CASE STUDY No. 78

RECENT INNOVATIONS IN ACCESSIBILITY IN CANADA

Overview
Canada's public transit and intercity transportation companies are working to make their systems accessible to users with mobility limitations. Steps have already been taken to reduce or eliminate obstacles. This document presents a variety of solutions that have recently been implemented.

Resources
Transport Canada, Safety & Security and Transportation Development Agency, *Making Transportation Accessible – A Canadian Planning Guide*, 1998, 380 pages.

Introduction

According to Statistics Canada's *2006 Participation and Activity Limitation Survey: Disability in Canada*, over 4.4 million Canadians, or 14% of the population, have one or more physical or mental conditions which limit their routine activities (Statistics Canada, 2006). We often wrongly limit the concept of accessibility to people with disabilities. The current baby boom and the aging of the population have increased the number of people who may have difficulty accessing sustainable modes of transportation (Trottier et al., 2000). A large number of users (pregnant women, elderly people, those with temporary physical limitations and those laden down with shopping) will benefit from actions to make public transportation systems more accessible.

Across Canada, legislation has been enacted since the 1980s to ensure that all Canadians have access to the same services and that they receive equitable treatment despite any limitations. As a result, most public transportation systems have made changes in their policies, their vehicles and their infrastructures to make them more accessible to users with reduced mobility. Addressing accessibility issues in public transportation not only constitutes an effort in offering equal access to services: it promotes sustainable transportation options in general by improving travelling conditions for a growing number of Canadians.

The purpose of this case study is to help transportation planners improve accessibility for those with reduced mobility to modes of sustainable transportation. In this case study, a clear and succinct definition of reduced mobility is proposed, followed by a presentation of innovative solutions that have been implemented by various Canadian public transportation providers.

Policy Context

Since the 1970's, associations representing the interests of disabled people have requested greater accessibility to public services to assure their members with equal access to services, sometimes taking legal action. Owing to these requests, changes are slowly making their way into official regulation to assure equal rights of access to these people. For instance, in the province of Quebec, a law focusing specifically on the integration of disabled people was written in 2004, compelling all transportation providers to develop an accessibility plan[1]. In Ontario, a court case on stop announcements in buses and streetcars in 2007 was a breakthrough in accessibility policies: in order for people with visual impairments to experience a safe trip on public transit, the Toronto Transit Commission (TTC) was legally obligated to develop an automated stop announcement system, as will the other transportation agencies across Ontario. Asking for more than simple solutions such as low-floor vehicles, the associations representing disabled people remind transportation planners that improving accessibility means increasing access from the starting point of the user to his/her final destination.

Accessibility policies also take root in the environmental advantages usually evoked when it comes to public transportation in general. Indeed, improving accessibility of public transit for all users may encourage more people to use these sustainable modes of transportation, therefore reducing greenhouse gas emissions, as well as automobile traffic in urban and semi-rural areas. Keeping in mind that the aging of the Canadian population foreshadows that a growing number of people will experience reduced mobility in the upcoming years, this environmental impact is certainly not to be neglected. In addition, improving accessibility of public transit increases the capacity of people with reduced mobility to contribute to the economy by consuming goods and services, whether by shopping or engaging in other activities.

[1] *An Act to secure handicapped persons in the exercise of their rights with a view to achieving social, school and workplace integration*

A growing number of carriers are trying to accommodate the transit requirements for unique passenger groups. For example, the TTC produces an Annual Accessibility Report: this planning, consultation and implementation tool helps the Commission to evaluate their accessibility activities regularly. In Montréal, a Metro Accessibility Committee was created to take into consideration the feedback from various actors, such as Transports Québec, AMT, STM, groups representing disabled people, and groups representing elderly people. Such initiatives allow carriers to reflect on past actions, brainstorm and anticipate future needs of their clientele with reduced mobility.

What is Reduced Mobility?

In order to understand what accessibility means in public transit and intercity transportation, it is important to grasp the wide variety of individuals affected by reduced mobility.

