

Submission to the Allen Consulting Group

Re: Review of Disability Standards for Accessible Public Transport 2002

To:
Sharon Kennard
The Allen Consulting Group
Ph: (02) 6204 6500
Email: dstransport@allenconsult.com.au

Stake Holder Interest

The Age-Friendly Guidelines for Public Buses research team based at the University of Queensland is developing, implementing and evaluating age-friendly guidelines for buses as a method of promoting social inclusion for older people. Age-friendly guidelines offer principles for overcoming environmental, attitudinal, physical and social barriers to the optimal participation of older people in society.

The project has interest in the Disability Standards for Accessible Public Transport 2002 review for two main reasons;

1. Older people, even those who do not identify as having a disability, face significant transport accessibility issues that would benefit from having age-friendly guidelines incorporated into the Disability Standards for Accessible Public Transport, with the aim being accessibility for all.
2. Whilst not a project directly relating to disability, some data were collected from people with disability (across the lifespan) relating to the current accessibility of buses in Queensland.

Stake Holder Background

The project is a collaboration between the University of Queensland, Queensland Transport, Curtin University of Technology, Queensland Department of Communities and is funded by an Australian Research Council Linkage Grant. The research sites are Hervey Bay and north Brisbane.

The research team includes;

- Prof Linda Worrall (Team Leader), Department of Speech Pathology, The University of Queensland
- A/Prof Kryss McKenna, Division of Occupational Therapy, The University of Queensland
- Prof Duncan Boldy, Curtin University of Technology
- Dr Jenny Fleming, Division of Occupational Therapy, The University of Queensland
- Ms Peta Jervois, Department of Communities, Queensland
- Mr Kieran Broome, Doctoral Student (APAI), Division of Occupational Therapy, The University of Queensland
- Ms Emily Nalder, Honours Student, Division of Occupational Therapy, The University of Queensland
- Mr Martin Thomsett, Queensland Transport

The research process of the project includes:

1. Determining the validity of two processes for developing age-friendly guidelines
2. Determining barriers to using buses for older people using both methodologies
3. Determining if barriers for using buses for older people are different to barriers for younger people.
4. Developing age-friendly guidelines for buses in consultation with Industry Partners and a reference group of older people.
5. Contrasting the Disability Standards for Accessible Public Transport 2002 with the Age friendly Guidelines developed in this study.
6. Implementing age-friendly changes and evaluating interventions.
7. Evaluating the effectiveness of age-friendly guidelines in terms of use of and satisfaction with public transport, community participation, and the attitudes of all users of public transport.

There are two broad stages to the project. The first stage focuses on defining the barriers and facilitators (using the nominal group technique and participant observations with stimulated recall interviews) for older people (aged 60 and over) and younger people and developing relevant age-friendly guidelines. This stage produces not only age-friendly guidelines for buses, but also develops an approach and guidelines for developing age-friendly guidelines that can be used in other areas and by other authorities. The guidelines will have general items that apply to all facilities and services (e.g. the format of all written information for travellers) and items that are service-specific (e.g. buses must not depart until the passenger is seated). This first stage tests the hypothesis that age-friendly guidelines are also people-friendly guidelines and this will contribute to theory development in this area.

The second stage focuses on implementing and evaluating age-friendly guidelines. This stage involves two bus services, one metropolitan (north Brisbane) and one rural (Wide Bay Transit, Hervey Bay). The project team will assist with implementation, while focusing on evaluation. This stage uses a repeated measures design to evaluate the effectiveness of the age-friendly guidelines. The guidelines will be implemented in a staggered way to determine if certain guidelines or combinations of guidelines impact differentially on the primary outcome variable of frequency of use of buses. A

pre- and post-test measure of participants' satisfaction with and attitudes towards public buses, and their level of community participation will also be undertaken. These secondary variables will be measured at baseline and again after complete implementation of the age-friendly guidelines. The team will individually test a number of interventions, including but not limited to, bus driver age-friendly training, bus buddy programs and information interventions.

