Rather than being considered a transportation program, TRIP is considered to be a social assistance education and counseling program with an escort and transportation component, only one part of a much larger network aimed at keeping seniors healthy and independent. Other social service agencies benefit not only from TRIP's transportation services but also from the counseling and support TRIP staff provide to their clients, which may help defer or prevent costs of health care and institutionalization.

Potential TRIP program participants are screened by the Area Agency on Aging's Senior HelpLink Information and Referral service. This screening determines eligibility by finding out whether the caller is unable to drive, needs assistance getting in and out of a vehicle, or has no family members to provide a ride. Potentially eligible callers are then sent an application, which is subsequently reviewed by an eligibility review committee. About one-third of the applicants are denied eligibility because the committee determines that the individual can use other transportation options, such as Dial-a-Ride. Those denied service are counseled on community resources available for specific problems and given information on other transportation options. TRIP is considered a service of last resort.

**Operations.** TRIP is not advertised. Instead, potential program participants are referred to TRIP by its 130 nonprofit and governmental partners. These include the Department of Social Services, the Office on Aging, visiting nurses, the Multipurpose Senior Services

Program, and Care Teams composed of the District Attorney's office, police, licensing agencies, adult day care programs, and the Better Business Bureau.

The philosophy behind TRIP is that people must take responsibility for the outcomes in their lives. Therefore, riders are asked to recruit their own drivers. TRIP staff members coach riders in how to approach friends and neighbors. Staff members assure riders that they are not asking for charity because they can reimburse the driver. Finding a driver encourages people to get to know their neighbors and reduces feelings of dependency and isolation.

TRIP checks the driving record of volunteer drivers through the California Department of Motor Vehicles (DMV). Drivers can have no violations in the past 3 years. Out-of-state drivers are turned down until they register with the DMV. Drivers must also have automobile insurance. TRIP then adds the driver to its own liability policy. Because drivers often help frail or disabled riders out of their houses and into the vehicles, TRIP's liability insurance also covers falls. In addition, the riders must sign a waiver, releasing TRIP from liability.

Although 85 percent of TRIP clients are successful in recruiting a driver, TRIP staff have begun a Volunteer Driver Corps to help the remaining 15 percent. The concept is to partner with existing organizations to recruit reserve drivers from within those organizations. When an organization has developed a pool of at least six reserve drivers, TRIP performs a DMV check, adds them to its insurance, gives them appropriate identification, and refers riders to the organization as needed. TRIP's executive director has targeted 22 organizations for the Volunteer Driver Corps. Besides getting free publicity, partner organizations will be included in TRIP's grant proposals. Although the program has just begun, three organizations have already signed up.

**Program Results.** In Fiscal Year 2000–01, TRIP's annual transportation expenses were $350,157. With this budget, TRIP served 537 people by providing 48,350 one-way trips at a cost of $7.24 a trip. These trips were provided by more than 1,000 volunteer drivers, reimbursed at a rate of 28 cents a mile for use of their personal vehicles.

If the public transportation providers were to take over the TRIP program with paid drivers and publicly owned vehicles, costs would be at least five times higher. In 1997–98, four demand-responsive programs in Riverside County, operated by various cities, had an average operating cost of $1.72 per mile. This cost, multiplied by the average 22.6 miles per trip for TRIP clients in 2000–01, comes out to a cost of $38.87 per trip if the service were provided by one of the city programs. Instead, TRIP's cost per trip was $7.24. This is a savings to the operators and the public of over $1.5 million (calculated as the difference between 48,350 annual trips times $38.87 per trip versus the same number of trips times $7.24 per trip).

**Characteristics of Trips and Riders.** The constituency of TRIP is considered "at risk." Eighty-five percent of the clients are in the program for no more than 3 years. Because one of the funding sources of TRIP, the Older Americans Act, prohibits income qualifications, eligible riders do not have to be low income, although most are. Of TRIP's riders,

- 70 percent are female;
- 70 percent are 70 years or above;
- 27 percent are 80 years or above; and

- 100 percent have one or more health-related problems.

Although the trips can go out of the county (even into the next state), the round trip must begin and end in Riverside County. Trips are generally restricted to 50 miles one way with a monthly maximum of 300 miles. Riders turn in their monthly odometer mileage and are paid 28 cents per mile, which they use to reimburse their drivers. A rider can have multiple drivers in a month for different trips.

Trip data from January 2002 (a fairly typical month) indicated that 29 percent of the trips were for medical purposes, 27 percent were for shopping, 14 percent were for dining out, 10 percent were for personal errands, and 8 other trip types accounted for the remainder.

In a 2001 survey of 149 riders, 94 percent reported that, before enrollment in TRIP, they had not been able to travel for medical purposes when necessary, and 93 percent said that they had been unable to get needed groceries. Before TRIP was available to them, 13 percent said they never left their residence, and 49 percent said they could travel only once or twice each month. After enrolling in TRIP, 96 percent reported an increase in their ability to travel. (Program data indicate that participants take an average of 7.5 trips per month.) Riders had a 100-percent satisfaction rate with the way they had been treated by TRIP staff.

**Relations with Public Transit Operators.** As a program of last resort, TRIP supplements rather than competes with public transportation. In fact, TRIP requires that its clients be unable to use public transportation before they are accepted into the TRIP program. TRIP also aids public transit marketing efforts by teaching seniors how to access public transportation. Therefore, TRIP expands the availability of transportation, increases the number of trips overall, and fills gaps in public transportation service.

Although public transit operators generally see their mission as transporting people, TRIP defines itself as a social assistance program with a transportation component. This difference in mission concepts recently caused a major local public transit provider and TRIP to sever their ties. The two agencies disagreed over program eligibility rules, service area, and types of trips.

**Conclusion.** Because of its restrictive eligibility requirements, TRIP cannot be considered a general public transportation service. However, for those seniors who do qualify for this program, it does provide high levels of customer satisfaction in meeting fundamental travel attributes such as availability, affordability, and accessibility. TRIP also offers more cost-effective services than would be available from other transportation providers. (For further information about TRIP, see Burkhardt et al., 2002; and Kerschner and Aizenberg, 2001.)

## *Voluntary Driver Programs in England*

The Beeline Community Cars service started in 1983 with just one car and is now run by 22 volunteer drivers using their own vehicles. The service has provided 46,000 passenger journeys. Two paid, part-time coordinators and one full-time volunteer use a computer program to make reservations and schedule drivers. To qualify for service, potential riders should have no access to either public or private transport. This service is used for visits to hospitals and clinics, surgeries, chiropodists, and dentists,

and also to drop off and pick up disabled people from stations or airports. Funding is provided through the Health Authority and social services, which pay part or all of some trips. The cost to qualified riders is 29p (about $0.41) a mile, but if the service is used for private use for which there is no subsidy, the cost to the user is 41p (about $0.58) a mile.

A number of public transport services in rural areas in England have been provided as cooperative activities between village communities and either local government or a bus operator. A typical arrangement would be for the bus company to work with an unpaid village organizer, who recruits volunteer drivers for training to professional standard by the bus company. The bus company provides and maintains a small bus and registers the service for operation. If the route requires subsidy, the bus company negotiates the contract for financial support with local government. This arrangement reduces the cost of operating a bus service by 50 to 60 percent and makes possible services in areas where they would otherwise not be feasible. The village organizer is a crucial person. Where this type of service has been successful, the village organizer has usually been a retired professional person.

# IMPROVING ADMINISTRATION AND MANAGEMENT

Alternatives for organization, administration, and supervision of services need to be examined to determine under what conditions improvements to service quality and cost-effectiveness can be made. Some of the more interesting options involve the coordination of services, mobility-management strategies, contracts for the purchase of services from for-profit and nonprofit transportation providers, and quality bus partnerships. (See Chapter 9 for a discussion of contracted services.)

## Offering Coordinated Transportation Services

When human service agencies realized that many of their clients had no means of accessing needed services that were available to them, many agencies started their own transportation systems. Agencies with transportation as their primary mission, such as public transit agencies, and agencies with other primary missions, such as human service agencies, are now involved in offering what have come to be known as "specialized transportation services."

Coordination became an important transportation management strategy when agencies dealing with human service transportation needs were found to be doing so in a "silo" or "stovepipe" fashion: dollars and rules came down from above in a narrow and constrained manner, and the perspective was one of a closed system from the top to the bottom. The trip needs of one agency's clients could be served but often at considerable expense and with some service quality problems. Many agencies had similar client travel needs, but they fiercely guarded the rights and interests of their own clients against competing interests and the prerogatives of their own turf from outsiders. Few of these agencies were working with public transit agencies to secure transportation services for their clients, and few public transit agencies were attempting to serve human service clients.

The coordination of specialized transportation services can be defined as a process in which two or more

organizations interact to jointly accomplish their transportation objectives. These objectives often include more cost-effective service delivery, increased capacity to serve unmet needs, improved quality of service, and services that are more easily understood and accessed by riders. In communities where there is substantial unused vehicle time or vehicle capacity, or where economies of scale are not being realized, coordination of transportation services can expand services to areas or people not previously served and benefit riders with these service increases and higher-quality services. Coordination is particularly applicable in communities where transportation services dedicated to the elderly have been in operation for some time.

### *Coordination in Portage County, Ohio*

PARTA is the lead agency for transportation services in Portage County, Ohio. PARTA provides fixed-route and paratransit services to the general public with funds secured from local and county government, state and federal sources, and purchase of service contracts with local agencies and organizations. Through the demonstration project it received in 1993, PARTA successfully showed that public transportation services for older persons could be improved significantly through improvements in transportation services available to the general public. (See "Piggyback Sales/ Utility Taxes" in this chapter for more information on PARTA's transportation demonstration project.) During the 2 years of the project, service to the public grew to a fleet of 18 vehicles and passengers carried grew to more than 6,000 per month. Older persons made up a significant share of these passengers.