A person, whether with or without disabilities, is deemed to experience reduced mobility if he/she encounters obstacles when moving about and/or using public transportation. The physical or mental state of such a person impedes mobility when a transportation system is not adapted to his/her needs, whether these arise from a condition present at birth or developed later, and whether the condition affects movement, hearing, speech, sight, vision, cognitive capacities, or mental health; other disorders such as Pervasive Developmental Disorder (PDD)[2] may also reduce one's capacity to use public transportation. People who are temporarily disabled by illness or injury as well as those suffering from obesity, those who are very tall, the elderly, pregnant women, those travelling with small children and people weighed down by packages and bags are deemed to have reduced mobility and may thus directly benefit from measures taken to enhance accessibility.

The type and seriousness of the physical or mental condition determines how easy it is for those with reduced mobility to engage in routine activities, or whether they can engage in them at all. Most commonly affected are trips to work, to school, to go shopping and to take part in social/recreational activities. What appears simple to most people requires detailed advance planning for those with reduced mobility. It is hard to grasp all the barriers that they must overcome, especially since two people with the same condition may have very different needs.

When a person with reduced mobility wants to take a trip on public transit or an intercity trip, all sorts of barriers may arise: problems getting to the station (sidewalks without curb cuts, lack of safe crossings, insufficient number of reserved parking spots), unadapted vehicles, no elevators, no reserved seats in vehicles, inability to understand spoken or graphic messages that do not meet standards. For these travellers, the number of possible obstacles seems infinite.

Possible Solutions

Useful Criteria

When determining which actions to take in regards to accessibility, transportation planners may evaluate potential solutions using seven criteria developed by the Center for Universal Design of North Carolina State University:

1. Equitable Use

Users with reduced mobility must have access to the same quantity and quality of services and information as other travellers.

2. Flexibility in Use

Solutions for improving accessibility must be designed so that they are easy to use despite functional limitations. In this way all users can make full use of services without enduring stress or other problems.

3. Simple and Intuitive

Solutions must be easy to access and use without requiring special training. Also, there must be signage guiding people with reduced mobility to accessibility enhancers such as elevators.

4. Perceptible information

All information (about work under way, delays, suspension of service, etc.) must be communicated in such a way that every user can understand it. The information must be conveyed in different oral and written forms (writing, Braille, large print).

5. Tolerance for Error

Users with reduced mobility must be able to easily correct any errors they make. For example, when buying tickets at an automated dispenser, people must be able to go back and start again if they make a mistake.

[2] Autism is among the more familiar types of Pervasive Developmental Disorders.

6. Low Physical Effort

Users with reduced mobility should not have to make a greater physical effort than other travellers.

7. Size and Space for Approach and Use

Users with reduced mobility must have sufficient space to reach counters, ticket dispensers and vehicles, to move about (obstacle-free design), and to store and secure their mobility aids.

Actions

Described here are some innovative solutions used by various public transit and intercity carriers in Canada. Omitted are routine solutions, however effective and vital, such as low-floor vehicles, access ramps and universal pictograms.

The solutions are divided into five categories:

1. Information, communication and signage
2. Staff-client relationships
3. Infrastructures: stations, stops and bus shelters
4. Vehicles: trains, streetcars, subways, buses and coaches
5. Safety

Considerations and planning tools

1. Information, communication and signage

1.1 Internet sites

Planning is vital for anyone moving about with reduced mobility. Transportation companies usually provide satisfactory information by telephone, but nowadays they should have Web sites that are designed to the standards of the World Wide Web Consortium (W3C). The Consortium shows how to make both form and content accessible to users who have difficulty reading or have cognitive disabilities. In this way, they will quickly be able to find the information they need to travel. To this effect the TTC website is designed with much emphasis on accessibility, both for accessing the website itself (i.e. changing character size on the user's browser: http://www3.ttc.ca/TTC_Accessibility/Web_browser/index.jsp) and facilitating use of the conventional transit service for a user with reduced mobility (i.e. Easier Access Video, elevator status, travelling user guides, etc.: http://www3.ttc.ca/TTC_Accessibility/Accessible_Service/index.jsp).

1.2 Visual coding

A visual code based on colours or on drawings can be used to facilitate understanding of routes and stops. Users can thus identify their route by spotting visual markers: the orange subway line or the rabbit stop for example. This may seem simplistic but it can provide a secure feeling to someone with a cognitive limitation, a mental health or developmental disorder, as well as a child or older person who is not used to public transportation. This idea is applied by the STM in Montréal to stops on bus circuits dedicated to elderly users. Indeed, the stops for the *Navette Or* ("Golden Shuttle") are easily identified by a yellow sign, contrasting with the signs for the regular bus stops, which are blue.