Relevant Findings for the Review

The Importance of Incorporating Age-Friendliness into Disability Standards

Population ageing in Australia has a sizable impact on how we plan environments and provide services for older people. People with disabilities and older people are both impacted by transport disadvantage as a result of poor accessibility. Even if older people do not identify with the label of disability, many are effectively “disabled” by society, with public transport disadvantage ranging from 20 to 48% of the older population (Dent et al., 1999; Iwarsson & Stahl, 1999). The strategic alliance of transport accessibility for both older people and people with a disability is epitomised by the international conference Transport for the Elderly and Disabled (TRANSED). Advances in either field have reciprocal advantages for the other group.

It is however important that older people have the opportunity for representation within the accessibility field. People with disabilities have mandated involvement in the development of government policy, services and programs (Commonwealth Disability Strategy, 2000), whilst older people are awarded no such protection of their interests. Older people are at risk of having reduced representation in the development of policy as a result of comorbidities such as cognitive decline or speech and language impairment, or intergenerational differences in regards to understanding policy frameworks, which may reduce their potential for advocacy. For example a pilot study into the communicative accessibility of public transport environment for people with aphasia (Ashton et al., 2007) identified additional environment factors not currently in the Disability Standards, such as consistent presentation of signage. Older people may also not identify with the label of “disability” as a result of novel impairment and resultant functional disability later in life, and therefore not take part in consultation regarding “disability standards”. In order to achieve accessibility for all, older people and their advocates (e.g. occupational therapists, social workers, senior groups) should be incorporated explicitly into legislative and policy development for accessible transport. A potential avenue for involvement is via the 5 year Disability Standards for Accessible Public Transport reviews.

Contrasting Age-Friendliness with the Disability Standards

The issues for the age-friendliness of public buses were explored in the study via two methodologies; nominal group technique (NGT) and participant observations with stimulated recall interviews (POSRI). The results of the project have been explored in a recent conference paper presented by one of the authors at the TRANSED 2007

conference in Montreal (Broome, Worrall, McKenna, & Boldy, 2007). This research feeds into a set of guidelines for age-friendly public buses which provide overarching principles to develop age-friendly systems and environments. In contrast, standards provide more prescriptive levels of attainment.

The issues in regards to age-friendliness are compared and contrasted below with the disability standards at two levels; scope and priority. Both the NGT and POSRI methodologies allow for identification of important environmental factors that act as either barriers or facilitators to older peoples’ use of buses. These results can be compared with the items covered in the Disability Standards for Accessible Public Transport 2002 (Williams, 2002) to identify convergence and divergence. The POSRI methodology also allows for prioritisation of environmental factors that are the most influential barriers or facilitators for older people. Whilst the Disability Standards has no direct correlate in regards to prioritisation, the timeline of Schedule 1 does offer a comparable framework of prioritisation.

Scope

The scope of environmental factors covered by age-friendliness and the disability standards are compared and contrasted in Table 1. The area of concern describes the environmental factors and the outcomes if both the age-friendly guidelines and Disability Standards were amalgamated. The relevant sections of the age-friendly guidelines and disability standards are compared for each area of concern. Environmental factors important to age-friendliness include factors from both the NGT and POSRI methodologies.

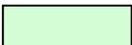
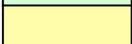
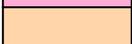
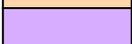
Table 1: Scope of Age-Friendliness against Disability Standards

