Status Report on the Use of Wheelchairs and Other Mobility Devices on Public and Private Transportation
About Easter Seals Project ACTION

The United States Congress established Easter Seals Project ACTION (ESPA) in 1988 to promote and facilitate cooperation between transportation providers and people with disabilities. ESPA receives funding through a cooperative agreement with the U.S. Department of Transportation, Federal Transit Administration, and is administered by Easter Seals Inc.

Easter Seals Project ACTION—the acronym stands for Accessible Community Transportation In Our Nation—strives to make the Americans with Disabilities Act work for everyone in both worlds, extending resources to all that are free of charge. These include technical assistance and a toll-free number (800-659-6428 between 9 a.m.-5 p.m., Eastern Time, Monday through Friday), Web site (www.projectaction.org), and training activities at meetings and conferences. Easter Seals Project ACTION was established in 1988.

ESPA also offers more than 100 print, video and audio resources from a physical and online clearinghouse. We are pleased to add this “Status Report on the Use of Wheelchairs and Other Mobility Devices on Public and Private Transportation” to the collection.

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Status Report on the Use of Wheelchairs and Other Mobility Devices on Public and Private Transportation

Prepared for Easter Seals Project ACTION by Nelson/Nygaard Consulting Associates
San Francisco, California

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Preface

“The Status Report on the Use of Wheelchairs and Other Mobility Devices on Public and Private Transportation” is a very needed and informative document. I would like to congratulate Easter Seals Project ACTION, Nelson/Nygaard, the Project Advisory Committee and all other involved parties for creating this essential piece of work.

The Advisory Committee for this report represents some of the best professionals with disabilities and disabled activists in the United States.

On July 26, 1990, President George H.W. Bush signed the Americans with Disabilities Act into law. The ADA is a comprehensive Civil Rights law that gives people with disabilities the same rights as all others who reside in the United States. It covers public as well as private entities to ensure that people with disabilities are not discriminated against unfairly in this country. The transportation provisions cover bus, rapid rail, commuter rail, light rail, ferries, paratransit services, sidewalks and pedestrian access and privately operated transportation services.

Since passage of the ADA, new technologies have been introduced in the areas of boarding and securement, and new designs for different types of wheelchairs have been developed. This report looks at the current issues of seniors and people with disabilities boarding and being secured on public transportation vehicles. Safe boarding and proper securement are critical to ensuring a safe ride for all passengers. If people feel safer and more comfortable with riding transit, they will more frequently utilize public transportation services.

Once again, my congratulations to all who helped produce this report. Let us all work together to create an accessible and safe ride for everyone.

Michael Winter
Senior Program Analyst
International Research Office
Federal Transit Administration
U.S. Department of Transportation

(Michael Winter’s role as a leader in transportation’s public sector and the field of disability rights spans two decades. Prior to his arrival at the FTA in Washington, D.C., he served on California transit boards and as president of the National Council on Independent Living, helping to lead the grass-roots effort to achieve the Americans with Disabilities Act. Before recently achieving a new career milestone in the FTA’s International Research Office, he served as director of the Office of Civil rights.)
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How to use this document

This report represents a “snapshot” of current issues and promising practices regarding the Use of Wheelchairs and Other Mobility Devices on Public and Private Transportation.

A goal of this study is for the findings to serve as a practical tool and guidance for the following types of groups:

• Transportation provider agencies and related organizations/associations
• Disability advocacy and service organizations
• Consumers
• Manufacturers (of mobility devices, vehicles, securement equipment, etc.)
• Government transportation regulatory and funding agencies
• Government and private health care funding agencies

Consistent with this goal, this report includes a listing of topics for development of potential new best practices, educational/training materials, research and demonstration, or policy guidance. It is intended to serve as a catalyst for advancing the ability of providers to serve their riders with disabilities more effectively and safely, and for riders to make the best use of the services available to them. It is also intended as an advocacy tool to encourage manufacturers to design safely transportable mobility devices as well as to design vehicles and equipment that can accommodate a greater variety of devices.

Executive Summary

Wheelchair usage on fixed-route transit has increased dramatically in recent years as improvements have been made to vehicle design, and wheelchair users become more active in the community. Some transit agencies report more than 10,000 annual wheelchair boardings on their buses. Despite these ridership trends, changes in wheelchair designs are often at odds with improvements in transit vehicles and securement equipment that have occurred since the passage of the Americans with Disabilities act. Many, if not most, new power wheelchairs and scooters do not provide adequate securement points to ensure they can be safely accommodated on public transit. Standards that were developed to include attachment points on mobility devices (“WC19”) are not well known by consumers and their support services, and the new designs are available on only a fraction of wheelchair models. Other challenges include transit equipment design, transit operations and training, and regulatory and policy issues.
In response to concerns within the transportation industry and the disability community on this important topic area, Easter Seals Project ACTION (ESPA) selected Nelson\Nygaard Consulting Associates to prepare a comprehensive national report on the status of the current use of wheelchairs and other mobility devices on public and/or private fixed-route and paratransit vehicles. The Nelson\Nygaard team included:

- ADA policy and practice experts
- The Director of the National Center for Accessible Transportation
- A mobility device engineering research and development expert
- A consultant who is the chair of the American Public Transportation Association’s Wheelchair User Issues Subcommittee and who was also a former transit agency accessibility and paratransit manager

In addition, report findings were reviewed by a 12-member advisory committee representing a broad range of perspectives, including those of the transit industry, the disability advocacy community, and wheelchair and vehicle manufacturers. In addition to report review, committee members provided significant input into the report content.