1.3 Signage and documentation

The Institut Nazareth et Louis-Braille developed tactile frames with the STM to help visually impaired users navigate through the metro installations. These frames are embossed representations of the metro stations and their surroundings, available for the clientele with visual impairments, even those who do not read Braille. Other measures such as adapted signage, Braille translations and large print versions of information pamphlets, rules and system maps also help users with visual limitations plan their routes by themselves.

1.4 Spoken and visual announcements

As previously mentioned, Ontario has been emphasizing spoken announcements of stops on its transportation systems for over a year now. Such announcements may be made by the driver or they may be automated. This simplifies travel and reduces the stress of possibly missing one's stop for travellers with visual disabilities, cognitive limitations, mental health disorders or PDD. This combined with a variable message sign will allow all passengers to feel secure in the knowledge that they will be notified of stops. The three main manufacturers of buses used in Canada now offer this option. As for transportation agencies, automated audio stop announcements are now offered in all metro cars of the Vancouver, Toronto, and Montréal networks, most of them being audio-visual. Toronto's GO Transit trains also offer audio-visual announcements, as do the new tramway vehicles in Calgary, Edmonton, and Toronto. Some U.S. transportation companies even provide individual audio guides to those with partial hearing loss.

2. Staff-client relationships

2.1 Training and awareness

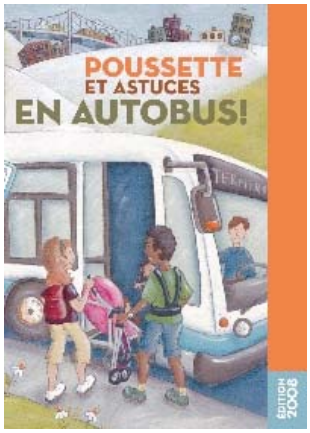
Transportation companies are responsible for making sure that travellers get along with each other and with the company's employees. Through ongoing training, employees will learn the limitations of passengers with reduced mobility, how they can help them, and how accessibility equipment works. Information and awareness ads can also help integrate these passengers into a

transportation system. In both cases, organizations that work with or represent people with reduced mobility should be consulted. In Québec, such organizations who already offered this kind of training to para-transit taxi drivers have widened their services and are now coaching bus drivers on how to assess the various issues people with restrained mobility may come across when using public transit.

2.2 Aids to travel

Now that work has been done to make infrastructure and vehicles accessible, users with reduced mobility need to be made aware that they can use public transportation. Public outreach can include:

- information sessions for organizations that work with these travellers, or the users themselves, informing them of available services;
- training sessions on trip planning, and the use of the different modes of transportation; and
- guides can be prepared on specific targeted services such as the one provided by public transit services in Montreal, Laval and the Outaouais for parents with children in strollers.



www.stm.info/info/poussette.htm

(tips for taking strollers on buses)

2.3 Individual cards

Some carriers have developed a system of individual cards for users with reduced mobility to help them handle the various obstacles that they may encounter. For example, in Ottawa, OC Transpo has created a series of cards for this clientele. A Bus Hailing Kit (that visually indicate to the driver the desired line number) and, complementing it, a Destination Card (on which the user indicates his/her destination) may be used by clients who are visually impaired. Various types of ID cards are also made available to OC Transpo users with specific needs: an Attendant Card is available for users who need the help of a companion to travel, and an Assist Card is available for people with seeing-eye dogs or other service dogs. Also offered is a Priority Seating card, which may be temporary (after an accident or illness) or permanent, and identifies those with invisible disabilities as eligible for reserved seating.

www.octranspo.com

3. Infrastructure

3.1 Reserved spaces

Passenger drop-off areas and waiting areas, whether indoors or outdoors, should have reserved spaces that are clearly marked by universal pictograms as being for users with reduced mobility. They should also have separate spaces enabling people in wheelchairs to reach or wait for a vehicle without inconveniencing other users, and it should be easy to exit these areas once the vehicle arrives.