Area of Concern	Age-Friendliness (AF)	Disability Standards (DS)	Notes on comparison
Bus stop design – “Bus stops should be identifiable and have appropriate seats and shelters available that provide rest opportunities, clear visibility of oncoming buses and protection from sun and rain”	Bus stops / bus shelter / Hail & Ride services	Waiting area	*AF: additional considerations to shelter design *AF: additional considerations to need for adequate number of shelters *DS: additional considerations to seating *DS: does not discuss shelter needs
Bus stop location – “Bus stops should be close to destinations and should take into account terrain and shade to access destinations”	Bus stops / bus stop location / Hail & Ride services		*AF: not included in DS
Furniture and fitments – “Furniture and fitments, including luggage storage, should be available where required and with equivalent accessibility for older people and people with disabilities”	Luggage	Furniture and fitments	*AF: additional considerations of luggage compartments *DS: additional considerations

Area of Concern	Age-Friendliness (AF)	Disability Standards (DS)	Notes on comparison
Service availability – “There should be a public transport service available in all areas”	Service in area		*AF: not included in DS
Convenience – “Buses should get me where I need to go, in a reasonable time”	Convenience		*AF: not included in DS
Advertising – “Advertising of services should occur in forms that are accessible for all”	Media		*AF: not included in DS
Prior knowledge and experience – “Lifelong experience with buses should be encouraged and training / familiarisation experiences should be available”	Prior knowledge & experience		*AF: not included in DS
Fares – “Fares should be affordable”	Fare structure / ticketing		*AF: not included in DS
Fare structure – “Fare structures should be easy to understand”	Fare structure / ticketing		*AF: not included in DS
Pedestrian crossings – “Pedestrian crossings should be available and safe”	Pedestrian safety / pedestrian crossings		*AF: not included in DS
Parking – “Parking should be available near bus stops”	Parking		*AF: not included in DS
Scheduling – “Public transport should be appropriately frequent and available on mornings, evenings and weekends”	Scheduling		*AF: not included in DS
Routes – “Routes should go past destinations patronised by older people and people with a disability”	Scheduling / routes		*AF: not included in DS
Driver behaviour – “Bus drivers should be knowledgeable, friendly, and helpful, should communicate effectively, be sensitive to the needs of older people and people with disabilities and wait for passengers to be seated before departing”	Driver friendliness / driver helpfulness / driver knowledge		*AF: not included in DS
Cleanliness – “Buses should be clean and comfortable”	Bus journey		*AF: not included in DS
Community members – “Buses should not be overcrowded and mobile phone use should be minimised, support of community members (e.g. family, friends, others) should be encouraged”	Community members		*AF: not included in DS
Connections – “Connections with other buses, and other modes of transport, should be convenient and coordinated”	Connections		*AF: not included in DS

Area of Concern	Age-Friendliness (AF)	Disability Standards (DS)	Notes on comparison
Service changes – “Information on service changes should be clearly and widely disseminated to all”	Service changes		*AF: not included in DS
Access paths – “Access paths that are even and unobstructed should be available from origin to destination”	Footpath	Access paths	*AF: more comprehensive consideration of all access paths from origin / destination to the bus stop
Manoeuvring areas – “Off-board and on-board manoeuvring areas should be kept clear and have appropriate room to allow wheelchair mobility”	Aisle	Manoeuvring areas	*AF: additional considerations that aisle should be kept clear (e.g. school bags) *DS: additional considerations of off-board manoeuvring
Seats – “Seats should be available that are manoeuvrable and comfortable, and priority seats should be available for older people and people with a disability”	Seats	Allocated space	*AF: additional considerations of seat comfort and height *DS: additional considerations of number of seats available
Wheelchair areas – “Priority wheelchair spaces should be available with appropriate space for comfort and manoeuvrability, as well as safe, operable and dignified wheelchair restraints”	Seats	Allocated space	*AF: additional considerations of tie-down availability and appropriateness *DS: defines that wheelchair spaces should be available
Signage – “Signage should be available, readable and understandable”	Signage	Signs	*AF: additionally signage should be available on front, back and side of bus. *DS: addition considerations to signage not on buses themselves
Payment of fares – “Access to fare payment should be equivalent for older people and people with disabilities, and prepaid tickets should be available to decrease on-board communicative demands”	Ticketing	Payment of fares	*AF: additional consideration of need for prepaid fares
Information – “Information about a service should be available and understandable”	Information	Information	*AF: additional considerations of clarity of contents *AF: defines that timetables should be available at bus stops *DS: additional considerations of information during the journey
Ramps – “Ramps should be available wherever required and comply with Australian Standards”	Footpath	Ramps	
Boarding & Disembarking – “The exit and entry should be accessible for persons differently abled in regards to mobility”	Exit / entry	Boarding / Doorways and doors	
Handrails and grabrails – “Handrails and grabrails should be available to ensure safe boarding, disembarking and manoeuvring”	Handle / Rail	Handrails and grabrails	

