Inclusive Precincts Guide

Access and Inclusion in Public Transport Premises, Infrastructure and Systems

March 2026

DELIVERING FOR QUEENSLAND

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Feedback

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Glossary of terms

Term	Definition	Definition Source
Assistance animal	This has the meaning given by subsection 9(2).	*Disability Discrimination Act 1992*
Accessible	Features, services or environments that can be used by people with disability.	National Construction Code-2022 Disability (Access to Premises — Buildings) Standards 2010 (2020)
Accessible design	Designing spaces, facilities, devices and services that can be used equally and independently by all people, including those with disability, in line with recognised access standards.	*TMR Accessible Transport Network Program*
Access path	A path that allows independent travel for all passengers, regardless of ability, within public transport premises, infrastructure or vehicles.	Disability Standards for Accessible Public Transport-2002
Accessway	A continuous accessible path of travel that provides entry to, into or within a building (as defined in AS 1428.1).	National Construction Code-2022 Disability (Access to Premises — Buildings) Standards 2010 (2020)
Add Value Vending Machine (AVVM)	A self-serve electronic ticketing machine with a touch screen display, card reader and cash payment options. It is used to purchase paper tickets or perform a limited range of *go* card functions, such as displaying the card balance, viewing transaction history or adding value to the card.	*Public Transport Infrastructure Manual*, Department of Transport and Main Roads, November 2020
Allocated space	A three-dimensional space designed to accommodate a wheelchair or similar mobility aid.	Disability Standards for Accessible Public Transport-2002
Assembly building	A building where people may gather for transit purposes, such as a bus station, railway station, airport or ferry terminal.	National Construction Code-2022 Disability (Access to Premises — Buildings) Standards 2010 (2020)

Term	Definition	Definition Source
Assessment method	A method for determining whether a Performance Solution or Deemed-to-Satisfy Solution complies with the Performance Requirements.	National Construction Code-2022
Barrier free design	Designing or retrofitting infrastructure and vehicles to remove barriers and obstacles that would otherwise limit how people can use a space.	*TMR Accessibility and Inclusion Strategy*
Carer	As per Subsection 9(1) of the DDA-1992, "a carer or assistant, in relation to a person with a disability, is one of the following who provides assistance or services to the person because of the disability: a carer, an assistant, an interpreter, a reader."	*Disability Discrimination Act 1992*
Communication	Covers languages, text displays, Braille, tactile communication, large print, accessible multimedia, written and audio, plain language, human-reader services, and augmentative or alternative modes. It also includes accessible information and communication technology.	United Nations Convention on the Rights of Persons with Disabilities
Conveyance	This has the meaning given by Section 1.12 of the DSAPT-2002.	Disability Standards for Accessible Public Transport-2002
Deemed-to-Satisfy Provisions	Provisions that are accepted as meeting the Performance Requirements. For example, a requirement for a set number of accessible parking spaces with specific dimensions and markings.	National Construction Code-2022
Deemed-to-Satisfy Solution	A method of meeting the Deemed-to-Satisfy Provisions. For example, a design that includes the required number of parking spaces with compliant dimensions and markings.	National Construction Code-2022
Disability	In relation to a person, this has the meaning given by Section 4 of the DDA-1992.	*Disability Discrimination Act 1992*
Discrimination	This has the meanings given by Sections 5, 6, 7 and 8 of the DDA-1992.	*Disability Discrimination Act 1992*