Four approaches were adopted to complete this report:

- Review of more than 50 documents that address pertinent regulations, industry standards, public transportation industry policies and practices, wheelchair industry information, technical research and synthesis reports
- Interviews with key stakeholders representing diverse perspectives: those of advocates, transit agencies, wheelchair and vehicle manufacturers
- Web-based survey of more than 100 wheelchair users
- Policy roundtable conference call with key stakeholders

The report synthesizes the results of these research efforts by identifying the key issues, documenting current best practices in the field, and identifying areas that require further research or greater guidance to transportation providers and riders with disabilities. The research methodology, an annotated bibliography, and survey results are detailed in appendices to the report.

The report highlights key issues in the following areas:

Example of a non-traditional wheelchair

- Oversized wheelchairs
- Space and maneuvering onboard vehicles
- Lift and ramp boarding
- Issues with oversized wheelchairs
- Non-wheelchair mobility aids
- Other items carried with mobility devices
- Securement issues
- Transit personnel proficiency and awareness
- Training standards and monitoring of service performance
- Progress in making “transit-safe” wheelchairs available
- Clarification needed in federal guidance
- Research and development to support industry-wide standards and new design approaches
- Education and dissemination of available resources
The report then provides a distillation of the best practices identified through the team's research and concludes with a series of topics for development of potential new best practices, educational/training materials, research and demonstration, or policy guidance, as summarized in the following table:

<table>
<thead>
<tr>
<th>Issue area</th>
<th>Issues</th>
<th>Recommendations</th>
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<tbody>
<tr>
<td>Transit Vehicle and Equipment Design</td>
<td>Space and maneuvering on board vehicles—constrained spaces</td>
<td>For manufacturers and mobility-related industries:</td>
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<tr>
<td></td>
<td>Lift and ramp boarding—steep angles and reliability</td>
<td>• Develop industry standards or guidelines for wheelchair space layouts, aisle clearances,</td>
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<td>placement of securement equipment, etc.; to be used by both vehicle purchasers and manufacturers/designers.</td>
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<td>• Increase development and &quot;real-world&quot; (in transit service environment) demonstration of new technologies.</td>
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<td>For transit providers:</td>
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<td>• Encourage standardized wheelchair securement equipment by retrofitting older vehicles with updated</td>
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<td>equipment, and increase or improve maintenance programs for older wheelchair lifts.</td>
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<td>• Routinely involve advisory committee members and drivers in the selection of new and replacement vehicles.</td>
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<th>Issue area</th>
<th>Issues</th>
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<tbody>
<tr>
<td>Wheelchair Design,</td>
<td>Oversized wheelchairs—increasing number of chairs that don’t fit into minimum ADA vehicle standards</td>
<td>For wheelchair users:</td>
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<tr>
<td>Purchasing, Usage and Prescription</td>
<td>Non-wheelchair mobility aids—segways, strollers</td>
<td>• Learn about the dimensions established for wheelchair space aboard transit vehicles</td>
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<td></td>
<td>Other items carried with mobility devices—oxygen, large backpacks</td>
<td>For vendors and prescribers:</td>
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<td>• Be cognizant of the dimensions established for wheelchair space aboard transit vehicles, clearly including this aspect in dealings with wheelchair users</td>
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<td>For wheelchair manufacturers:</td>
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<td>• Develop guidelines for manufacturers to use in making information about “transit friendliness” of mobility devices accessible and available to prospective purchasers</td>
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<td>Transit Operations and Training</td>
<td>Securement issues—customer preferences, variety of devices, securement policies, ergonomics, time</td>
<td>For the industry:</td>
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<td></td>
<td>Transit personnel proficiency and awareness—sensitivity, securement skills</td>
<td>• Development of a “template” type of document that can be used by transit systems to educate customers of accessibility features and more</td>
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<td></td>
<td>Training standards and monitoring of service performance—inconsistent, little direct monitoring</td>
<td>• Development and dissemination of model training program elements</td>
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<td>• Development of “best-practice” policies and guidelines for accommodating Segways and other non-traditional mobility devices</td>
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<td>• Development of guidelines on how to implement wheelchair marking and tether strap programs</td>
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<td>• Dissemination of best practices or guidelines for monitoring transit system performance regarding mobility aid accommodations</td>
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<td>Issue area</td>
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<tr>
<td>Regulation and Policy</td>
<td>Progress in making WC19-compliant wheelchairs available—limited outreach to users</td>
<td>For the industry:</td>
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<td></td>
<td>Education and dissemination of available resources—limited and inconsistent</td>
<td>Additional research</td>
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<td></td>
<td></td>
<td>• Examination of barriers to making WC19-compliant mobility devices available to transit users.</td>
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<td>Activities:</td>
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<td>• Development of guidelines for transit providers on how/why to choose “mandatory” vs. “optional” rider choice policy for securement.</td>
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<td>• Increased coordination of various regulations that affect mobility device accessibility and design.</td>
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Chapter 1. Background

Problem Statement
About the Study
Problem Statement

The need to accommodate travel by passengers with disabilities on various transportation modes has increased dramatically in recent years, with some transit agencies reporting more than 100,000 annual wheelchair boardings on their buses. Fixed-route ridership is increasing as wheelchair users become more active in the community, the nation’s fixed-route transit bus fleet nears 100 percent accessibility, and transit agencies implement more accurate ADA paratransit eligibility screening processes, thereby shifting a portion of paratransit ridership to fixed-route service.