Area of Concern	Age-Friendliness (AF)	Disability Standards (DS)	Notes on comparison
		Passing areas	*DS: not part of AF
		Resting points	*DS: not part of AF
		Surfaces	*DS: not part of AF
		Lifts	*DS: not part of AF
		Stairs	*DS: not part of AF
		Toilets	*DS: not part of AF
		Symbols	*DS: not part of AF
		Tactile ground surface indicators	*DS: not part of AF
		Alarms	*DS: not part of AF
		Lighting	*DS: not part of AF
		Controls	*DS: not part of AF
		Street furniture	*DS: not part of AF
		Gateways	*DS: not part of AF
		Hearing augmentation listening systems	*DS: not part of AF
		Booked services	*DS: not part of AF
		Food & drink services	*DS: not part of AF
		Belongings	*DS: not part of AF

Key	
Items of similarity	
Items of slight contrast	
Items of significant contrast	
Items where AF takes precedence	
Items where DS take precedence	

Where there is disparity between age-friendliness and the Disability Standards, it is evident that older peoples' needs are not yet being met. These environmental factors should be elements for consideration in revision of the Disability Standards if transportation is truly to be accessible for all. The following changes are recommended below where discrepancy between age-friendliness and the Disability Standards was found.

Bus shelters should be available, identifiable, provide adequate protection from the sun and be close to home and destinations. These characteristics are not currently addressed in the Disability Standards. Further research from the project shows that satisfaction is achieved for nearly all participants when bus stops are within 500m or 5mins walk of a person's home / destination. Therefore, additional parts should be

added to the Disability Standards as Part 7.3 Shelters and Part 8.9 Boarding Availability.

Furniture and fitments including luggage storage, should be available and with equivalent accessibility for older people and people with disabilities. Luggage storage is not currently addressed for buses in the Disability Standards. This should be added to Part 30.

Public transport services should be available in all areas to all Australians. Providing the additional part 8.9 Boarding Availability should ameliorate this issue.

Convenience of public transport is an additional consideration that is not currently covered in the Disability Standards. It is recommended that buses should transport passengers to where they need to go, in a reasonable time. Similarly, the scheduling of buses was seen as a barrier, especially when buses were infrequent or did not go on weekends / mornings / evenings. Connections with other buses, and other modes of transport, should be convenient and coordinated. Given the abstract nature of these recommendations, it may be difficult to mandate within the Disability Standards, therefore, they should appear as guidelines to transport organisations.

Advertising of services is an area not currently considered in the Disability Standards, yet advertising is vital for promoting that the service to those who are not aware of its existence. Advertising should occur periodically and in forms that are accessible for all. It is therefore recommended that advertising should be made explicit in the standards as additional part 27.6. An additional area of advertising is in regards to service changes. Service changes should be clearly articulated to all.

Prior knowledge and experience is an important factor to transport accessibility that is not currently addressed in the Disability Standards. Lifelong experience with buses should be encouraged and training / familiarisation experiences should be available for all passengers. This should be included as an additional consideration in the standards as part 27.5.