Term	Definition	Definition Source
Equivalent	Providing the same level of health, safety and amenity as the Deemed-to-Satisfy Provisions.	National Construction Code-2022
Equivalent access	This has the meaning given by Sections 1.16, 33.3, 33.4 and 33.5 of the DSAPT-2002.	Disability Standards for Accessible Public Transport-2002
Facility	Any form of infrastructure used for a specific public transport purpose A whole station is a facility, and so is a bicycle cage or park 'n' ride.	*Public Transport Infrastructure Manual*, Department of Transport and Main Roads, November 2020
Gangplank	A narrow, moveable platform or ramp that forms a bridge for boarding or leaving a vessel.	*Public Transport Infrastructure Manual*, Department of Transport and Main Roads, November 2020
Gangway or ramp	A structure that provides passenger access between a walkway or shore and a floating structure or vessel.	*Public Transport Infrastructure Manual*, Department of Transport and Main Roads, November 2020
Illuminance	The amount of light (luminous flux) falling onto a unit area of surface.	National Construction Code-2022
Inclusive design	Designing services, information, products and infrastructure to meet the needs of the widest possible audience.	*TMR Accessibility and Inclusion Strategy*
Infrastructure (in legislation)	(1) Infrastructure is any structure or facility used by passengers when travelling on public transport. (2) Infrastructure does not include areas beyond immediate boarding points (for example, bus stops, wharves, ranks, rail stations, or terminals).	Disability Standards for Accessible Public Transport-2002
Infrastructure (in departmental policy)	"Any item in the TransLink network that has been designed, constructed, installed or any fixture or fitting required for the appropriate function of a public transport system (that is, but not limited to – seats, platforms, stairs, overpasses, shelters, signage, furniture, information and display devices, security devices, enhancements, vehicle arrangement requirements, pedestrian infrastructure, cycle infrastructure and parking infrastructure)."	*Public Transport Infrastructure Manual*, Department of Transport and Main Roads, November 2020

Term	Definition	Definition Source
Intelligent Transport Systems (ITS)	Electronic infrastructure used at public transport stops and stations to assist customers and operators. ITS may include security cameras (CCTV), real-time-information, public address systems, and other public transport information.	*Public Transport Infrastructure Manual*, Department of Transport and Main Roads, November 2020
Lead stop	A bus stop with a single platform boarding point where buses line up behind each other, rather than using separate designated stops for different services. Lead stops are common where many services pass, as they help reduce dwell times.	*Public Transport Infrastructure Manual*, Department of Transport and Main Roads, November 2020
Lowest astronomical tide (LAT) and highest astronomical tide (HAT)	The lowest and highest levels that can be predicted under average meteorological conditions and any combination of astronomical conditions.	*Public Transport Infrastructure Manual*, Department of Transport and Main Roads, November 2020
Luminance contrast	The difference between the light reflected from one surface or component and the light reflected from another.	National Construction Code-2022 Disability (Access to Premises — Buildings) Standards 2010 (2020)
Micro-mobility	Also known as micro-transit, this refers to alternative transport options to cars, trains or buses such as electric scooters and bicycles. These are typically used in cities or communities as a “first and last mile transport” option or for convenient short-travel distances.	*Public Transport Infrastructure Manual*, Department of Transport and Main Roads, November 2020
Operator	A person or organisation (including its staff) that provides a public transport service to the public or to specific sections of the public.	Disability Standards for Accessible Public Transport-2002
Performance requirement	A requirement that sets the level of performance a Performance Solution or Deemed-to-Satisfy Solution must meet.	National Construction Code-2022 Disability (Access to Premises — Buildings) Standards 2010 (2020)
Performance Solution	A method of complying with the Performance Requirements other than by using a Deemed-to-Satisfy Solution.	National Construction Code-2022

Term	Definition	Definition Source
Precincts	The public areas within and around public transport nodes, such as bus stops, train and light rail stations, ferry terminals, taxi ranks and other public transport infrastructure and premises.	This document
Premises	Includes: (a) a structure, building, aircraft, vehicle or vessel; (b) a place (whether enclosed, built on or not); and (c) a part of premises (including any of the kinds listed above).	*Disability Discrimination Act 1992*
Premises (to which the Transport Standards apply)	Structures, buildings or attached facilities that an operator provides for passenger use as part of a public transport service.	Disability Standards for Accessible Public Transport-2002
Premises (to which the Premises Standards apply)	Premises covered by Part H2 of the Access Code. These include: (a) a new building, or a new part or an affected part of a building, within the meaning of the Premises Standards; or (b) an existing public transport building,	Disability Standards for Accessible Public Transport-2002
Priority seating	This has the meaning given by Part 31 of the DSAPT-2002.	Disability Standards for Accessible Public Transport-2002
Provider	A person or organisation responsible for supplying or maintaining public transport infrastructure.	Disability Standards for Accessible Public Transport-2002
Public transport service	This has the meaning given by Section 1.23 of the DSAPT-2002.	Disability Standards for Accessible Public Transport-2002
Real-time	The ability to monitor and share up-to-date information about the performance of public transport services using global positioning technology based on the distance away from a specific location.	*Public Transport Infrastructure Manual*, Department of Transport and Main Roads, November 2020
Required	Necessary to meet a Performance Requirement or a Deemed-to-Satisfy Provision of the NCC (Access Code), as appropriate.	National Construction Code-2022 Disability (Access to Premises — Buildings) Standards 2010 (2020)