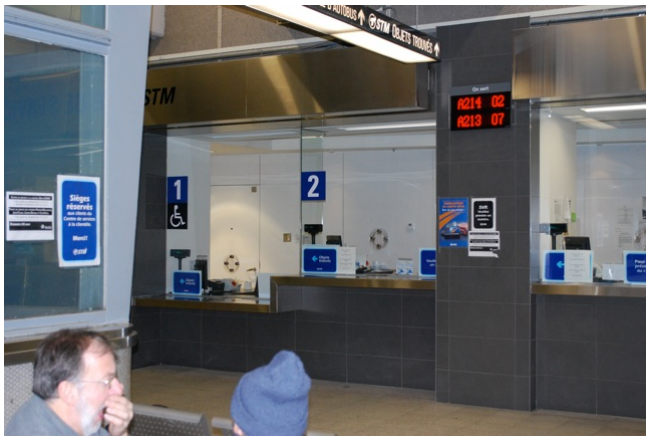
A Drop-Off Area Indicator at the AMT Terminal, Laval, Québec:

[Débarcadère: drop-off area]

3.2 Automated ticket dispensers and customer service kiosks

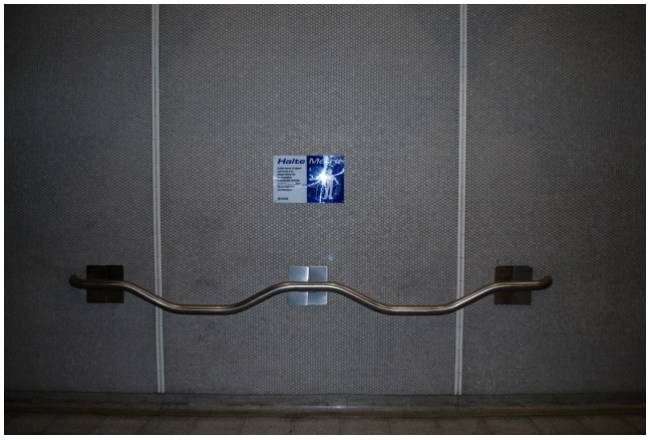
Purchasing tickets or passes from a ticket seller can cause problems for people with language limitations but also for people who are in a hurry or burdened down with parcels. That is why automated dispensers are becoming more common. It is important for such dispensers to be approachable by people in wheelchairs, and for the

buttons, card readers, coin/bill slots and change returns to be at appropriate heights. Use must be simple and intuitive, and the steps must be clearly identified and logically ordered. The path from step to step should be identified by a coloured line and by touch. The machine should provide the tickets/passes which are intended specifically for people with reduced mobility, and it should be programmed to dispense them at special prices if applicable. Ticket sellers should be able to provide support and show travellers how to use the dispenser if asked. Facilities where customers interact with employees must also be accessible to the disabled.



3.3 Support bars

For travellers with temporarily or permanently limited mobility, including the elderly, the need to walk a long distance from the station entrance to the platform can be an obstacle. If there are no moving sidewalks (as in certain Paris subway stations), a good alternative is bars positioned at various heights (to accommodate as many different users as possible). People can use the bars to wait for public transit to arrive. In the 1990s the STM implemented support bars in many of its metro stations, following popular demand.



4. Vehicles

4.1 Reserved spots for seeing-eye or other service dogs

Reserved seats/spaces in vehicles are standard. Easily identifiable by universal pictograms on or behind the seat, they provide priority seating for those with reduced mobility. But where to put mobility aids? Wheelchair users can secure the chair in the space provided, and now in some Montreal buses there is space for seeing-eye dogs or other service dogs. Novabus, a bus manufacturer based in Saint-Eustache, Québec, now produces buses with interior layouts that feature this reserved space. The space in question is the equivalent of one seat, so that the dog can lay beside the traveller and out of the way of passengers moving up and down the passageway.

4.2 Double-Decker bus

BC Transit purchased Double-Decker buses, shortly followed by GO Transit and OC Transpo. These buses have low floors and flip-out ramps, so that they can take more reduced mobility passengers in addition to having greater capacity.

4.3 Buses for the elderly

Bus routes exist specifically to meet the needs of older people, improving their quality of life, allowing them to maintain their independence, making it easy to get to social and recreational activities, and providing a safe environment . These services constitute an interesting example of measures to increase accessibility of public transit as they allow elderly users to use regular buses, therefore decreasing their dependence on para-transit. For example in Montreal, the "Golden Shuttle" are dedicated routes that link seniors' residences to health centres, recreation centres, community centres and shopping malls. Bus services dedicated to the elderly can be found in many municipalities across Canada, including: London and Toronto, Ontario; Montréal, Gatineau, Laval, and Sherbrooke, Québec.