Wheelchairs and scooters have evolved into a wide range of varied and complex designs, often without traditional frame joints that can accept vehicle tie-down devices. This has been exacerbated by the development of newer securement systems to promote less cumbersome, faster securement performance. The newer systems tend to utilize hooks instead of the older buckle or clasp closures, sometimes resulting in less flexibility for attaching to non-traditional wheelchair frame geometries.

In April 2000, “WC19 Wheelchairs Used as Seats in Motor Vehicles” was approved by the American National Standards Institute (ANSI) and the Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) as a U.S. standard. Wheelchairs that meet the design and performance requirements of this voluntary standard are labeled to show that they comply with WC19. A WC19 wheelchair has four crash-tested securement points where tie-down straps and hooks can be easily attached so the chair can be effectively secured to the vehicle. Although an increasing number of wheelchair models are being designed and tested to be WC19-compliant, many mobility devices on the market, especially scooters, are not available with this option. Moreover, for a variety of reasons, the percentage of WC19-compliant mobility devices in actual use is much lower than the number of models that can be purchased with this important feature.

But WC19 standards are not well known by consumers and their support services. It is not uncommon for third-party funding sources, which cover most of the costs of most mobility devices, to deny coverage for WC19-compliant features, forcing the end-user to either pay for these features out of pocket, or skip them.

An increasing number of mobility aids are also too large or difficult to maneuver in order to board transit vehicles. Several research and development projects are under way to improve the situation. Some of these projects are being conducted within the Rehabilitation Engineering Research Center (RERC) on Wheelchair Transportation Safety, funded by the National Institute for Disability and Rehabilitation Research (NIDRR), and include testing of innovative new securement designs, evaluating existing securement devices, occupant restraints and crash testing requirements, and investigating new universal “docking” and rear-facing “compartmentalization” solutions. However, these are long-term prospects, and could require significant change in federal regulations to implement. Meanwhile, there is a fast-growing need to find a way for wheelchair users, manufacturers, dealers and medical funding agencies to offer and use devices that are more readily compatible with securement systems used on various modes of public transportation. In short, the most immediate and significant progress for both safety and usability can be achieved by increasing the number of WC19 wheelchairs available and in use.

Dialogue on wheelchair (and other mobility aids) usage on vehicles is needed to determine priority topics of concern, the kinds of standards that are needed, and how existing standards can be more effectively implemented. Education is needed for wheelchair users, manufacturers, securement equipment and vehicle suppliers, transit managers, and medical funding and regulatory entities on the benefits of proper securement and “WC19” wheelchairs.
About the Study

In response to concerns within the industry and the disability community on this important topic area, Easter Seals Project ACTION (ESPA) selected Nelson\Nygaard Consulting Associates to prepare a comprehensive national report on the status of the current use of wheelchairs and other mobility devices on public and/or private fixed-route and paratransit vehicles.

The primary focus of this study is on wheelchair users who remain seated in their wheelchairs when traveling in public and private vehicles. However, the study necessarily encompasses a very broad range of disciplines and stakeholders, as well as technical, operational and policy issues that have important roles regarding transportation for travelers seated in wheelchairs. In order to explore the breadth of issues and generate a report of substantive value to key stakeholders, the Nelson\Nygaard team employed four distinct approaches:

• literature review
• stakeholder interviews
• Web-based survey of wheelchair users
• policy roundtable conference call with key stakeholders.

The following chapters present a synthesis of the key issues that emerged from research and document current best practices in the field. Areas are identified that require further research or greater guidance to transportation providers and riders with disabilities. The research methodology, including detailed results of a survey of the consumer perspective, is detailed in a series of appendices.

Since this topic has been the focus of increased attention during recent years, policy, practice and regulations are constantly changing. For example, during the course of this project the U.S. Access Board released a notice of potential amendments to the accessibility requirements for vehicles and systems which were not finalized prior to the release of the study. As a result, some of the regulatory guidance sought by stakeholders who provided input to the report may well be addressed in the near future. This report therefore represents a “snapshot” of current issues and practice, and should serve as a catalyst for advancing the ability of providers to serve their riders with disabilities more effectively and safely, and for riders to make the best use of the services available to them. Consistent with the goal of ESPA, the objective of this study is ultimately to enhance the ridership experience of those who use wheelchairs and other mobility devices on public and private transportation.

The following chapters represent a synthesis of the key issues, barriers, promising practices, and recommendations for further research in the use of mobility devices on public and private transportation that emerged from a literature review, stakeholder interviews and a policy roundtable (see appendices for details on research methodology).

While this listing of issues has been selected to reflect what we believe to be the most salient concerns in the field, we have made no attempt to determine the veracity of all of the issues or to quantify the degree to which they are problems. Such an effort would be beyond the scope of this study, but may well be appropriate for additional research.