PARTA developed a number of transportation contracts with social service agencies. Through a contract with an agency providing adult day care services, all transportation access to the program has been turned over to PARTA and is coordinated with other transportation services provided by PARTA. A significant outcome for the agency was that, by concentrating on its core programs and having PARTA provide its transportation services, it was able to triple the number of its clients participating in adult day care services. Through a contract with the county mental retardation and developmental disabilities agency, all transportation needs that support the agency's community employment integration are provided by PARTA. These two contracts provided PARTA with a countywide service capability that enabled PARTA to improve services generally and meet other transportation needs of older adults. Contracts with local agencies are full-cost recovery contracts. Costs of service to each agency are allocated through PARTA's computer-based scheduling and dispatching software. PARTA installed state-of-the-art paratransit reservations, scheduling, and dispatching software to manage and schedule transportation services, integrating the travel needs of the general public and agencies that had contracted for transportation services. PARTA was able to use this software to allocate costs of service to each contract agency in a manner that made agencies confident that they were only paying for their fair share of the service. The allocation method enables the allocation of costs when clients from several agencies are on a vehicle together, boarding and alighting at different locations.

The growth and development of the transportation services offered by PARTA also show that sound qualitative and quantitative market research can be effective. Market research has included key leader interviews, focus groups with the public and

key target market constituencies, and statistically reliable surveys to measure interest in transportation services and likelihood of using them, as well as support for local taxes to pay for operating and capital expenditures. The key result has been the development of transportation services that meet the needs of customers and broad community support and commitment of financial resources.

The strong results that PARTA experienced may be attributed to a number of factors:

1. Social service agency representatives, older persons, people with disabilities, and the general public were asked about their service needs. Transportation services were then put in place to respond to those needs. Consequently, use of and satisfaction with service grew.
2. Representatives of community organizations, social service agencies, local government, and others met regularly to coordinate service delivery and deal with issues and concerns as they emerged.
3. Transportation services were developed in a collaborative, coordinated manner.

## *Coordination Through Contracting in Broward County, Florida*

In Broward County, the public transportation provider is the state-designated Community Transportation Coordinator (CTC) that administers federal, state, and local transportation funds. The public transportation authority introduced a new, coordinated multiprovider paratransit service called TOPS (Transportation Options) in December 1996, which was markedly more successful than the services it replaced. The TOPS-administered paratransit program provides transportation for qualified eligible riders such as human service clients, people who are transportation disadvantaged under Florida law, and ADA-eligible riders. In 1998, 81 percent of TOPS riders were 65 years of age or older, 76 percent were age 70 or older, and 56 percent were more than 80 years old, but all had to be precertified to use TOPS services. TOPS contracts with multiple providers for service; riders may choose among these providers. The combination of coordination and competition among providers has resulted in improved customer satisfaction. People who are eligible for service now can travel during more hours and to more destinations through an easier-to-understand process. The substantial improvements this agency achieved in a short period of time led to Broward County Transit receiving the American Public Transportation Association's Public Transportation Outstanding Achievement Award in 1998, and Broward County's Most Innovative Local Government Project of the Year award in the same year. In 1999, Broward County was designated as Florida's "CTC of the Year."

## *Coordination Through Cooperation in Central Virginia*

Based in Charlottesville, Virginia, JAUNT is a nonprofit public service corporation that provides rural public transportation, complementary ADA-paratransit service, and consolidated human services transportation for central Virginia. JAUNT has become the coordinator of both public transportation and human services transportation by actively seeking contracts to provide human services transport. Almost one-half of JAUNT's riders are 65 years of age and older. A key factor in the success of the venture has been that the local transportation planning agency has a written policy stipulating that human service agencies are to coordinate transportation services with JAUNT. The planning agency oversees implementation

of this requirement through the metropolitan planning review process. JAUNT's coordination has resulted in service expansions to geographic areas and consumers not served previously, more service options, fewer limits on trip purposes and destinations, and lower trip costs for consumers.

### *Coordination Through Consolidation in Sweetwater County, Wyoming*

The Sweetwater County Transit Authority (STAR) serves a very large and sparsely populated rural county. Initiated in 1989, STAR replaced a large number of client-based, agency-operated transportation services with a single coordinated demand-responsive public transit system. STAR substantially reduced per trip costs for agencies and increased the number of trips provided, while also extending service hours and boundaries, creating new services where none had existed, and providing rides for members of the general public. This system's features include providing one-stop transportation shopping for riders, emphasizing data collection and technology, and offering high-quality, dependable service. The system's primary economic benefit, at about $720,000 per year, has been enabling local elderly residents to continue living independently in their own homes instead of moving to nursing homes.

## Focusing on Mobility Management

### *Grand Rapids Transit Authority (GRTA)*

The Grand Rapids Transit Authority (GRTA) has developed and expanded its transportation role and responsibility in the Grand Rapids area beyond providing fixed-route bus service and the required ADA-complementary paratransit service by becoming a mobility manager. GRTA has taken responsibility for being the local agency that provides broad transportation services and works with customers, whether they are other agencies or individuals, to solve transportation problems and deliver the required transportation services. Although in most communities, travel training is typically provided only for specific groups of people with disabilities, in Grand Rapids, travel training is available through GRTA for the general public and clients of agencies who are partners in the mobility-management system. GRTA has been well positioned to meet new transportation service requirements as needs develop. GRTA recognizes that fixed-route bus services will not necessarily meet all transportation needs. As a result, GRTA offers a variety of special services:

- Go! Bus Service, a service for older adults and people with disabilities who are unable to use fixed-route service;
- Travel training, to reduce dependence on the more expensive and labor-intensive paratransit service;
- RIDE-LINE, a directory of transportation providers that can assist with transportation beyond GRTA's service area and hours;
- Business Transportation Services, customized to the needs of businesses;
- Public carpools, company vanpools, and guaranteed-ride-home rideshare programs for the general public that can also be customized for a specific company;
- Park-and-ride lots, in cooperation with the Michigan Department of Transportation;
- Project ZERO, the Michigan Welfare to Work Program, through which GRTA provides about 75 clients with 1,500 trips per month (GRTA contributed $80,000 in Congestion Mitigation and Air Quality funding to help support this service); and

- The Supportive Housing Program, providing single women and female heads of households with mobility assistance, travel training, transit tickets and passes, vehicles for vanpooling, and safety net transportation options outside GRTA's service area and hours.

The result of GRTA's initiatives is that the diverse travel needs of customers are addressed and services are provided so that people can use fixed-route service most effectively to meet their travel needs. However, they also have access to other services that may meet some needs more effectively than fixed-route services. One positive outcome of GRTA's travel training service is an increase in the use of fixed-route service and a reduction in the capacity demands on paratransit service.

### *Lynx, Orlando, Florida*

Lynx is the public transportation system in Orlando, Florida. In the last 5 years, Lynx has established itself as the metropolitan organization in the Orlando area that provides transportation services responsive to the travel needs and requirements of its residents, visitors, and businesses. Lynx has established itself as the agency responsible for managing and meeting mobility needs by developing, marketing, and operating a family of transportation services that respond to travel needs expressed by key leaders, Lynx customers, and the general public. Transportation services offered include

- Carpool matching;
- VanPlan, a popular vanpool program for business;
- A+Link, a door-to-door van service for seniors and low-income or disabled workers; and
- Fixed-route bus service.

In its region, Lynx pursued and accepted the position of CTC. CTCs are required throughout Florida as a result of state legislation that requires the coordination of transportation services to maximize the cost-effectiveness of transportation services supported with state funding. The CTCs are under the administrative authority of the Florida Commission for the Transportation Disadvantaged.

Lynx has grown into its role as CTC through targeted actions resulting from thorough qualitative and quantitative market research conducted in 1992, 1995, and 1998. As a result of this research, Lynx has developed (1) targeted transportation services for its customers and (2) broad-based marketing programs and campaigns to increase awareness and market share.

## Implementing Quality Control Measures

Even if a transportation system's drivers do not physically assist passengers, driver training and customer service training can still make a critical impact on older persons. According to the transportation industry focus groups, the need for a "well-trained and sensitive staff" was mentioned by 90 percent of the focus group participants.

### *Improving Service Quality Through Driver Sensitivity Training*

Several transportation systems have placed a priority on driver/staff training and customer service. In Pennsylvania, AMTRAN drivers receive special training in being customer-oriented and friendly, and they are encouraged to socialize with senior passengers and foster relationships. There are no answering machines or automated telephone systems in the

AMTRAN offices because AMTRAN officials believe seniors are more comfortable talking to people.

In Broward County, Florida, participating agencies in the TOPS coordinated transportation brokerage must take part in ongoing training sessions in passenger sensitivity training, telephone techniques, and customer relations. Quality checks are achieved through a "mystery rider" program and through various surveys of service contractors and community groups. In addition, the Rider's Choice program allows TOPS's clients to choose which participating provider they will use. The Rider's Choice program uses market forces effectively to shift ridership and funding to providers who offer high-quality service, while shifting ridership and funding away from carriers who offer poor service. Since implementing these quality control measures, the number of complaints in Broward County has decreased from 2,000 per month to 40 per month.

### *Improving Customer Satisfaction by Reducing Trip Denials*

Some paratransit services find that it is simply not possible to meet every single trip request, especially with so many paratransit systems operating above capacity. If not every trip request can be met, these systems should at least work to minimize the number of denials. The LIFT system in San Diego has a greater demand for trips in their service area than can be met and thus has a fair number of trip denials. However, LIFT makes a point of meeting a person's first trip request, because they believe that if a person's first request is denied they will never call again. LIFT officials also make a point of following up with people who have been denied to see if they can be accommodated on another day.

Some systems are able to do more than just minimize trip denials. The TOPS program in Broward County, Florida, and the ACCESS brokerage system in Pittsburgh have implemented "zero trip denial" policies. These policies state that the systems will find some way to accommodate any legitimate trip request within their service area. ACCESS even goes so far as to guarantee on-time performance. Both systems have extremely low complaint rates. ACCESS has one of the lowest complaint rates (0.5 per 1,000) of any large urban system in the nation.

ACCESS also boasts a 93-percent on-time performance rate. This level of service is achieved primarily through extensive complaint monitoring and quality checking. TOPS employs "mystery riders" to anonymously check on participating providers and does extensive surveys of passengers and participating agencies. Riders in the TOPS system can choose from various providers, which makes quality of service a priority for participating transportation agencies. ACCESS carefully monitors the on-time performance and complaint logs of their participating providers, using competition among providers as an incentive for better performance.