5. Safety

5.1 Monitored waiting areas

In subway stations, the feeling of safety is increased by

clearly demarcating certain areas with a contrasting colour and having that area monitored by a camera or an employee. If need be, passengers can contact the guard. Users with reduced mobility can position themselves in these areas to signal their presence to the driver, who can then ensure that they get on.

5.2 Stopping between stops

Transportation companies should always allow bus passengers a chance to get off the vehicle between stops if they feel the need. Canadian transit operators promote this service, and while such a service centers on women's safety at night, it can also be used to reduce the walking distance for a rider who has reduced mobility.

Results

When implementing measures that increase accessibility of public transit to users with reduced mobility, results cannot be expected to be immediately precise. Indeed, accessibility measures not only benefit the users they target, especially since many users experiencing reduced mobility are not disabled (pregnant women, senior users, ill or injured people, etc.), therefore measuring the global impact on ridership is impossible as the effects are long term and hard to measure.

In addition, augmenting the use of regular public transit by people with reduced mobility increases the general flow in public transit, therefore justifying more frequent passages, and a more complete and sustainable public transit in general with all the benefits that come with it: reducing greenhouse gas emissions and automobile traffic, as well as healthier lifestyles and active participation of people with reduced mobility to society. In the long run, everyone benefits from a better accessibility to public transit.

Lessons Learned

When implementing measures to increase accessibility, transportation planners should keep in mind that the concept of reduced mobility takes various forms, therefore measures should not be limited to only wheelchair accessibility but aim towards better accessibility in general. As demonstrated earlier, customers with visual impairments, mental health conditions, or travelling with children, to name just a few, may also experience reduced mobility and will use public transit more readily with the help of diversified solutions. It is important for transportation planners to be aware of and understand the different needs based on the limitations of different users.

Experience shows that establishing priorities can become a very delicate issue when taking into consideration the different needs of users with reduced mobility. For instance, some systems specifically designed to help visually impaired people who walk with the help of a white cane may be less helpful for people who walk with a seeing-eye dog. It is important to meet with various groups of people to include their feedback, and to try to create accommodating designs that will be complimentary and not contradictory.

One lesson learned by transportation companies when it comes to increasing accessibility is the importance of communication: in order to achieve optimal use of accessibility solutions, all users must be informed of their presence, the reasons behind their implementation, and how to operate them. Advertising and awareness campaigns are absolutely vital. It is important to understand that while some users will ask for help, others might eliminate the option of public transit altogether temporarily or permanently if they are not made aware of the solutions offered by their local provider. Employees too must be made aware and trained so that they feel more at ease when dealing with riders who have mobility limitations and so that they can provide assistance to these users if need be.

The experience of transportation companies also suggests that although bringing modifications to existing networks can be very costly, it is possible to focus on solutions that are inexpensive yet extremely useful to users with reduced mobility.

The more diversified the solutions are to increasing accessibility and the more aware users are to their presence on their local networks, the more people with mobility issues will use public transit. In the long run, this higher traffic on public transit will justify higher investments in this field, therefore everyone benefits from more accessibility.

Next steps

The above gives only a brief overview of the many solutions which public transportation companies are already using, are expanding, or will be using in future. Planners need to look at the kinds of clients now using a system and the kinds that might use it if it were more accessible; they need to understand such users' needs and expectations and take appropriate action. It may be useful to set up an advisory committee of users with reduced mobility, which can identify the particular obstacles encountered by these users when they access public transportation, so that concrete solutions can be implemented.

The ultimate goal of Canada's public transit and intercity transportation systems should be universal accessibility. However it may be difficult, or even impossible, to achieve this goal with existing systems. When planners make changes in existing vehicles, infrastructure or policies, they should take effective steps to meet the different needs of users with differing mobility limitations . Meanwhile, new

systems and extensions of existing systems should be planned and built in such a way as to meet the highest standards of accessibility and to handle in equitable fashion all the different forms which reduced mobility may take.

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