Essential to discussion is the perspective of transit passengers, and the views of those who participated in the survey are described. Current best practices are presented in the context of applicable issues.
The issues and promising practices described in the following chapters cover the use of the following devices:

- Manual wheelchairs
- Power wheelchairs
- Scooters (3–and 4–wheeled)
- Walkers
- Segways
- Crutches, canes and other assistive devices
- Non-mobility aid devices (bicycles, tricycles, “go-ped” scooters, carts, gurneys, etc.)
- Oxygen tanks and other durable medical equipment

The study addresses the status of accommodating and securing these devices on various types of vehicles, including:

- Public and private paratransit vehicles
- Taxis
- Fixed-route and over-the-road buses

![Power Wheelchair (rear wheel drive)](image1)
![3-wheeled scooter](image2)
![4-wheeled scooter](image3)

![Segway](image4)
![Power Wheelchair (mid wheel drive)](image5)

Note: Some of the issues identified in the following chapters were included in the draft guidance released by the Access Board on April 11, 2007. Depending on the commentary received and follow-up actions by the board, it is possible that some of these issues may be addressed within months of the release of this report.
Chapter 2. Transit Vehicle and Equipment Design

Description of the Issues
   Space and Maneuvering on Board Vehicles
   Lift and Ramp Boarding

Best Practices

Recommendations
Description of the Issues

Space and Maneuvering on Board Vehicles

Interior space is limited on vehicles, wheelchair sizes are increasing, and more problems are being encountered with less maneuverable devices. The trend toward low-floor large urban buses with ramps (as opposed to traditional high-floor buses with lifts) has exacerbated space and maneuverability issues, and also brings more potential for difficulties with ramp boarding, especially where steep angles are encountered due to lack of curbs.

Maneuverability also depends on the location of the ramp. A rear-door ramp provides more clearance to reach the securement location than a front-door ramp, but it can be more difficult to maneuver the bus to position a rear-door ramp for boarding from the curb. Second, where the ramp must deploy to street-level, the angle is measured from the street, not from the curb.

Improvements have been made in bus design to alleviate problems with the farebox or other structures at the front of the bus from impeding a wheelchair rider’s maneuverability, but some wheelchair users who have experienced difficulty in the past may not be aware of such improvements and therefore may shy away from using fixed-route transit.

Small vehicles such as minivans can present even more serious challenges than other vehicles due to inherent space constraints and vehicle suspension characteristics. Issues differ for smaller, paratransit vehicles than for larger, fixed-route buses. Nevertheless, each type can be prone to problems with mobility aid maneuvering space and securement equipment placement if careful attention is not paid in designing interior layouts.

There is a lack of standardization of vehicle interiors, related to the size of wheelchair spaces and placement/usability of securement equipment. Poor vehicle layouts sometimes exacerbate the other issues. The problem occurs when new vehicles are purchased and different seating layouts or other features are selected, without full understanding of the relationship between components.

Lift and Ramp Boarding

DOT ADA regulations require transit personnel to provide boarding assistance as necessary, which can include pushing a manual wheelchair up a ramp. This includes situations in which either a manual or power wheelchair user attempts to navigate a ramp that is too steep. The steeper the ramp, the more likely it is that boarding assistance will be necessary, so transit operators should have an incentive to ensure the lowest slope possible.

Problems persist with the reliability of accessibility equipment such as bus lifts, which are sometimes related to maintenance issues with older equipment. Various generations of older securement equipment are still in use alongside newer, more modern devices, resulting in a confusing array of equipment
that bus operators and customers must understand and use. While lifts are sometimes replaced and rehabilitated, they are not always given high priority in relation to other maintenance needs even though there are requirements concerning lift maintenance under DOT ADA regs.

**Best Practices**

- Size the wheelchair lift, ramp, aisle way, and securement location dimensions to provide for accommodation of at least the “common wheelchair” dimensions, as well as maneuverability and ability to reach and use securement equipment.
- When buses are in early stages of procurement, test wheelchair layouts via a “configuration audit.” Along with consumer/disability advisory involvement, a surrogate common wheelchair is sometimes used in place of or in addition to a sample wheelchair, sometimes referred to as the “box test” (although the latter can have technical limitations).
- Have the “first article” prototype tested by mobility aid users at the transit system. This is also helpful toward identifying any outstanding issues before general production begins. (NOTE: Some systems are testing a rear facing securement approach, especially in BRT—bus rapid transit—applications.)
- Pilot the new, innovative boarding approaches such as double-folding ramps (to minimize the angle that may cause difficulty boarding where the surface is not close to the bus floor), and rear-door ramp entry (to minimize difficulty maneuvering to securement locations).

**Recommendations**

**For the industry:**
- Develop industry standards or guidelines for wheelchair space layouts, aisle clearances, placement of securement equipment, etc., to be used by both vehicle purchasers and manufacturers/designers. Included could be the development of surrogate wheelchairs or other methods for testing maneuvering clearances, as well providing for consumer/disability advisory input.
- Increase development and “real-world” (in transit service environment) demonstration of new technologies for innovative securement solutions and entry designs, including evaluation of approaches such as rear door entry.