### *Quality Bus Partnerships and Contracts*

Experience in Britain has shown that passengers are attracted to high-quality public transportation services. Aspects of service such as vehicle standard, vehicle cleanliness, and driver training are under the control of the operator. Other features, such as bus priority measures and possibly bus stop furniture, are a matter for local government. Police enforce the bus priority laws. Information and publicity may be the

responsibility of the passenger transport authority, local government, or the operator. To provide high-quality services that are attractive to passengers and well used, all these bodies need to work in partnership (Confederation of Passenger Transport, 1996; PTE Group, n.d.).

Quality Partnerships have had positive effects on ridership. Increasing ridership allows services to be further improved. This helps all passengers, but it particularly helps older persons who prefer not to drive in congested city centers, at peak times, at night, and in bad weather. The better the public transport services, the greater the choice of alternatives for older persons.

Quality Partnerships have proved to be important as a method of ensuring commitment to high levels of quality from both operators and local authorities in England. These have been encouraged by both the Passenger Transport Executive Group (an association of public transport authorities for the major provincial cities) and the Confederation of Passenger Transport UK (a trade association of public transport operators). The principle of quality partnerships is that the transport operator, the local authority, and other bodies become involved in the development of high-quality transport provision.

Quality Partnerships have been developed in a number of British towns and cities, such as Aberdeen, Birmingham, Brighton, Edinburgh, Ipswich, Leeds, and Swansea. In these partnerships, the local authority provides traffic management programs that assist bus services (for example, bus lanes, priority at junctions, and park and ride). The bus operator offers better quality in terms of comfort, accessibility, staff training, marketing, information, and reliable services.

In Ipswich, where a new quality route links the city center to peripheral housing and an employment center, 31 percent of the passengers are new to public transport.

In Leeds, the bus operator reported patronage increases of more than 40 percent after the first two sections of bus lanes were operating, a 60-percent increase after 2 years, and, recently, an 85-percent increase was reported. The time saved on a morning peak-hour journey-to-work trip was 10 minutes on a 30-minute journey after two sections of bus lanes and the contra-flow bus lane into the city center were operational.

Twenty-nine percent of passengers were not using the service before SuperBus was introduced; 11 percent were previously using a car. Frequency, comfort, and speed were the aspects of service that were most improved. With two sections of bus lanes in operation, the program removed about 500 car trips per week.

### *Highlights of England's Quality Partnerships*

The partners sign a joint declaration of intent under which

- The bus companies provide new low-floor buses and drivers trained in customer care, and the bus companies lead the marketing of the project;
- The local authority provides bus priority measures and bus stops and leads the public consultation process;
- The Passenger Transport Executive Group provides bus shelters and information, including real-time information, and provides overall management of the project; and
- The police provide the necessary supervision to enforce the bus priority measures on the highway (PTE Group, n.d.).

Table 27 provides a summary of these highlights.

# IMPROVING COMMUNITY RELATIONS

Community issues affect the environment in which a given transportation system operates and affect that system's ability to provide services to older persons. In order to remain viable while providing service at a high level, a transit system needs the political and financial support of the community. Whether the issue is funding, legislation, or regulation, community support is the most important factor in the long-term success of transit. Addressing community problems begins with community involvement. A community-based effort, such as building a coalition, passing a tax millage, or simply voicing the concerns of transit users, starts with community involvement. Transit officials cannot afford to sit and wait for things to happen. A proactive approach is needed

**Table 27**

**Quality Partnerships: "Bus Services for the Next Millennium"**

It is important that government agencies at both national and local levels provide the framework that enables bus operators to raise the quality of bus services in the United Kingdom.

The Confederation of Passenger Transport UK is working on a series of measures aimed at formalizing agreements between bus operators and local authorities to raise the quality of the nation's bus services.

Bus operators are ready to invest in improved vehicles and services, but the greatest benefits will accrue to passengers if there is matching investment in infrastructure.

These Quality Partnerships would impose certain duties on bus operators, local authorities, and the Traffic Commissioners.

| ***Operators*** | ***Local Authorities*** |
|---|---|
| When entering into Quality Partnerships, operators would have to provide<br><br>• Vehicles of low-floor Disabled Persons Transport Advisory Committee (DPTAC, 1988) standards where appropriate;<br><br>Vehicles which meet the latest emission standards (Euro 2 or better);<br><br>• Levels of service provision that meet the locally agreed transport vision statement;<br><br>• High-quality staff with planned programs for NVQ and customer care training;<br><br>• Modern fare collection, possibly including smart cards, through-ticketing, and travel cards;<br><br>• Comprehensive information provision, perhaps including real time, in conjunction with the local authority; and<br><br>• High-quality service marketing. | In return, local authorities can provide<br><br>• Regular dialogue with local operators about local transport and traffic planning;<br><br>• Routes with a high degree of bus priority and other traffic management measures, enabling bus services to run in a congestion-free environment;<br><br>• Modern, accessible (to both passenger and operator) bus stop and station infrastructure;<br><br>• Convenient intermodal and bus/bus interchange sites; and<br><br>• Bus access to key town center destinations. |

Source: Confederation of Passenger Transport, 1996.

if the system is going to survive and prosper.

For example, GFTD officials in Great Falls, Montana, point to extensive community involvement as the key component to their success. They have worked closely with local civic and social groups, kept in close contact with local political officials, attended numerous neighborhood council meetings, and spent many days visiting nursing homes and retirement centers. Instead of responding to new housing developments and projects, GFTD was involved in them from the inception and has made time to plan accordingly. Instead of waiting for people to express needs, Great Falls actively seeks them out. For example, the city of Great Falls recently planned to locate an elderly veterans care facility at the top of a very steep hill, literally on the side of a mountain. GFTD officials knew that they would be serving many of the facility's residents. They also knew that it would be impossible for their vehicles to reach the proposed facility when there was snow or ice on the ground. With this in mind, GFTD officials successfully lobbied city officials to change the location of the facility to an in-town site that was much easier for them and others to serve.

# CONCLUSION

Transit system improvements can be obtained by addressing financial issues, improving administration and management, and improving community relations. Key strategies to consider are obtaining dedicated funding sources, developing additional fare revenues, controlling costs by using volunteers, offering coordinated transportation services, focusing on mobility management, implementing quality control measures, and fostering extensive community involvement.

# 12

# FINDING INSPIRATION FOR THE FUTURE IN RECENT INNOVATIONS

Better travel options from transportation providers in the future will require a broader perspective than is commonly found at this time. Several excellent examples of broader perspectives can be found. In particular, these examples deal with the range of services available and a focus on consumers. They also involve making a comprehensive examination of the kinds of transportation services that are being offered in relation to the kinds of services being demanded now and in the future.

The three previous chapters dealt with potential improvements to address user preferences, user needs, and system conditions. Although the potential improvements are often unique to specific challenges, some patterns are discernable within the wide list of potential opportunities. The common patterns include the following:

- Adopting customer- and trip-oriented service strategies rather than vehicle- and staff-oriented service strategies;
- Expanding and improving current patterns of operations and services;
- Providing new types of services;
- Obtaining additional resources;
- Obtaining the participation of new and different partners in service delivery;
- Training transportation system personnel in the needs and demands of older travelers; and
- Providing more traveler information and more user-friendly traveler information.

Although it is theoretically possible to effectively address all of the challenges listed by older persons and transportation

professionals, some challenges can be more easily addressed than others can. Some solutions can be implemented within existing structures for the delivery of transportation services and the legislative, policy, and regulatory environment, but other solutions will require fundamental structural changes in the way services are organized, managed, and delivered.

This chapter looks at various improvements to public transportation services that are being made, or can be made, to offer better public transportation services for older travelers. Short-term, low-cost improvements are possible and should be carefully examined. For improvements that require a greater investment of time and resources, new perspectives are needed. A full range of services would need to be implemented, and comprehensive examinations of services need to be conducted. Doing this would lead to a broad-spectrum approach to meeting the travel needs of older persons. This chapter describes communities in which some of the most forward-looking ideas have been applied.

## SHORT-RUN IMPROVEMENTS

One piece of good news is that there are short-run improvements that transit operators can implement to make transit services more senior-friendly. As identified by the focus groups of older persons for this study, these short-run improvements are as follows:

- Improve schedule reliability (or find means of providing accurate information on departures and arrivals such as technologies that provide real-time information on actual arrival times);
- Provide guaranteed-ride-home services;
- Find ways of welcoming people who are not accustomed to using the service;
- Find ways to help older persons board vehicles when needed;
- Improve information and provide much more of it, both for trip planning and while traveling;
- Add customer service features such as calling out stops, reserving more seats for older persons, providing more friendly and more detailed travel information, providing more telephone lines for information, and making systems more responsive to complaints;
- Work with human service organizations and volunteer agencies to better serve the more specialized travel needs;
- Partner with representatives of the aging community to build additional community support for more local transit funding;
- Provide special vehicles for special events;
- Minimize physical barriers such as steep or long stairs and standing and waiting outside in all kinds of weather for long periods; and
- Put an emphasis on polite, courteous drivers.

One of the key findings of the research is that none of the desired changes are particularly new or revolutionary. Some have been tried in one community or another.

## NEW PERSPECTIVES, NEW PARADIGMS

Some public transit systems are recognizing that transportation service delivery involves more than fixed-route service for the general public and complementary paratransit service for people with disabilities who meet ADA-eligibility requirements. Paratransit service may provide an appropriate, cost-effective way to deliver transportation services in

some settings. There are a variety of transportation options, or alternatives, that combine elements of fixed-route and paratransit services to more effectively meet the travel needs of customers. In a collaborative, coordinated setting, the focus can shift from the operation of fixed-route bus and rail service to the design and delivery of a family of transportation services to meet the travel needs and requirements of customers. Customers can include individuals, local agencies purchasing services, organizations advocating for the needs of specific groups of people, funding agencies, local elected officials, and others.

For a number of years now, a variety of sources have been discussing the concept of "reinventing transit." Applying the principles of TQM (MacDorman et al., 1995) to new paradigms for public transportation (Cambridge Systematics et al., 2000) and the pronouncements of the APTA Transit 2000 Task Force are two examples of ways that industry leaders and researchers have been calling for new approaches to providing public transportation. According to Jennifer Dorn, Administrator of the Federal Transit Administration, "Public transportation must diversify its product line . . . to better meet customer trip needs" (Dorn, 2002).