It is recommended that fares should remain affordable. The affordability of fares in the Brisbane and Hervey Bay models (concession price of 50% full price) was commonly seen as a barrier. Therefore, it would be advantageous to adopt this model into the standards. Understanding the fare structure, especially zone systems, was a common barrier for older people. Two approaches could be adopted to remediate this effect: improvement of prior knowledge and experience or simplified fare structures. It is recommended that the changes above in response to prior knowledge and experience would be the most holistic approach. If this approach is not adopted, then modifications to fare structures could take the form of fixed fares (single price, one-way only) which are being used in other transport systems. The third consideration in regards to fares is the communicative demands of fare payments. Pre-paid ticketing was preferred by some users, which reduces the communicative demands of buying a ticket on board. Therefore, it is recommended that pre-paid tickets should be an option for all users.

Pedestrian crossings are an area of consideration not currently considered in the Disability Standards. The transport chain that people must perform in order to be able

to catch the bus includes the pedestrian access between the bus, home and destinations. Lack of availability and safety of pedestrian crossings were two key features identified by older people as barriers to using the bus. Literature supports age-friendly considerations for pedestrian crossing including vehicular speeds, length of crossing times and visibility (Keall, 1995; Lavery, Davey, Woodside, & Ewart, 1996; Leden, Garder, & Johansson, 2006; Mitchell, 2006). Given the vast scope of pedestrian infrastructure it would be prudent for the Disability Standards to provide a system for advocacy in order to identify prioritised sites for upgrading rather than global standards for all pedestrian crossings.

Consideration of service personnel behaviour, especially the behaviours of drivers, should be explicitly included in the Disability Standards. Drivers should be knowledgeable, friendly, helpful, communicate effectively, be sensitive to the needs of older people and people with disabilities and wait for passengers to be seated before departing. These qualities should be clearly articulated in the Standards, including the suggestion of training to facilitate this.

Access paths and manoeuvring areas should be unobstructed. The concept of access paths should be extended to pedestrian access to the bus stop, or this should be included as an additional part of the Standards.

The age-friendly recommendations additionally include that seats should be available that are comfortable. This should be incorporated into the standards as an additional quality. It was also interesting to note that age-friendly recommendations expand the idea of priority seating for older people to include seats near the middle door of newer buses (as well as the front entrance), thereby allowing a shorter mobilisation distance to the exits.

The current Disability Standards in regards to signage contain more detail than the age-friendly recommendations. However, the age-friendly recommendations additionally make reference to the positioning of bus signage on the front, back and side of the bus. The additional consideration of positioning should be incorporated into the Standards.

Difficulty understanding information about services was noted. As older people are the age group with the lowest levels of functional literacy (Griffin, McKenna, & Tooth, 2003), it is recommended that readability is considered to ease understanding of timetables and other written inform. Similar consideration should be given to the clarity and simplicity of maps and other figures.

More specific recommendations for the above differences in scope are given in the summary of changes recommended for the Disability Standards later in this document.

Priority

Table 2 compares the priorities of the age-friendly recommendations against the existing schedule for the Disability Standards. The areas of divergence are summarised below.

Table 2: Priorities within Age-Friendliness Vs Disability Standards

Age-Friendliness	Disability Standards	
 <p>Most Important</p> <p>Footpaths</p> <p>Bus stop location</p> <p>Scheduling</p> <p>Driver behaviours</p> <p>Aisle</p> <p>Information</p> <p>Prior experience</p> <p>Signage</p> <p>Route</p> <p>Luggage (fitments)</p> <p>Pedestrian crossings</p> <p>Bus shelters</p> <p>Exit / Entry</p> <p>Hail & ride system</p> <p>Seat</p> <p>Less Important</p>	<p>Target Date: 31st December 2007</p> <p>Full compliance: information, service quality and furniture (except bus stops)</p> <p>25% compliance: pathways, entry / exit, toilet, allocated space (except bus stops)</p> <p>Bus stops have less compliance requirements</p>	
	<p>Target Date: 31st December 2012</p> <p>Full compliance: handrails, gateways, vending machines, surfaces (except bus stops)</p> <p>55% compliance: Physical accessibility</p>	
	<p>Target date: 31st December 2017</p> <p>80% compliance: physical accessibility buses and walkways</p> <p>90% compliance: bus stops</p>	
	<p>Target date: 31st December 2022</p> <p>Full compliance (except trains and trams)</p>	
	<p>N/A for Buses</p>	<p>Target date: 31st December 2032</p> <p>Full compliance trains and trams</p>