**For transit providers:**
- Encourage standardized wheelchair securement equipment and increase or improve maintenance programs for older wheelchair lifts. Approaches could include technical assistance, joint purchasing programs, and prioritization by funding sources.
- Routinely involve advisory committee members and drivers in the selection of new and replacement vehicles.
Chapter 3. Wheelchair Design, Purchasing, Usage and Prescription

Description of the Issues

  * Oversized Wheelchairs
  * Non-wheelchair Mobility Aids
  * Other Items Carried with Mobility Devices

Best Practices

Recommendations
Description of the Issues

Oversized Wheelchairs

Oversized wheelchairs, meaning devices that are larger and/or heavier than the ADA’s “common wheelchair” definition, are being encountered by transit providers. (In some cases, even common wheelchairs are encountering difficulties due to failure on the part of vehicle manufacturers to provide “adequate clearance” as required under DOT ADA regs). Agencies have difficulty transporting large or heavy wheelchair/user combinations. Larger and heavier power wheelchairs and scooters, combined with passenger size, cannot always be accommodated within existing transportation vehicles. For example, there may be an inability to maneuver into or out of lifts, ramps and securement areas; damage may be caused to lifts; and weight distribution may be a problem on smaller vehicles.

Significant customer service and operational problems and confusion also exist, such as how to determine when a mobility aid actually cannot or should not be accommodated as opposed to merely falling outside the ADA “common wheelchair” parameters, and how to determine whether there are viable alternatives for such customers. Fixed-route transit providers have varying responses to carrying oversized mobility aids, ranging from allowing whatever will fit on vehicles, to denying service to any mobility aid/user combinations that exceed the ADA definition.

Some paratransit agencies are “screening out” oversized or overweight wheelchairs during the ADA eligibility certification process. While they are not necessarily finding the applicants ineligible, the effect in some instances where the applicant has no alternative device is to make it impossible for them to ride paratransit.

Non-Wheelchair Mobility Aids

The use of non-traditional mobility aids is increasing and there is confusion and lack of uniformity in how they are accommodated. Examples are wheeled walkers with seats, Segways, orthopedic strollers and other devices. Segways, where encountered, pose unique challenges such as how the machines are to be stowed on the vehicle.

A related issue is that numerous non-mobility aids, such as shopping carts, bicycles, baby strollers also vie for spaces intended for wheelchair users.

Other Items Carried with Mobility Devices

People may carry backpacks, shopping bags, oxygen tanks or other devices onto the bus, or attached to their wheelchairs. This may exacerbate problems of maneuverability and access to securement points on the mobility device, and can also block the aisles for other passengers, especially in fixed-route bus services.

There is limited guidance on how best to accommodate these devices, such as if/how oxygen tanks should be secured.
## Best Practices

- Manufacturers’ statements of model specifications that include dimensions, weight, and turning radius, as well as a "Ride Safe" brochure and "www.travelsafer.org" Web site by RERC-WTS at University of Michigan, describing wheelchair transportation safety and standards;
- "WC19—Your Ticket to Ride" in, including a list of WC19-compliant wheelchairs at the RERC WTS Web site http://www.rercwts.org/WC19
- Floor demonstration models at wheelchair dealers that are equipped with “Transit” or “Transport” equipment (such as “WC19”-compliant)
- Checklists used for evaluation of wheelchair purchasers’ needs in order to configure the most appropriate device, including whether they will take public transportation. This can be provided by prescribers, health care insurers/funders, or wheelchair vendors, especially those with training and certification such as RESNA-certified Assistive Technology Suppliers ("ATS").
- WTORS manufacturers’ training materials, including training videos

## Recommendations

**For wheelchair users:**
- Learn about the benefits of “transit-safe” mobility devices.

**For vendors and prescribers**
- Increase coordinated efforts to educate wheelchair users about the benefits of WC19-compliant mobility devices. An example is broad promotion of materials such as the current “Ride Safe” brochure and “www.travelsafer.org” Web site by RERC-WTS at University of Michigan, describing wheelchair transportation safety and standards, but tailored more for educating people involved in mobility device purchasing decisions (see Appendix E).

**For wheelchair manufacturers**
- Development of guidelines for manufacturers to use in making information about “transit friendliness” of mobility devices accessible and available to prospective purchasers

**For funding entities**
- Extend coverage eligibility to include WC19-compliant options/equipment [NOTE: Insurers/CMS/other 3rd parties will argue that WC19-compliant equipment is unnecessary for “in the home” use; however, it may be very essential for transportation to medical appointments, etc.]
Chapter 4. Transit Operations and Training

Description of the Issues
- Securement Issues
- Transit Personnel Proficiency and Awareness
- Training Standards and monitoring of service performance

Best Practices
- Transit System Policy Statements and Educational Information
- Training Program Elements
- Auxiliary Aids
- Transit System Performance Monitoring

Recommendations
Description of the Issues

Securement Issues

Some transit passengers refuse or prefer their wheelchair not be secured. Lack of independence, the stigma of special attention (or “holding up the bus”), and fear of mobility aids being damaged are a few of the reasons cited for non-securement. Wheelchair users may also experience discomfort with the invasive physical contact that may be required.

Mobility devices are increasingly difficult to secure because of a lack of identifiable tie-down attachment points on wheelchairs, incompatibility of some newer securement systems with wheelchair frame structures, and limited space in vehicles.