The results of the research for this report support these calls for substantial change. In fact, the currently unmet needs of older travelers can serve as a powerful stimulus for the challenges facing the public transportation industry.

Travel mode is the basic issue for the transportation industry. Will the industry continue its almost exclusive reliance on fixed-route, fixed-schedule services? Or, alternatively, will public transportation providers move toward operating a range of services at a range of prices? Choosing the first option implies satisfaction with a relatively small role in fulfilling the overall travel demands of the population in general and older travelers in particular. Accepting the second role would place the industry in a much better position to be the provider of a much larger portion of the trips of older persons and others in the future.

Disregarding the real travel needs of the elderly could place the transit industry in the unfortunate position of losing customers to new and different services that would fit the definition of "disruptive technologies" (Christensen, 1997)—organizations that provide the right combination of increased reliability and convenience, as well as a better price, for local travel. Because of the typical problems faced by large industry leaders in instituting new technologies, the most attractive position for public transit may be that of fostering service innovations through a variety of small-scale partners who will be satisfied initially with small markets and lower cost structures.

But accepting innovations is often difficult. According to the *New Paradigms for Local Public Transportation Organizations* report,

> The search for new paradigms reflects a recognition that many public transportation institutions and services, which have remained largely unchanged over the past 30 years, have become unresponsive and inflexible in the face of trends, conditions, needs, and expectations that are dramatically different than they were even a decade ago. (Cambridge Systematics et al., 2000)

This report, which would interest all persons interested in improving public transportation, makes the following points:

- Fundamental change (a paradigm shift) is needed;
- The focus of the new services needs to be on customers (service), not modes (assets);
- Logistical controls need to be implemented to satisfy customer needs;
- The customer needs to see a seamless product;
- Individualized, door-to-door services need to be emphasized; and
- Examples of the kinds of new services that should be adopted by the transit industry in the United States include FedEx, Sealand/CSX, London Transport, and paratransit services in Gothenberg, Sweden.

The new paradigms for transportation that are required, according to this report, would include

- Less emphasis on dedicated assets;
- A central logistics function for management and performance monitoring;
- Door-to-door thinking;
- Less emphasis on minimizing the price of service;
- More emphasis on creating high-quality services;
- High-level strategy, low-level accountability; and
- Focus on varying and changing demands.

The report goes on to note:

> We can send a package door-to-door across the continent with a single phone call and can report to senders and recipients its exact whereabouts instantaneously. Our travel expectations are now being built around this level of performance. The fact that we cannot manage the door-to-door trip for people as effectively says legions about the paradigm shift that is needed in passenger transportation. (Cambridge Systematics et al., 2000)

This kind of paradigm shift would provide the kinds of services being requested by many older travelers:

- Reliable departure and arrival times;
- Door-to-door service;
- One central number to call for "one-stop transportation shopping";
- Reduced walking distances to fixed-route bus services;
- Flexible service available on demand (no 24-hour waits for trips);
- Comfortable vehicles and waiting areas;
- Connections between a wider range of origins and destinations; and
- Services available during more hours of the day and more days of the week.

## A FULL RANGE OF SERVICES: THE FAMILY OF SERVICES CONCEPT

Part of the paradigm shift would involve a greater range of services. A concept that originated in Sweden, but is now applied much more widely, is that of the family of services (Ståhl, 1992). This concept recognizes that there is no single solution to the mobility needs of a whole population. For example, services that provide for larger sectors of the population can provide wider coverage, higher frequency, and lower cost, but they will not be usable by some groups. Services that become more specialized to meet the needs of small groups will be less flexible to use and more expensive to supply. The objective of the family of services is to provide mobility

for all at the lowest cost and with the greatest potential for spontaneous travel by encouraging people to use the tier of service that offers greatest flexibility and costs least to provide.

## Service Components

### *Accessible Public Transit*

The basis of a family of public transport services for an urban or suburban area is a network of high-quality, accessible public transit services (provided, for example, by low-floor buses). These offer the opportunity for spontaneous travel and are relatively inexpensive to provide and use. They do require people to be able to walk to and from bus stops (about ¼ mile, or 400 meters, at each end of a journey), to move quickly when boarding and alighting, and to tolerate crowding at peak periods.

### *Service Routes*

For people who find mass public transport too demanding to use, the second tier of the family of services is Service Routes (described in more detail in Chapter 9). These are scheduled bus services using low-floor mini-buses (around 20 seats) on routes that may be fixed or allow small diversions. The routes bring the buses close to trip origins and destinations to reduce walking distances, and buses can be hailed anywhere along their routes. The timetable allows plenty of time for boarding and alighting, and staff are trained to help passengers if necessary. Service Routes can be used by anyone; in some small towns, Service Routes provide the whole public transport service. Service Routes are more expensive per passenger than mass public transport but less expensive than taxis or dial-a-ride. Taxi services are provided with user-side subsidies for particular groups of passengers: those who need door-to-door service, or those who cannot manage a Service Route vehicle but do not require help entering or leaving the vehicle or attention during the journey (Berg and Christensson, 1981).

### *Paratransit*

Paratransit services provide trips in response to specific customer requests (hence the term "demand-responsive"). Small buses, vans, or cars are typically used. For passengers who need help from their homes into a vehicle or attention during the journey, dial-a-ride services with an attendant in addition to the driver can provide mobility (Berg and Christensson, 1981). These services are the most expensive to provide. Because they often serve individuals with limited incomes, full trip costs are seldom paid by riders, but because public funds for such services are typically in short supply, these services often have highly limited availability. Also, because they usually need to be booked at least 1 or 2 days in advance, spontaneous travel is seldom possible.

### *Taxis*

For many years, taxis have provided on-demand services for riders. Typically operated by public companies, taxis offer exclusive services from the origin to the destination of the passenger's choice. This is a premium service that usually commands premium fares. In recent years, some taxi companies have broadened the scope of their services to include shared ride and subscription trips. (Taxis are also discussed in Chapters 5 and 9).

### *Pedestrian Travel*

An essential complement to a vehicular family of services is an accessible pedestrian

infrastructure. All journeys involve some walking or assisted walking, and the lack of accessible infrastructure is as much of a barrier as an inaccessible vehicle. (Accessible pedestrian infrastructure is discussed in detail in Chapter 10.) "Safe, convenient, and comfortable walking is the key to local mobility" (OECD, 2001).

## The Family of Services Concept in Europe

Families of transportation services are now common in Scandinavia and are developing in other parts of Europe. Sweden has led the way in providing integrated systems of accessible transport for people with differing degrees of disability. The full range of public transportation options appears likely to consist of the following components:

- Accessible fixed-route public transport (low-floor buses and accessible metros) for those who can reach bus stops or metro stations;
- Service Routes for people who need a little more care than public transport can provide and who do not need very frequent service;
- Subsidized taxis or volunteer drivers for people who need transport door-to-door but do not need specialized care during the journey;
- Dial-a-ride for severely disabled people who need considerable assistance or care; and
- Subsidized private automobiles for those who are physically able to drive and who live far from public transport services.

## The Family of Services Concept in Mesa, Arizona

The community of Mesa, Arizona, east of Phoenix, is developing a family of transportation services. This family of services includes

- Fixed-route bus service;
- Complementary paratransit service;
- "Enabling Transportation"; and
- Neighborhood circulator service.

Fixed-route transit services for the general public and complementary paratransit services for older adults and people with disabilities have been in place (OECD, 2001). Like many public transportation systems around the country, Mesa has been experiencing a rapid growth in the demand for its complementary paratransit service. With no dedicated tax for public transportation services and limited resources, Mesa has not been able to increase the level of paratransit services it provides.

To expand transportation alternatives for older adults in Mesa, Mesa Senior Services implemented a new program called Enabling Transportation (ET) in 2000. Modeled after the TRIP program developed in Riverside, California (see Chapter 11), ET is a mileage reimbursement program that enables older persons in Mesa to choose a volunteer driver to provide them with transportation services and reimburse this driver with funding provided to them by the city of Mesa. Volunteer drivers are recruited directly by the participating resident and may be a neighbor or friend. Travel is reimbursed at a rate of $0.32 per mile. The city of Mesa pays the participating resident, and the resident pays the driver.

ET is available to Mesa residents who are 65 years of age and older. Eligible residents complete a program application and sign an agreement to participate in the program. By executing the agreement, residents commit

to recruiting a volunteer driver, reimbursing the driver for miles operated, keeping and submitting mileage reimbursement forms monthly, and abiding by all ET program policies.

Residents are encouraged to ride with other ET residents. Drivers with multiple passengers may be reimbursed at a rate of $0.40 per mile.

The city of Mesa is also planning to implement a neighborhood circulator route within a defined neighborhood area in 2003. This service will offer flexible routing to meet customer service requests.

## The Family of Services Concept in Big Stone Gap, Virginia

Since 1974, MEOC has provided Area Agency on Aging transportation and general public transportation to the City of Norton (population 4,247) and the counties of Lee, Wise, and Scott in the far southwestern corner of Virginia. The service area is rural and mountainous, with a population of just over 90,000—15 percent of which is over the age of 65. For many years, coal mining was the dominant industry in this part of the state. The long-term effects of coal mining and coal dust exposure are evident in the frail nature of the elderly population in this area.

In addition to general public transit, MEOC provides a variety of services tailored to the individual requirements of anyone in their service area. Able-bodied persons without cars can get a ride wherever they need to go, using the general public demand-responsive system. Persons requesting a higher level of service meet with caseworkers, who determine the level of need and report back to MEOC. For example, persons who are deemed to be too frail to ride a bus for several hours are eligible for the MEOC "one-on-one" service which provides trips tailored to individual clients and includes service such as trip chaining. (See "Expanding Flexibility to Permit Trip Chaining" in Chapter 11 for a more detailed discussion of MEOC's "one-on-one" service.) MEOC prides itself on making extra efforts to meet the needs of the elderly clients in their service area. If a caseworker identifies a need, MEOC will meet it.