The overwhelming trend of the above table is that the highest priority age-friendly factors are not currently addressed in the Disability Standards. These should therefore be adopted as priority concerns for transport accessibility.

When isolating factors that are currently in both the disability standards and age-friendly recommendations, there is convergence in the priority of information and signage over physical accessibility. This may reflect the major changes that have already taken place in the physical accessibility of buses. Therefore, no major modification is recommended for the current content of the scheduling section of the Disability Standards. The primary recommendation is the adoption of a pedestrian access, bus stop location, scheduling, driver behaviour and prior knowledge and experience considerations into the standards, and prioritisation of these factors in the schedule.

Current Barriers to Bus Use for People with Disabilities

Relevant findings specific to people with a disability come mostly from 403 satisfaction surveys conducted *on buses* in Hervey Bay and Brisbane, Queensland in Oct/Nov 2006 which included 14.7% who answered affirmatively to the question “do you have a disability or medical condition that makes it difficult to catch a bus”.

The majority of disabilities / symptoms were related to walking impairment (e.g. reliance on a walking stick or other device), fatigue (e.g. heart conditions) and vision impairments. This does not, however, preclude the presence of other disabilities (e.g. difficulties with thinking, memory or communication), as other impairments can occur concurrently or are not as easily identified by participants. There was approximately twice the rate of disability in people over 60 years of age, when compared to younger people.

Twelve different items were tested for satisfaction including; finding information, understanding information and timetable, when and where the buses go, ticket prices and types, signage on the buses, moving on, off and around the bus, driver friendliness, driver helpfulness, distance to the bus stop, bus stops and shelters, own knowledge about how to use buses and overall satisfaction.

People with disabilities had similar levels of “overall satisfaction” to those who did not have disabilities. Statistical analysis using Pearson Chi-square values was used to identify individual factors that people with disabilities were significantly less satisfied with than people with no disabilities. The following list ranks the factors where people with disabilities were **less satisfied**; from the greatest difference to less significant difference (other factors were identified where people with disabilities were **less satisfied** but did not reach significance due to sample size, e.g. finding and understanding information).

1. Moving on, off and around buses (p<0.001)
2. Signage on buses (p=0.002)
3. Distance to bus stop (p=0.035)
4. Bus stops and shelters (p=0.031)
5. Own knowledge about using buses (0.026)

There was a trend towards people with disabilities being **more satisfied** than those without disabilities with ticket prices and types, although this was not significant, which may reflect the sample size.

Comments from people with disability regarding satisfaction with the following factors (repetitions have been deleted);

Moving on, off and around the bus	Negative Comments: It can get congested with strollers, steps are hard for arthritis, (old) Maryborough (to Hervey Bay) buses are difficult / really hard on knees, unable to get on, poor grip on floor if driver moves, rails too high, it's hard on the knees, some seats too tight in alley with 3 seats together, sometimes can't get close enough to curb and have to jump down off bus (difficult), circle bus not always wheelchair accessible (friend in wheelchair had to wait til three buses past), old buses should become obsolete, pole in the middle of entry makes it very difficult to get walker on, if carrying bags it is more difficult, need to get off at the front of the bus, sometimes take off with a jerk, seats taken by young people
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Positive Comments: drivers wait (which is good), low floor buses are good, prefer the new buses, newer buses are better