Some stakeholders, including consumers/advocates and transit industry professionals, indicated a preference for a universal securement method, and for wheelchair vendors to better inform customers about whether wheelchairs are “transit friendly.”

Some consumer advocates report they would not support any requirement that such features be mandatory due to concerns that this could interfere with full mobility.

Transit personnel also experience difficulty with the ergonomics of attachment points on wheelchairs that are hard to reach, and with conflicts and challenges related to physical contact/exposure with the wheelchair user while performing wheelchair securement and positioning occupant restraints. Drivers and caregivers are sometimes injured while performing securement, and customers indicate that the time taken for securement on busy routes has been a reason given for pass-ups by bus drivers.

Both customers and transit personnel are annoyed by dirty, twisted, or missing tie-down straps and occupant restraint belts. [NOTE: A good pre-trip inspection should include a check of the securement equipment, as well as cycling the lift/ramp.]

In rail transit, securement policies and designs are highly variable and often not well explained or understood—the ADA does not require tie-downs, and a variety of vehicle interior layouts are used, from simple open areas to “passive compartmentalization” or basic tie-downs such as wheel clamps.

Transit Personnel Proficiency and Awareness

Some consumers report that drivers are not sensitive to their needs, and don’t listen to how devices should be secured, or say they can’t do it or don’t know how to. This is part of a larger issue that includes ongoing problems such as wheelchair users being passed by at bus stops, inoperative lifts on vehicles, and other barriers to using fixed-route transit services.

It is required under 49 CFR 37.173 that each public or private entity which operates a fixed-route or demand-responsive system shall ensure that personnel are trained to proficiency, as appropriate to their duties, so that they operate vehicles and equipment safely and properly assist and treat individuals with disabilities who use the service in a respectful and courteous way.
Training standards and monitoring of service performance

Training and disability awareness of transit provider personnel is variable and sometimes inadequate or inconsistent concerning mobility aid accommodations, resulting in ongoing problems.

Transit provider training on proper boarding and securement procedures is not standardized among various national “train-the-trainer” programs, and can be highly variable at the local transit system level. Such training is sometimes not given to agency personnel who may need it, such as managers and customer service personnel who handle passenger issues, risking a position of violating the requirement cited above.

Diligent monitoring of transit drivers will help to ensure proper performance and reduce the incidence of anecdotal reports and customer complaints. Some transit systems use “secret rider” or other type of monitoring, sometimes in conjunction with monitoring of ADA announcements.

Best Practices

Transit System Policy Statements and Educational Information

- Service guides, including print and alternate formats, should describe system accessibility features and policies. Availability on a Web site will help meet accessibility needs.
- Policies with clear statements of transit system responsibilities/limitations, as well as customer responsibilities, should include:
  - Statement of assistance that will be provided by vehicle operators
  - Size limitations of vehicle mobility aid accommodations
  - Policy on securement (mandatory or optional)
  - “Caveat” language re: transporting mobility aids that cannot be secured or if securement equipment is missing or broken
  - Statements recommending (but not mandating) transferring to a regular seat
  - Use of occupant restraints (including “optional” on fixed-route)
  - Special policies and procedures for Segways
  - Instructions on stowage of portable oxygen, walkers, shopping carts, and other non-wheelchair items (also how “orthopedic strollers” will be treated)
  - Posting of wheelchair securement policies in conspicuous locations in vehicle interiors, such as by decals, advertising-type cards, posters, or other signage
  - Wheelchair securement policy posting on fixed-route bus
  - Auditory and visual message board announcements on transit vehicles explaining securement policies. This has been especially useful to transit systems instituting new policies, such as moving from “optional” to “mandatory” securement.
• Offering of “orientation” to vehicle features for transit customers, especially new wheelchair users. This can be part of traditional “travel training” programs, or offered separately, and can be encouraged by the use of “courtesy cards” handed out by vehicle operators when they encounter a passenger having difficulty.
• Transit system participation in disability conferences and product expositions, ideally with both educational materials and actual vehicle demonstrations
• Press releases and news coverage of improvements such as new bus securement equipment, training programs, wheelchair marking/tether strap programs, etc.

Training Program Elements
• “How-to” guides that use pictures and/or videos to demonstrate technical issues of securement (including some videos that show what can happen when securement is not done properly)
• Using a variety of types of wheelchairs and scooters in hands-on practicum sessions, especially on each type of vehicle in use
• Visiting local wheelchair dealers, either to understand wheelchair features or to actually do training such as for wheelchair marking/tether straps
• Inviting wheelchair-using transit customers and disability advocates to participate in training.
• Incorporating wheelchair boarding and securement into simulated driving practice throughout new driver training, instead of relegating it to a single “class”
• Addressing proper use and placement of seatbelts, not just wheelchair securement, in training materials
• Sign-off sheets that both trainees and trainers sign to document successful proficiency and understanding of procedures
• Use of quiz-type tests to gauge proficiency in classroom information
• Wheelchair securement as a component of “roadeo” driving skill competitions
• Tips on proper ergonomic practices to minimize risk of injury while performing securement
• Vehicle operators should be periodically evaluated on their ability to safely and effectively secure wheelchair users
• Staff in addition to vehicle operators receive training in accessibility accommodations and disability awareness (including supervisors, managers, and customer service staff)—again, in compliance with 49 CFR 37.173.