The "can do" attitude at MEOC can be attributed to several factors. One contributing factor is the lack of a "bureaucratic mindset" among MEOC employees. MEOC uses a flat organizational structure and an informal work environment to foster communication, personal interaction, and cooperation between caseworkers and transit workers. There are only two directors and three department heads, which leaves the vast majority of the staff on equal footing. The workspace is open; there are no individual offices or cubicles, no barriers between people. When a caseworker needs help for a client, a transit worker obliges and vice versa. Other contributing factors are the strong community ties among MEOC employees and the widespread community involvement of MEOC. MEOC keeps in constant contact with local elected officials and maintains contracts with local mental health services, services for mentally retarded persons, the local Department of Social Services, Virginia Initiative for Employment Not Welfare projects, Welfare-to-Work projects, Vocational Rehabilitation Centers, and Services for the Blind. They also provide Medicaid transportation. If a person or organization is in need of service, MEOC will provide it.

Current marketing efforts at MEOC are very limited because the system has matured and is operating at near full capacity. They still provide brochures and schedules upon request, and they have their telephone number on the side of their buses, but there is no real need for further efforts because people know who they are. MEOC officials point to the mid-1980s as a time when stronger marketing efforts were in place. MEOC handed out brochures at special events, provided public service announcements, put up numerous signs, and aggressively sought partnerships with local human service agencies. Their current prosperity can be attributed to these efforts.

The biggest problems currently facing MEOC involve funding and cooperation/coordination between agencies. MEOC must deal with conflicting regulations that are attached to funds received from various agencies. These "upstream conflicts" have a negative impact on MEOC's ability to be flexible and accommodating to service requests. According to MEOC officials, it is the federal funding conflicts that present the greatest problems, especially in the area of Medicaid transportation funding.

The transit manager of MEOC spoke about his vision of the future of transportation services for older adults. MEOC wants to make the transit experience as painless as possible for passengers. Anyone who calls in for a ride will get a ride, and it will be billed to the appropriate agency with all details handled behind the scenes by MEOC. MEOC wants trip administration to be "transparent" for the passenger; according to the transit manager, they have almost achieved this goal. The manager believes that in the future there will be a large segment of the elderly population that will be more affluent than today's older persons, and these affluent older persons will have different needs and expectations. They will expect a higher level of service in all aspects of transportation: everything from the quality of the vehicles used to the attire of the driver and the manner in which appointments are made. These affluent seniors will also want transportation for recreational and entertainment activities as well as for medical and shopping trips. MEOC may branch into two segments: one serving the traditional disadvantaged clientele and one serving the more affluent neighborhoods and assisted living facilities.

In a personal interview, the transit manager offered the following advice to special needs transit providers in rural areas: "Be active in the community planning process from the transit perspective. Get to know the local planners and site-inspectors, know what is being proposed, and work with the community planners to locate new facilities in places that are convenient to serve."

## A Family of Services Operation in Uppsala, Sweden

Uppsala County is one of Sweden's fastest growing counties. The county, together with Stockholm and the Mälar Valley, is the country's largest labor market and makes up one-third of the population of Sweden. The population is young and well educated, in large part because of the students at Uppsala's two universities—Uppsala University (Sweden's first university) and the Swedish University of Agricultural Sciences (SLU). Forty percent of the county's population is under 30 years of age. There are nearly 300,000 residents in Uppsala County. Uppsala, the county capital and the oldest city in Sweden, has a population of about 190,000 and is

Sweden's fourth largest city. Commuter train traffic between Uppsala and Stockholm is the most extensive in the country, with trains for the 35-minute ride departing on an hourly schedule. About 10,000 persons commute from Uppsala to Stockholm on a daily basis.

AB Uppsalabuss is responsible for planning, financing, marketing, and developing public transport in the city of Uppsala. The company is 100-percent owned by the municipality and has a board consisting of politicians elected by the city council. The system operates 150 buses and provides 12 million passenger trips per year.

For many years, Uppsalabuss has had a special interest in making public transport accessible. Service Routes were started during the early 1990s when the first low-floor bus came into operation. Low-floor vehicles now make up approximately 70 percent of the fleet; this includes both 40-foot vehicles and articulated buses. In the city center, small, low-floor, battery-powered buses are used for both a park-and-ride system and those who need to travel short distances in the business area. There is also training and education for drivers in the special needs different groups have on their trips.

Travel need surveys are conducted to get an overall picture of what passengers need at the door where the journey starts, at the bus stop, on the bus, at the bus stop where the passenger alights, and on the path to the final destination. The objective of these travel need surveys is to learn how to increase accessibility for persons with limited mobility and learn about types of assistance that can enhance accessibility for all passengers. (For example, studies are being conducted on how to use different colors to make information readable for visually impaired persons and on how steep of an incline is practical for allowing wheelchair access.)

Travel information is a key concern in Uppsala. Information is available on the buses so that passengers can read and hear announcements of the next stop. The Uppsala system will also have information at bus stops; an audiovisual system is under development. Providing information on board the bus about approaching stops was being implemented in the fall of 2001.

A new bus route network demonstrated a new and different need for Service Routes. Previously, more elderly people lived in special housing. The transportation system changes have enabled more elderly people to stay in their own homes for a longer time. Institutional living is not the same as it was 10 years ago: people in the special homes now are very old, and their need for public transport is not as high as before. This situation will demand more flexibility than is offered by the Service Routes. Therefore, the Service Routes were planned to be entirely replaced by dial-a-ride services by August 2001 (Eklund, 2001).

The stated goal of Uppsalabuss is to make public transportation accessible to everyone by 2010. By applying the family of services concept, the community has been able to minimize the use of the more expensive specialized transit services for people with disabilities.

## Family of Services Operations in London

In London, low-floor buses are gradually being introduced. For many years, a subsidized taxi service, known as "Taxicard," has been provided for people who are unable

to use mainstream public transport services because of disabilities. Since 1989, all new London taxis have been required to be wheelchair accessible, and since January 2000, all taxis are accessible. In addition, the London Boroughs (local government units) provide dial-a-ride services for those unable to use taxis.

# COMPREHENSIVE EXAMINATIONS OF OVERALL SERVICES

The comprehensive reexaminations of overall service patterns in several transportation organizations suggest that these reexamination activities could be emulated in other communities with attractive results. One of these focused on all transit services; the other particularly targeted older persons.

## Comprehensive Service Restructuring: Fort Worth, Texas

Periodically, it is prudent for a transportation organization to conduct a comprehensive review of the services that it offers. Such a top-to-bottom review enables an organization to take a fresh, objective look at its services in relation to the customers and markets that are being served.

In 1996 and 1997, Fort Worth conducted such a review and implemented a significant restructuring of its services. Prior to the restructuring, Fort Worth was operating a system of fixed-route transportation, with all routes radiating out of downtown Fort Worth. Any travel to locations not along a specific route required travel into downtown and a transfer to another bus to complete a trip. In January 1998, the Fort Worth Transportation Authority (the "T") implemented a new system of services.

The radial fixed-route system was replaced with the following system of services:

- Fixed routes that continued to serve downtown;
- Cross-town routes;
- Rider request routes;
- Express routes; and
- One downtown and four suburban timed transfer centers.

The T wanted to move away from a strictly radial route network to one that better served suburban trip-making while maintaining a high level of service to downtown.

The new system was designed with the following customer feedback and service assessment in mind:

- Ninety-three percent of riders would continue to use the T even if they had to transfer;
- Riders wanted quicker and more frequent service;
- Non-riders said that the number one reason they did not use the T was because bus travel took too much time;
- Riders wanted to spend less time on the bus to reach their destinations;
- Riders and non-riders wanted transportation to places within their neighborhoods;
- Riders and non-riders wanted access to places not currently served; and
- Reduction in travel time was possible by using interlined routes and flexible/ neighborhood service.

The goals for restructuring the T were the following:

- Design routes that better serve customer needs and increase ridership by

providing more flexible, consistent, and convenient service;

- Design a system that is more efficient to operate than the current system; and
- Accomplish the change with as little impact on current employees as possible.

An overriding goal in designing and implementing the new system was maintaining or slightly reducing the overall level of service. As implemented, vehicle hours were reduced by 1.5 percent, vehicle miles by 5.5 percent, and cost by 4.0 percent.

Fixed routes into downtown that remained in service were the more highly used and productive routes. Some of these routes were simplified, with less branching, and their total distances were reduced. Other unproductive routes or route segments were eliminated. New express routes were also introduced, providing express service into downtown Fort Worth from each of the quadrants and into Dallas.

Five transfer centers were created: one downtown and one in each quadrant of the service area (i.e., north, east, south, and west). The non-downtown transfer centers were established at major shopping areas, easily identified by residents of the area. These transfer centers were served by the fixed-route system that continued to serve downtown Fort Worth. Fort Worth introduced cross-town routes to serve riders who wanted to make non-downtown trips without the need to ride into downtown and transfer to complete their trips.

Rider request routes were introduced into areas where fixed-route service had been removed, and gaps in service were created. Rider request service is curb-to-curb in each of these areas in the same way that complementary paratransit service is operated. Customers within the service area call to schedule pickups the day before a desired trip will be made. Approximate pickup and dropoff times are scheduled. Fort Worth permits same-day scheduling of trips during lower demand midday hours, as well. (For more information on rider request routes see “Rider Request Service: Fort Worth, Texas” in Chapter 9.)

Fort Worth has developed a comprehensive performance evaluation system to track service performance on a monthly, year-to-date, and annual basis. Each category of service and routes within these categories are tracked by the following performance measures:

- **Cost-efficiency—**cost per mile, cost per hour;
- **Service effectiveness—**passengers per mile, passengers per hour;
- **Cost-effectiveness—**cost per passenger; and
- **Market effectiveness—**subsidy per passenger, index point total, index average.

The T tracks service performance within each service category through the use of a performance index. Performance is rated for each performance measure. For every 20-percent increment that a route is above or below category performance, the route (or service) receives a score of +1 for being above and a −1 for being below. Calculating an average score creates the index. Performance is indexed for service evaluation and rated according to the following indexing scheme:

- Index of 1 or greater = Satisfactory—No significant modifications required;

- Index of 0 to .99 = Marginal—Modifications should be considered after low performers are addressed;
- Index of 0 to −1.99 = Deficient—Improvement plan implemented and must show results in 6 months or route will be restructured; and
- Index of −2 or greater = Acutely Deficient—Improvement plan implemented and must show results in 6 months or route will be eliminated.