Signage on the bus Negative Comments: Difficult to read, the little buses have good signs, black & white is not good, I now look at the number (the words are too hard to read), some drivers forget to put new signage when drive into the terminus (as they have changed their route), size is good but colour difficult to see in dark, need the route number on side and back, close numbers are confusing, sometimes electronic display isn't working or not clear, didn't change sign from school bus to normal route therefore missed bus and had to wait another hour, sometimes not clear, too small, can't read them, comes too quickly around the corner, not too good for people with bad eyes

Distance to the bus stop Negative Comments: 10 mins walk, 10mins, long distance, 15-20mins, 4mins it would be nice if it was closer, hill, have to cross a busy road

Bus stops and shelters Negative Comments: No shade, haven't got any (shelters), it get's very hot, no seat., difficult to see because of trees, no shelter - making it difficult if raining, need covered shelters everywhere, can't see through bricks, poor ventilation, hot in summer, problem when raining, not many, council pulled a lot of them down, Toombul has no shade in the afternoon or morning, sun, no shade so have to stand behind the bus stop, no shelter on side, not enough shade on Crosby Rd, need to get a shelter on my bus route, no shelter for bus stop 12 on South Pine Road, need to get rid of bus stops / shelters that are no longer in use, doesn't keep out sun or rain, varies

Own knowledge about using buses If I had to go anywhere else (it would be difficult), new to buses, still working it out, steep learning curve, only know for my area, from the country and different in the city

The comments regarding moving on, off and around the bus show consistency with the existing standards and reflect that 100% compliance with the standards has not yet been achieved. Positive comments regarding newer (low floor) buses indicate that the standards are of value. Additional clauses are required in the Standards to mandate that a) bus drivers wait for users with a disability to be seated / secured before moving, and b) luggage ports should be provided close to the entrance.

In light of the comments regarding signage on the buses, Part 17.3 of the Standards is inadequate to meet the needs of people with a disability. Part 17.3 of the Standards should specify that, in regards to buses, signage of the destination / route number should be on the front, back and side of the bus.

Distance to the bus stops should be considered as an important constituent to bus accessibility. The comments show that 10 minutes mobilising distance and further is unsatisfactory for users with or without a disability. Satisfaction is achieved for almost all users who said that the bus stop was within 5 minutes mobilisation or 500m from the home / destination. The specification that "a) fixed bus routes must go within 500m of all dwellings or b) an equivalent service must be offered" should be included (e.g. service route transport).

Previous knowledge and experience is not targeted within the existing Standards, which is a significant shortcoming. It should be additionally mandated within the standards that "27.5 All passengers must have access to training on how to use the conveyance and must be provided information on how to access this training"

The Mineta Transportation Institute also offers a framework with which to evaluate the impact that characteristics of the bus system have on overall satisfaction (Koffman & Salstrom, 2001). This method is used to identify which aspects of the service should theoretically result in the greatest impact on ridership if modified. The items with the highest impact scores are listed below with the impact score of overall satisfaction for comparison.

Area	Impact Score
Bus stops and shelters	0.84
When & Where the buses go	0.76
Moving on, off and around the bus	0.67
Signage on the buses	0.66
Overall satisfaction	0.20

These four identified areas should become priorities if the aim is to increase ridership by people with disabilities and reduce the impact of accessibility issues. The existing timeline for compliance does not require bus stops and shelter to meet the standards until the year 2022. Given the high impact score of bus stops and shelters, this timeline should be shortened. The high impact of these areas gives further credence to the additions to the Standards regarding bus stops and signage that are recommended above.

Summary

In light of the divergence between the Disability Standards for Accessible Public Transport 2002 and the age-friendly recommendations and satisfaction of people with disabilities, it is recommended that various parts of the Standards are modified and others added. These recommended changes are described below.

Recommended Modifications to the Standards

Preliminary

Part 7.3 – should additionally be included reading;

“Shelters

Shelters must be provided at all stops requested by the public such that shelters provide a) protection from sun and rain, b) consistent identifying features across the transport system, c) clear visibility of oncoming buses and d) provide seating as described in sections 7.1 and 7.2.