Auxiliary Aids
• Wheelchair securement-point marking and securement-loop programs
• Auxiliary straps or other devices for securing oxygen tanks, Segways, or other non-wheelchair items
• A “boarding belt,” which is used by some paratransit providers to secure the passenger to their wheelchair and to provide extra safety and comfort during lift boarding
• Kneeling pads, reaching tools and other equipment to aid in use of securement equipment by vehicle operators
• Ergonomic reviews of existing transit vehicle interiors to identify space and equipment issues that may need to be addressed in order to provide training instructions or equipment replacement/retrofit guidelines
Transit System Performance Monitoring

• Use of “secret rider” programs or professional monitors to observe mobility aid boarding and securement performance, both on a random basis and targeted based on specific complaints

• Tracking of complaints in detailed categories that include mobility aid boarding and securement in order to track trends and identify issues. Statistics should be shared with all interested parties—transit system management staff, policy boards, disability advisory committees, and the public. Stakeholder perspectives varied on whether this information should be made universally available, or whether it should initially (or only) be provided to transit agency staff, boards and advisory committees. Reports would in any case be available to the public through open records legislation (“sunshine laws”), but limiting their initial distribution could ensure that limited staff resources could be assigned to correcting deficiencies rather than responding to media inquiries.

Recommendations

For Public Transportation Providers

• Development of a “template” type of document that can be used by transit systems to explain:
  • Mobility aid accessibility features on vehicles and at transit facilities, including what to know about how various sizes, weights, maneuvering capabilities, and baggage/medical devices can be accommodated
  • Policies and procedures for boarding and securement
  • Information about the benefits of “transit-safe” mobility devices
  • Availability of transit vehicle orientation and/or travel training for mobility aid users
  • Information on auxiliary aids such as wheelchair marking and tether strap programs

This information can be used in rider’s guides, accessible services guides, Web sites, brochures, posters (including onboard vehicles). Photos, diagrams, and other graphic presentation methods should be used to illustrate features and concepts as much as possible.

• Development and dissemination of model training program elements

• Development of “best practice” policies and guidelines for accommodating Segways and other non-traditional mobility devices

• Development of guidelines on how to implement wheelchair marking and tether strap programs, including ensuring that participation is voluntary on the part of riders and that operating personnel must perform securement appropriately for those who choose not to participate

• Dissemination of best practices or guidelines for monitoring transit system performance regarding mobility aid accommodations
Chapter 5. Regulation and Policy

Description of the Issues

Progress in making “Transit-safe” wheelchairs available

Elements of Federal Guidance

Best Practices

Recommendations
Description of the Issues

Progress in Making “Transit-safe” Wheelchairs Available

Use of wheelchairs with specific securement attachment points, such as WC19-compliant wheelchairs, can improve safety during transportation and make securement easier and faster, but so far there is little industry implementation or consumer/public understanding of this “voluntary industry standard” type of approach.

Wheelchair manufacturers include information about “transit options” or “transportation features” in product literature about models that have these features available, but the information is often difficult to find. The “WC19–Your Ticket to Ride” Web page of the Rehabilitation Engineering Research Center on Wheelchair Transportation Safety (RERC WTS) Web site (www.rercwts.org) contains a list of available models equipped with these features. At the same time, it should also be noted that custom seating configurations may affect the availability of OEM (original equipment manufacturer) WC19 features, if such features were designed into the OEM seating instead of the base.

There is a general belief that education is needed for consumer, transit providers, third-party payers, and government agencies regarding the costs vs. benefits of “transit-safe” wheelchairs, and that transportation safety should be included as a basic feature of wheelchairs. There is some belief that “voluntary” industry standards are not enough, and that some type of mandatory requirements will be necessary. However, it is not clear which sector(s) should have such mandates applied to them, which agencies would issue and regulate such guidelines, and how they would be applied in the end, since one cannot unilaterally declare all current mobility devices unsuitable for transit.

Wheelchair manufacturers have not seen a “market demand” for “transit-safe” features, and voluntary industry standards carry less weight when viewed beside allowances under insurance and other funding guidelines (such as CMS coding). Issues such as the Medicare “in-home limitation” present significant barriers.

The use of wheelchairs as seats in motor vehicles has not historically been addressed through the specifications issued for purchasing wheelchairs by major purchasers such as Veterans Administration and Centers for Medicare and Medicaid Services/CMS. Also, many people with disabilities have specific seating requirements that dictate custom seating systems from after-market specialists such as Motion Concepts, and care would be needed to ensure that the need for a high-end seating system would not somehow remove transportation from the user’s list of daily activities. The transportation industry must remember that the inside of a transit bus should not be regarded as the native environment for mobility equipment, and that the seating, above all else, must be compatible with the individual user’s specific requirements. Addressing this issue and including WC19 features in wheelchair specifications would provide a significant incentive to manufacturers to develop “transit-safe” wheelchairs.