In evaluating the performance of service, the T recognizes that service that is not performing well may still need to be operated. The T calls such service a "lifeline." Lifeline service is defined as service within ¼ mile of public housing, public social service facilities, public medical facilities, public postsecondary schools for low-income residents, or essential shopping. A lifeline route must have daily ridership of at least 100 riders.

The T significantly reallocated resources, which is what a restructuring of service is all about. Prior to the restructuring, 100 percent of the T's resources were invested in radial fixed routes serving downtown Fort Worth and express routes. Now services are more responsive to individual needs.

## Elderly Mobility Initiative: Phoenix, Arizona

Meeting the mobility needs of older persons may be addressed comprehensively on a regional basis. The Maricopa Association of Governments (MAG) has taken just such an approach in Phoenix, Arizona. Following a *Special Transportation Needs Study* (Maricopa Association of Governments, 1999), MAG hosted a "Stakeholder Dialogue" to begin a regional focus on elderly mobility in the region in August 2000. This effort is being called the *Elderly Mobility Initiative*. In March 2002, MAG hosted a National Conference on Aging and Mobility, which was well attended by leaders in the field.

MAG is taking a long-term view. The vision is that by 2025, among other things, mobility options for older persons will be safe, reliable, accessible, affordable, well understood, and efficient. The mission of the MAG Elderly Stakeholder Working Group is to provide regional leadership in developing and designing a transportation system that addresses the issues of older persons.

Ad hoc groups for developing regional action plans were created in four functional areas:

- Older driver competency;
- Alternative transportation modes;
- Infrastructure and land use; and
- Education and training.

The planning process that each group followed was conducted within the following framework:

- Complete work in four to five meetings;
- Seek multijurisdictional and multidisciplinary participation;
- Look at current state-inventory and gap analysis;
- Look for applicable national and local best practices;
- Utilize public input; and
- Develop and submit recommendations.

Each working group was charged with formulating recommendations organized as follows:

- Recommended best practice;
- Rationale for implementation;
- Roadblocks to implementation;

- Resources needed; and
- Responsibility.

Recommendations for alternative transportation modes are listed below.

- Establish a transportation consortium to design and oversee a transportation-coordinated system for older persons and other transportation-limited populations.
- Develop a transportation data system and promote one place or telephone number for people to contact to receive assistance with transportation.
- Build the family of transportation services available to older persons and transportation-limited populations by expanding these programs across the county:
  - Mileage reimbursement,
  - Taxi voucher,
  - Peer/group travel training,
  - Neighborhood circulators and community buses, and
  - Flex-route bus routes.
- Develop new transportation options:
  - Pilot an Independent Transportation Network (ITN) program (see next section of this chapter) in an interested community; or
  - Pilot a senior vanpool program.
- Promote private-sector involvement in providing alternative transportation options for seniors and other special need populations.
- Increase transit use through provision of improved amenities at transportation facilities such as the following:
  - Shade,
  - Restrooms at transfer points,
  - Bike lockers and storage facilities,
  - Park and rides,
  - Water fountains,
  - Benches,
  - Increased security, and
  - Optimized stop locations.

Final recommendations were provided in the regional action plan on aging and mobility (Maricopa Association of Governments, 2002). Detailed implementation planning is underway.

# A BROAD-SPECTRUM APPROACH TO SATISFYING THE NEEDS OF OLDER TRAVELERS

Several transportation operations have attempted to address the special transportation needs of certain segments of the older population. The ITN in Portland, Maine, was established to enhance the mobility of elderly persons in small communities (TRB, 2000). ITN has been more ambitious than most other services in addressing customer satisfaction issues of acceptability, accessibility, adaptability, affordability, and availability. The ITN offers a range of demand-responsive services to a broad spectrum of older riders. A key feature is that the ITN offers a high level of consumer choice regarding service levels, trip costs, and payment options. ITN has been consciously configured as a service to meet the travel needs and desires of older persons that are not being met by other means (Freund, 2000). Also, the system's objectives are highly consumer-oriented: ITN's stated objectives include helping older persons maintain their mobility, dignity, and independence without compromising safety.

The ITN is a nonprofit membership organization that uses automobiles driven by both paid staff and volunteer drivers. Trips are available to persons 65 years of

age and over and visually impaired persons. There are no other restrictions on eligibility for services. Services are available 24 hours a day, 7 days a week, 365 days a year with no restrictions on trip purpose. Services are available within a 15-mile radius of Portland and within a 15-mile radius of the cities of Saco/Biddeford; trips are occasionally provided outside these boundaries, depending on the availability of cars, drivers, and volunteers.

The ITN initiated services in 1995; by March of 1996, it was providing 441 rides per month. Although the ITN is still in its developmental phase, its ridership growth has been significant: in June of 2001, the ITN had more than 1,000 members and provided about 3,000 rides per month. The system's annual expenses now total more than $660,000.

Many of ITN's innovations are listed below.

- Services are demand-responsive, from any origin to any destination, for any purpose, within the service area. Door-to-door service is standard; door-through-door service and hands-on assistance are provided as needed. Services are available throughout the day and night.
- The system intends to achieve financial viability through a combination of fares and donations and does not depend on public subsidies. The ITN's director feels that older persons dislike receiving charity and that it is a matter of pride that they pay for the services that they receive. At the same time, it must be recognized that some older persons cannot afford expensive rides. Therefore, corporate sponsorship and community donations cover the 40 percent of the system's operating costs that are not covered by fares.
- Customers become "members" of ITN (annual membership is $35 for an individual and $50 for a couple or family). Seniors prepay into their own account in advance of travel.
- There are three forms of service: regular service, errand service, and night rides. Services are primarily paid for on a per-mile basis with surcharges added for special services. There is a $3.00 charge for the initial pickup and a per mile charge of $1.00. The minimum fare per trip is $5.00. Errand service is designed for a sequence of short stops (e.g., stops at the bank, drugstore, and hardware store). There is an extra charge of $1.00 per stop. Night rides are those after 9:00 p.m. and before 7 a.m. There is a $6.00 premium charged for night rides.
- Fares vary according to the level of responsiveness. Customers receive discounted fares if they call 24 hours in advance and/or share rides with others. Single-occupant trips on short notice require premium fares. Fares vary from $0.85 to $2.00 per mile; through June of 2001, the average one-way fare charged was $6.50.
- A variety of innovative payment plans are in place or proposed:
  - Trip cost sharing by merchants visited by the riders (Ride & Shop);
  - Trip cost sharing by professionals visited by the riders (Healthy Miles);
  - An automobile trade-in program in which program participants can donate their cars to the program in exchange for trips equal to the total value of the car (Car Trade program);
  - Gift programs through which children, friends, and others can provide rides for older persons with gift certificates, monthly payments, or payments for individual rides (Adult Child Payment Program);
  - Transportation credits for volunteer services;
  - Discounted trips for frequent riders (Frequent Rider Miles);
  - A proposed affinity credit card program so that children, friends, and others can provide mileage credits from credit card purchases

(the Frequent Rider Miles program from credit cards);

  - Contracts for rides with third-party payers (Ride Services); and
  - A fund for low-income riders who cannot afford to pay full fare (Road Scholarship Fund).

- The system relies heavily on volunteers for drivers and other positions; the ITN now has 100 volunteer drivers. The ITN uses a "Look Who's Driving Now" volunteer program that includes high-profile local political leaders as drivers as a means of attracting volunteers and publicizing the program.
- Close attention is paid to the expressed needs of the riders. Riders are involved in a variety of research programs that test and evaluate service components. The system emphasizes the dignity and desires of the participants.
- The system pays rigorous attention to cost-saving measures.
- The service is highly data-oriented, with files on each individual participant including his or her travel needs and account status. The system is moving to implement automated dispatching software and GIS technology.
- Community leaders are encouraged to participate on the ITN Board of Directors, both to guide the system and promote its value to the community. A Board of Advisors includes national experts in transportation and other services.
- Pilot replication sites are under consideration in Arizona, Maryland, New York, Texas, and Virginia.

The strength of the ITN is that it has reconfigured the usual transportation system components into an unusual and attractive combination of business practices that are highly oriented to the specific needs of older persons. Still, much remains to be done: to succeed and prosper beyond its developmental phase, the ITN will need to obtain stable sources of funding, attract additional riders, and lower its average trip costs.

# CONCLUSION

Two of the most important new concepts in providing transportation to older persons are that many particular submarkets of older riders exist and no one form of transportation service will benefit all these riders. These ideas will most likely be important in efforts to offer improved public transit services for older persons in the future.

In the long run, multiple types of services, offered at varying prices, with options that riders could choose on their own to fit the specific demands of individual days and trips could go a long way toward replacing the "one-size-fits-all" approach to public transportation. Shared-ride, demand-responsive services, dispatched and controlled through advanced technologies, could provide higher levels of service than are now available, at higher levels of productivity and cost-effectiveness. Frequent, comfortable, affordable, spontaneous service to a wide variety of origins and destinations, over a wide range of service hours is what seniors desire. Providing trips with these attributes may prove challenging for some transit agencies, but services of these types will be rewarded with patronage. A serious challenge for the public transportation industry will be finding ways of improving services while collecting revenues that cover the costs of such services.

Although it is theoretically possible to effectively address all of the challenges to better transportation services identified by older persons and transportation professionals, some challenges can be more easily addressed than others. Some solutions can be implemented within existing structures for the delivery of transportation services and the legislative, policy, and regulatory environment. Other

solutions will require fundamental structural changes in the way services are organized, managed, and delivered.

Solutions that can be expected to most fully succeed in meeting the travel needs of older persons are the most complex and require long-term thinking and action. They fall into three general areas:

1. Those that will require a significant departure from traditional approaches to service delivery;
2. Those that will require close collaboration and partnerships at the local, state, and federal levels of government so that organizations serving older persons and others are able to develop coordinated solutions to travel needs; and
3. Those that will require a shift in focus from the operation of transportation modes—fixed-route, paratransit, rail—to a focus on the market for transportation service, its key segments, the needs of customers in those marketplaces, and the design and delivery of transportation services tailored to those needs.