Conveyances

Buses

Part 8.9 – should additionally be included reading;

“Boarding Availability

Services must be provided such that a) public transport is available within 500m of all dwellings and amenities or b) an equivalent service must be offered (including service route transport).

Conveyances

Buses

Ferries

Trains

Trams

Light Rail”

Part 17.3 – “If used, destination signs must be placed above the windscreen.” should be replaced with;

“Destination signs must be placed above the windscreen.”

Part 17.3 – should additionally read;

“(4) Destination signs and / or route number must be placed on the back and sides.”

Part 25.2 – should additionally read;

“(2) ...that meets equivalent access principles, for example pre-paid ticketing.”

Part 25.5 – should additionally be included reading;

“Concession Fares

Concession fares must be offered to holders of concessionary cards at a rate of fifty percent (50%) the cost of a full fare.

Conveyances

Buses

Ferries

Trains

Trams
Light rail

Part 27.1 – should additionally read;
“...must be accessible to all passengers and must adhere to a 6th grade SMOG readability level (McLaughlin, 1969).”

Part 27.5 – should additionally be included reading;

“Training

All passengers must have access to training on how to use the conveyance and must be provided information on how to access this training.

Conveyances

Buses

Ferries

Trains

Trams

Light rail”

Part 27.6 – should additionally be included reading;

“Advertising

Advertising of the service must occur at least yearly in both electronic and non-electronic formats. Advertising must be accessible to all passengers.

Note: see sections 27.1 and 27.3 in relation to information accessibility.”

Part 27.7 – should additionally be included reading;

“Service changes

Changes to services including a) permanent timetable changes or b) permanent and temporary changes to routes or boarding points must be advertised as in section 27.6”

Part 30.2 – should additionally be included reading;

“Luggage storage

Belonging storage space must be provided within 1000mm of the driver. Storage space must have minimum dimensions of 400mm width and 400mm depth and maximum dimensions of 700mm depth.

Conveyances

Buses”

Parts 32-34 should be relabelled as parts 34-36 respectively. A new Part 32 should be inserted with the title of **“Service Personnel”** and incorporate the following clauses;

“32.1 General behaviour

- (1) Operators and providers must ensure that all service personnel show appropriate professional behaviours of friendliness and helpfulness.
- (2) Operators and providers must ensure that all service personnel are trained in, and exhibit, sensitivity to the needs of people with disabilities and older people.

32.2 Boarding

Operators and providers must ensure that drivers allow appropriate time for older passengers and passengers with disabilities to be seated before the conveyance is in motion.

Conveyances

Buses
Ferries”

Part 33 – should additionally be included reading;

“Part 33 Pedestrian Accessibility

33.1 Pedestrian Infrastructure

Pedestrian infrastructure must be accessible to all passengers.

33.2 Footpaths

A demand responsive service must be provided to allow all passengers to have access to safe footpaths, and all passengers must be provided information on how to access this service, including considerations of;

- (1) Footpaths must not be less than 1800mm wide
- (2) Surfaces must be firm and smooth
- (3) Footpaths must be well lit
- (4) Gradients must be no greater than 1:12

33.3 Pedestrian Crossings

A demand responsive service must be provided to allow all passengers to have access to pedestrian crossings, and all passengers must be provided information on how to access this service, including considerations of;

- (1) Length of crossing times
- (2) Visibility of pedestrians from motor vehicles
- (3) Vehicular speeds
- (4) The provision of curb

Conveyances

Buses

Ferries

Trains

Trams

Light rail”

Schedule 1

Part 2.1 – “except bus stops” should be removed

Part 2.1 – should additionally read “Training, Service Personnel”

Part 2.3 – “except bus stops” should be removed

Part 2.4 – should additionally read “Boarding Availability”

It would be greatly appreciated if these changes were considered for the Disability Standards Review.

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