Most wheelchair manufacturers, including those with products that comply with WC19, do not advertise or mention the availability and importance of purchasing WC19 products for people who travel while seated in their wheelchairs. Consequently, consumers are less likely to be aware of WC19 wheelchairs.
Most transit providers and some vehicle and equipment manufacturers agree that some type of “certification” of wheelchairs and scooters compatible with use of transit should be mandatory. Such certification would include size, maneuverability, and “secure-ability.” However, consumer advocates are justifiably concerned about the use of this certification as the basis for denying access to non-certified devices, and none of the federal entities with ADA-related responsibilities have the statutory authority to regulate the design or use of medical devices such as wheelchairs.

There appears to be a great need for solutions to be sought through processes that include all relevant stakeholders in a coordinated manner, which does not seem to have been done in the past. For example, full participation in discussions regarding WC19 wheelchairs by CMS and other health care funding agencies has not yet been a priority.

**Elements of Federal Guidance**

From the customer’s perspective, inconsistency of optional vs. mandatory securement policies from community to community may also be confusing: She may be accustomed to having the option of riding unsecured on her home system, and face service denial on another city’s transit system if she attempts to exercise this option.

The U.S. Access Board is currently updating guidelines for buses and vans. The updated guidelines were released in draft form for public comment in April 2007. The draft revisions have not been integrated into this document, but may be reviewed on the Access Board Web site along with the comments received through the following Web page: http://www.access-board.gov/news/vehicle-comments.htm.

The existing ADA vehicle specifications require a combination of design and performance criteria for tie-down and occupant restraint devices (in order to prevent wheelchairs from moving about inside the vehicle). Some stakeholders indicated confusion regarding how wheelchairs should be expected to fit or maneuver into vehicles based on the ADA vehicle specifications. For example, the minimum required wheelchair parking space is the same as the maximum wheelchair size that must be accommodated. The requirement for “sufficient clearances to permit a wheelchair or other mobility aid user to reach a securement location” (38.23 [a]–“General”) does not say how this should be measured, as opposed to detailed treatment of this issue in the architectural requirements of the ADAAG.

It is also placed apart from the section on the required location and size of the securement space (38.23 [d]7–“Securement devices”), even though the latter section also discusses proximity to the vehicle entrance. (NOTE–this issue is being addressed in the proposed Access Board revision.)
Research and Development to Support Industry-Wide Standards and New Design Approaches

Voluntary industry standards and ADA vehicle requirements are not in harmony, and the result can be less-than-ideal vehicle configurations. The ideal securement system for large urban buses may not be the best approach for small vehicles. For example, the defacto “standard” (actually just a common practice in terms of equipment design) of four-point tie-downs is not uniformly agreed upon or followed. In some cases, such as on busy urban routes, the time and ergonomics involved in securing a customer’s wheelchair may not seem feasible to a transit operator.

Transit managers have expressed the desire for a more universal, automatic, and less physically complicated and demanding system for securing wheelchairs. Historically, however, the transit provider segment of the industry has not been very involved in developing standards, and has relied mainly on “ADA compliance” as its guide, rather than seeking out best practices that may exceed ADA requirements.

Potential alternative securement technologies, such as “docking” and the European/Canadian rear-facing “passive compartmentalization” approach are being studied by wheelchair-oriented research bodies for possible new ANSI/ISO standards. Research, demonstration and testing of these new technologies in the transportation arena has been very limited in the U.S., but interest is being spurred by the development of “bus rapid transit” services, where speed and efficiency of boarding are critical. However, it should be noted that the operator can simply elect not to have a mandatory securement policy.

Another potential design alternative is the improvement of space and maneuverability by using rear (second) door boarding, instead of front door boarding. However, little or no research and development has occurred on this topic.

Education and dissemination of available resources

Information regarding WC19 wheelchair options is not well disseminated for consumers and prescribing health care professionals, and even wheelchair dealers (end vendors).

Transit accessibility information, including policies, is inconsistently communicated to customers and the public. Information regarding wheelchair accommodations and policies of transit systems varies greatly from city to city, and is not available at all in many places. Some, but not all, transit agencies have “mandatory” securement policies.

Knowledge of auxiliary securement aids, such as wheelchair marking and tether strap programs, is limited, not all systems have been tested to meet basic safety standards, and guidelines or specific standards are lacking.

Best Practices

- Auxiliary securement aids, such as wheelchair marking and tether strap programs can promote safe and fast securement and are offered by a number of transit providers and disability service organizations.

- Transit orientation programs (“travel training” and/or vehicle orientation sessions for wheelchair users) and marketing materials are good ways to train passengers on how to board vehicles and to know what to expecting terms of securement and other safety aspects.

- Appendix G provides examples of helpful informational brochures.
Recommendations

For the industry:

Additional research

• Examination of barriers to making “transit-safe” mobility devices available to transit users, including regulations and policies of healthcare funding programs and agencies.

Activities

• Development of guidelines for transit providers on how/why to address rider choice in their policy for securement, including analysis of how civil rights (ADA) objectives relate to safety and liability issues (common carrier standard of care, tort liability, etc.), as well as how to enforce and educate customers regarding “mandatory” securement policy. It is recommended that U.S. DOT counsel be involved in this effort.

• Increased coordination of various regulations that affect mobility device accessibility. A short-term measure could be creation of an index on the FTA Web site (and for use in related documents) that itemizes the locations of various regulations, guidance, and interpretations related to mobility aid accessibility in public transit.