If these kinds of solutions are implemented, the public transportation industry is likely to achieve a much higher level of success in meeting the travel needs of older persons.

# Section 4

# CONCLUSION: STEPPING UP TO THE CHALLENGES TO BETTER TRANSPORTATION SERVICES FOR OLDER PERSONS

## APPROACHES TO NEW SERVICE PATTERNS

Transit agencies wishing to respond to the changing needs and demands of tomorrow's older persons will need to reconfigure their operations and services; traditional responses will not be considered responsive. New ways of conceptualizing and providing transportation services will be needed. Better transportation services for older persons will need to simultaneously address their mobility preferences and the challenges to better services for older persons that have been identified by transit industry personnel.

Fundamental changes are needed in five areas:

1. **Consumer Orientation.** Future customers will gravitate to those services that most closely fit their specific demands. Following the lead of consumer-oriented industries like package delivery services, personal transportation services will need to focus on tailoring travel options to the wishes of individual customers. The primary focus thus shifts to the trip instead of the travel mode. Demand-responsive services will be highly favored, as will services that emphasize customer comfort.
2. **Agency Responsibilities.** As is already happening in Europe, many U.S. agencies that now provide transportation should embrace new paradigms for public transportation services. This means shifting the agency focus to mobility management and organizing but not operating public transit services. Contracts for various types of services with multiple kinds of service providers

could provide different kinds and levels of service for differing travel needs. Advanced transportation organizations will be seen primarily as travel facilitators, not service providers. These changes would require the kind of management structure shown in Figure 5.

3. **Customer Choice.** Older travelers will demand many more travel options in the future. Multiple service types at varying prices will be needed. Recognizing that no one solution fits all travel needs, transportation providers will replace heavy emphasis on one or two modes of travel with more travel options within an overall family of services. High levels of responsiveness, speed, comfort, and flexibility will command higher prices; trips reserved in advance, with more scheduling dictated by the operator than the consumer, will command lower prices.
4. **Fare Strategies.** Future transportation operators should focus on full cost recovery for the trips that they provide; non-operating agencies could assume responsibility for providing subsidies for those riders deemed to need subsidized trips. Electronic fare payments will predominate.
5. **Advanced Technologies.** Consumer-oriented technologies can provide real-time information about when vehicles will arrive to pick someone up and how long trips may take. Low-floor vehicles should be emphasized, as should non-cash transactions.

There is a role in the future for all of today's familiar transportation services and probably some that have not yet been designed. A wide variety of services could be matched closely to the individual needs of individual travelers, with people of the highest level of independence served by the least tailored services and people with specialized needs served by the most specialized transportation services. This concept is illustrated in Figure 6.

Large vehicles operating on fixed routes and schedules may still serve the most trips and most persons with high-volume routes and major activity destinations. Service Routes and feeder services, with multiple stops in small areas like neighborhoods, will grow in number and demand, serving

**Figure 5**

**Potential Organizational Structure for Future Public Transportation Organizations**

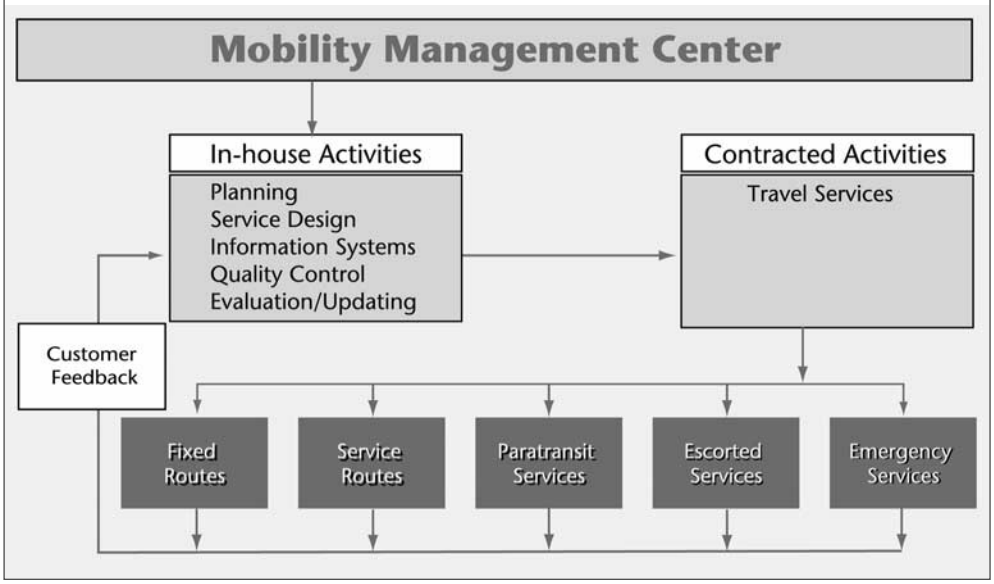
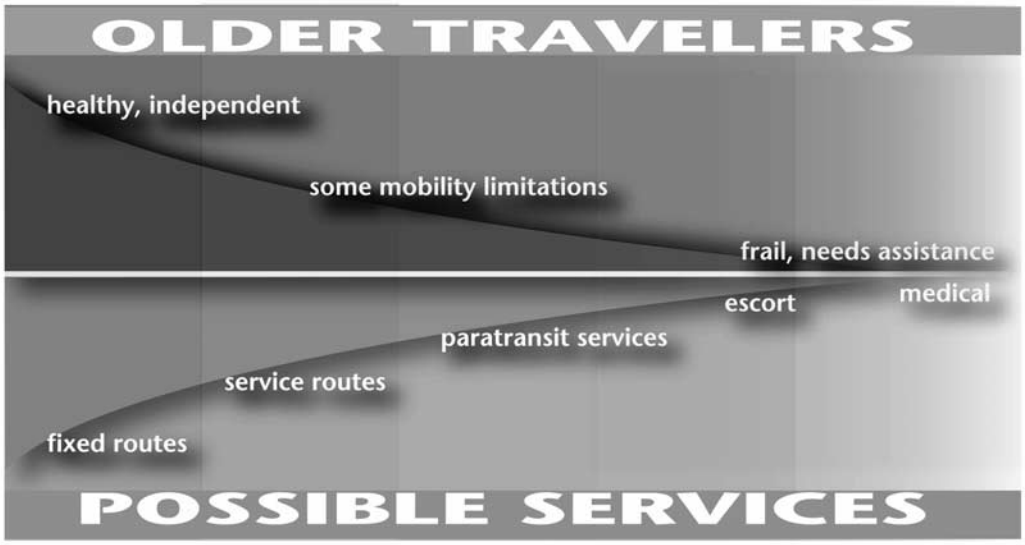


**Figure 6**

**Matching Transportation Options to the Needs of Individual Travelers**




some of the more specialized needs. A strong role for taxis and paratransit services will develop as these modes change to meet increased demands for quality service and flexible responsiveness and pricing. Special services operated by human service agencies will continue to address special client needs. Services provided with volunteers will assume an even larger role in responding to the unique needs of travelers for whom other services are not cost-effective. For people who are frail and need the highest level of personal assistance, escorted or medical services may best meet their needs. To the extent that all of these components can be managed and coordinated by one central office, the chances for high-quality, cost-effective services rise dramatically. Important features of this concept are that all modes are working together, that many choices for travel exist, that levels of service can match the specific needs of particular people or individual trips, and that some people might use one mode for one trip or kind of trip and use another mode for other trips with differing travel needs.

# SEVERAL INSPIRING EXAMPLES

Innovative transportation services are beginning to appear in many communities. Several of these are shown in Table 28, but many other examples have been discussed in previous chapters. In small and large U.S. communities and in other countries, new services are being provided that include specialized services operated for human service agency clients, public and private paratransit operations, and major transit authorities.

# CONCLUSION

Increased mobility could create substantially more independence and freedom for many older persons and is likely to help reduce overall the social costs of caring for older persons. Public transit agencies could play an expanded role as future transportation providers by offering improved mobility

**Table 28**

## Examples of Innovations and Sites Where They Now Occur

| *Innovation* | *System* | *Locality* |
|---|---|---|
| ***Customer Orientation*** | | |
| Demand-responsive transit | Fort Worth Transit Authority | Fort Worth, TX |
| Tailored services | Mountain Empire Older Citizens | Big Stone Gap, VA |
| ***Agency Responsibilities*** | | |
| Non-operating agency | London Transport | London, England |
| Contracts for service | Port Authority of Allegheny County | Pittsburgh, PA |
| ***Customer Choice*** | | |
| Multiple services and fares | Independent Transportation Network | Portland, ME |
| Family of services | AB Uppsalabuss | Uppsala, Sweden |
| ***New Fare Strategies*** | | |
| Multiple co-payment sources | Independent Transportation Network | Portland, ME |
| Riders contract with volunteers | Transportation Reimbursement and Information Project | Riverside, CA |
| ***Advanced Technologies*** | | |
| Low-floor vehicles | Valley METRO | Phoenix, AZ |
| Real-time arrival notice | San Francisco MUNI | San Francisco, CA |

options for seniors. The improved mobility options for seniors would benefit many other non-senior riders, as well. The key improvements desired by older travelers and seen as important by most industry professionals are as follows:

- Reliable departure and arrival times;
- Door-to-door service;
- One central number to call for "one-stop transportation shopping";
- Reduced walking distances to fixed-route bus services;
- Flexible service available on demand (no 24-hour waits for trips);
- Comfortable vehicles and waiting areas;
- Connections among more origins and destinations; and
- Services available during more hours of the day and more days of the week.

These improvements qualify as "universal design" enhancements; they appeal to anyone who rides transit, not just the elderly.

Achieving these improvements will not necessarily be easy. From the industry perspective, the major problems in achieving these ideal attributes are lack of funding, the press of other responsibilities, and a reluctance to embrace service changes.

Long-term approaches to meeting a large proportion of the travel needs of tomorrow’s older persons will need to focus on reliable door-to-door services. Transit industry professionals often view such services as

excessively expensive. Approaches to addressing this concern are to increase the revenues from such services, employ cost-cutting measures, increase the productivity of such operations so that per-trip costs are reduced to a reasonable level, or to allow other transportation providers to dominate the market for trips for older persons.

To meet the future travel needs of older persons, transit agencies will have to function more as customer-oriented mobility managers than as system-oriented service providers, offering a much wider range of services at a much wider range of prices than is the case today. Three key changes need to be made:

1. Public transportation needs to be perceived as a customer-oriented and friendly industry. In 2002, many seniors do not perceive public transportation in this way.
2. The concept of fitting the service to the needs of the customer—instead of fitting the customer's needs to the service—needs widespread adoption within the transportation industry.
3. Finally, there are many particular submarkets of older riders, which means that no one form of transportation service can possibly benefit all these riders. Understanding this may be one of the most important keys to offering improved public transit services for older persons in the future.

There is an enormous market of unmet needs in the area of transportation for elderly riders. Transit agencies that successfully meet those needs will be rewarded with increases in ridership, community support, and revenue. The number of potential elderly transit passengers will be increasing rapidly over the next 30 years, meaning that improvements and preparations made today will become far more important as the years pass. Currently operating innovative services demonstrate that, with appropriate public support, necessary improvements can be made that enable transportation providers to serve much larger numbers and proportions of the travel needs of older persons. Making public transit more attractive to older persons makes transit more attractive to everyone.

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# LIST OF ACRONYMS

| | |
|---|---|
| AARP | American Association of Retired Persons |
| ADA | Americans with Disabilities Act of 1990, as amended |
| ADLs | activities of daily living |
| AMTRAN | Altoona Metro Transportation |
| AoA | Administration on Aging |
| APTA | American Public Transportation Association |
| ARCTIC | Advanced Rural Transit Information and Coordination |
| AVL | automatic vehicle locator |
| BMC | Baltimore Metropolitan Council |
| CATA | Capital Area Transit Authority |
| CCRTA | Cape Cod Regional Transportation Authority |
| CDC | Centers for Disease Control and Prevention |
| COAST | Council on Aging Specialized Transportation |
| COST | Cooperation in Science and Technology |
| CTC | Community Transportation Coordinator |
| DDS | Driving Decisions for Seniors |
| DHHS | Department of Health and Human Services |
| DMAS | Department of Medical Assistance |
| DMV | Department of Motor Vehicles |
| DOT | Department of Transportation |
| ET | Enabling Transportation |
| GCRTA | Greater Cleveland Regional Transit Authority |
| GFTD | Great Falls Transit District |
| GIS | geographic information system |
| GRTA | Grand Rapids Transit Authority |
| IADLs | instrumental activities of daily living |

| | |
|---|---|
| ITN | Independent Transportation Network |
| ITS | Intelligent Transportation System |
| MAG | Maricopa Association of Governments |
| MARTA | Metropolitan Atlanta Regional Transportation Authority |
| MDT | mobile data terminal |
| MEOC | Mountain Empire Older Citizens |
| MSA | metropolitan statistical area |
| NCHS | National Center for Health Statistics |
| NHIS | National Health Interview Study |
| NLTCS | *1982–1994 National Long-Term Care Survey* |
| NORC | naturally occurring retirement community |
| NPTS | *Nationwide Personal Transportation Survey* |
| OECD | Organization for Economic Cooperation and Development |
| PAAD | Pharmaceutical Assistance to the Aged and Disabled |
| PARTA | Portage Area Regional Transportation Authority |
| PDA | Personal Digital Assistant |
| PennDOT | Pennsylvania Department of Transportation |
| PHV | private for-hire vehicle |
| RTA | Regional Transit Authority |
| RTC | Regional Transportation Commission |
| SIPP | *Survey of Income and Program Participation* |
| SLU | Swedish University of Agricultural Sciences |
| SOA II | *National Health Interview Survey on Disability, Supplement on Aging II* |
| STAR | Sweetwater County Transit Authority |
| STP | Supplemental Transportation Program |
| STS | Special Transportation System |
| TOPS | Transportation Options |
| TQM | Total Quality Management |
| TRIP | Transportation Reimbursement and Information Project |
| TTY | Teletype |
| USDA | United States Department of Agriculture |
| VTI | Volunteer Transportation, Inc. |

# Appendix

## TCRP B-19 Group Discussions with Aging and Transportation Professionals

### American Society on Aging Annual Meeting
### Quality Resort, San Diego, California
### March 27, 2000

| *Name* | *Company* | *Location* |
|---|---|---|
| John Eberhard | NHTSA, U.S. Department of Transportation | Washington, DC |
| Mary Elder | Area 7 Agency on Aging, Senior Transportation | Terre Haute, IN |
| Phil LaPore | New York State Office of the Aging | Albany, NY |
| Kent Milton (Consultant) | American Association of Motor Vehicle Administrators | Arlington, VA |
| Selma Sauls | Florida Department of Highway Safety and Motor Vehicles | Jacksonville, FL |
| Jane Stutts | Highway Safety Research Center, University of North Carolina | Chapel Hill, NC |
| Don Trilling | U.S. Department of Transportation, Office of the Secretary | Washington, DC |
| Gloria Wetnight | Area 7 Agency on Aging, Senior Transportation | Terre Haute, IN |

# TCRP B-19 Industry Group Discussions
# American Public Transportation Association Conference, Houston, Texas
# May 8, 2000

| *Name* | *Company* | *Location* |
|---|---|---|
| Rick Cain<br>Assistant Administrator | Central Oklahoma Transportation and Parking Authority | Oklahoma City, OK |
| Gregory Cook<br>Executive Director | Ann Arbor Transportation Authority | Ann Arbor, MI |
| Carol Cruise<br>Director, Transit Services | City Utilities | Springfield, MO |
| James Delage<br>Operations Manager | South Central Massachusetts Elderbus | Southbridge, MA |
| John Downs<br>Planning Manager | Fresno Area Express | Fresno, CA |
| Marianne Dundor | Metropolitan Transit Authority of Harris County | Houston, TX |
| Frank Jennings<br>Vice President, Transportation | Dallas Area Rapid Transit | Dallas, TX |
| Anthony Johnson<br>Assistant General Manager | Fort Worth Transportation Authority | Fort Worth, TX |
| Jeanne Kreig<br>General Manager | Eastern Contra Costa Transit Authority | Antioch, CA |
| William W. Millar<br>President | American Public Transportation Association | Washington, DC |
| Larry J. Morris<br>Executive Director | Westmoreland County Transit Authority | Greensburg, PA |
| Patrisha Piras<br>Director | Laidlaw Transit Services Inc. | San Lorenzo, CA |
| Phillip G. Shayne<br>Manager, Regional Services | Regional Transportation Authority | Chicago, IL |

# TCRP B-19 Industry Group Discussions
# American Public Transportation Association Conference, Houston, Texas
# May 9, 2000

| *Name* | *Company* | *Location* |
|---|---|---|
| John E. Autry, Jr.<br>Director, Operations | Metropolitan Transit Authority | Nashville, TN |
| Robert Carlson<br>Program Manager | Easter Seals Project ACTION | Washington, DC |
| Martin DeNero<br>Accessible Service Manager | Santa Clara Valley Transportation Authority | San Jose, CA |
| Kevin Desmond<br>Director, Development | Pierce Co. Public Trans. Benefit Area Authority Corp. | Tacoma, WA |
| William Hickox<br>District Transportation Manager | Delaware Transit Corporation | Wilmington, DE |
| Joseph Martin<br>Operations Supervisor | Operations Supervisor, MTA Nashville | Nashville, TN |
| Lana L. Nelson | Puget Sound Transit | Seattle, WA |
| Louwana S. Oliva<br>Director, Communications | METRO Regional Transit Authority | Akron, OH |
| Richard Pullia<br>Regional Division Manager | Pace Suburban Bus Division of RTA | Melrose Park, IL |
| Vance Ratliff | Metropolitan Transit Authority of Harris County | Houston, TX |
| Edward Wisniewski<br>Manager, Paratransit Services | Broward County Commission, Mass Transit Division | Pompano Beach, FL |
| Patrice Ware<br>Director, Paratransit and Special Services | Central Ohio Transit Authority | Columbus, OH |

# TCRP B-19 Industry Group Discussions CTAA EXPO, Fort Lauderdale, Florida June 8, 2000

| *Name* | *Company* | *Location* |
|---|---|---|
| Arlene Littleton | Sussex Co. Senior Services | Salt Lake City, UT |
| Phil Blue | DHS Aging Services | Oklahoma City, OK |
| Alan Smith<br>Director of SCAT | Metro RTA | Akron, OH |
| Douglas Wood<br>General Manager | RIDE/Intelitran | Providence, RI |
| Maggie Franklin<br>Director | Parker Co. Transportation Services | Weatherford, TX |
| Jeanie Chrisman<br>Manager | Mobility Services-Indy 60 | Indianapolis, IN |
| Margaret Cook<br>Director | Bergen Co. Special Transportation | Hackensack, NJ |
| Budd Bell<br>Commissioner | Commission for the Transportation Disadvantaged of Florida | Tallahassee, FL |
| Edna Burroughs<br>Deputy Director | CARTS | Austin, TX |
| Nancy Thomas<br>Manager | Tri-Met | Portland, OR |
| Anne Dennison<br>Executive Director | Rural County Transportation | St. Johnsburg, VT |

Abbreviations used without definitions in TRB publications:

| | |
|---|---|
| AASHO | American Association of State Highway Officials |
| AASHTO | American Association of State Highway and Transportation Officials |
| ASCE | American Society of Civil Engineers |
| ASME | American Society of Mechanical Engineers |
| ASTM | American Society for Testing and Materials |
| FAA | Federal Aviation Administration |
| FHWA | Federal Highway Administration |
| FRA | Federal Railroad Administration |
| FTA | Federal Transit Administration |
| IEEE | Institute of Electrical and Electronics Engineers |
| ITE | Institute of Transportation Engineers |
| NCHRP | National Cooperative Highway Research Program |
| NCTRP | National Cooperative Transit Research and Development Program |
| NHTSA | National Highway Traffic Safety Administration |
| SAE | Society of Automotive Engineers |
| TCRP | Transit Cooperative Research Program |
| TRB | Transportation Research Board |
| U.S.DOT | United States Department of Transportation |