Term	Definition	Definition Source
Services	Includes: (a) services relating to banking, insurance, superannuation and the provision of grants, loans, credit or finance; (b) services relating to entertainment, recreation or refreshment; (c) services relating to transport or travel; (d) services relating to telecommunications; (e) services provided by members of any profession or trade; or (f) services provided by a government, a government authority or a local government body.	*Disability Discrimination Act 1992*
Shared path	A pedestrian and bicycle path where pedestrians have priority under Queensland Road Rules.	*Public Transport Infrastructure Manual*, Department of Transport and Main Roads, November 2020
Stand Alone Card Interface Device (SACID) now called Platform Validator (PV)	An electronic device (usually located at the entry/exit points and key decision areas in stations) used by passengers to validate a *go* card at the start and end of their trip so the correct trip fare can be calculated.	*Public Transport Infrastructure Manual*, Department of Transport and Main Roads, November 2020
Universal design	The design of products, environments, programs and services to be usable by all people, to the greatest extent possible, without the need for adaptation or specialised design. Universal design does not exclude the use of assistive devices for particular groups of people with disability where these are needed.	United Nations Convention on the Rights of Persons with Disabilities
Wayfinding	The use of navigation techniques to assist the independent and safe movement of people from one place to another.	*Public Transport Infrastructure Manual*, Department of Transport and Main Roads, November 2020

Term	Definition	Definition Source
Wheelchair Accessible Taxi / WAT / Accessible Taxi	A taxi that complies with the Disability Standards for Accessible Public Transport and is capable of transporting a passenger using a wheelchair or other mobility device.	*Public Transport Conveyance Manual*, Department of Transport and Main Roads, January 2020

Abbreviations

Abbreviation	Meaning
ADA	*Anti-Discrimination Act 1991*
AGRD	Austroads *Guide to Road Design*
AS	Australian Standards
ATN	Accessible Transport Network (program)
BSI	British Standards Institute
Cth	Commonwealth
CRPD	(United Nations) Convention on the Rights of Persons with Disability
DDA	*Disability Discrimination Act 1992*
DSAPT	*Disability Standards for Accessible Public Transport (2002)*
HRA	*Human Rights Act 2019*
ITF	International Transport Forum
NCC	National Construction Code
NFC	Near Field Communication
PAS	Publicly Available Specification
PTIM	Public Transport Infrastructure Manual
QR (code)	Quick Response (Code)
QR (operator)	Queensland Rail

1. Introduction

This guide has been developed by the Accessible Transport Network (ATN) Program at the Department of Transport and Main Roads to provide a comprehensive overview of best-practice design features for creating accessible and inclusive public transport precincts. Precincts are the public areas within and around public transport nodes, such as bus stops and stations, train and light rail stations, ferry terminals, taxi ranks and other public transport infrastructure and premises. Traditionally, accessibility has been viewed through an asset-based lens, identifying and removing barriers for individual facilities or features, with compliance against legislative obligations and design standards as the primary measure of success. While this approach addresses accessibility for individual elements, it does not account for how those elements worth together within the whole node or across the broader precinct. To create a truly integrated and accessible transport network, a broader approach is required. The design of public transport precincts should consider not only the accessibility of the individual elements, but also how these elements connect and work together. In turn, the strength of the network relies on both the accessibility of each transport precinct and the integration of precincts across the network.

1.1 Purpose

The purpose of this guide is to promote accessibility and inclusion in transport precincts by building on existing compliance requirements designed to eliminate discrimination and create equitable experiences for people with disability. It recognises the diverse needs of people with various physical, sensory, intellectual, cognitive, and psychosocial needs, while acknowledging this list is not exhaustive. It therefore champions the inclusion of diverse needs and perspectives in the design of public spaces.

This guide is intended for any transport professional involved in planning, design, procurement or delivery of transport precincts. While the focus is on public transport facilities, the principles and approaches outlined are also relevant to other types of public infrastructure and precincts.

1.2 Using this document

This guide is designed to help readers interpret and apply accessibility requirements within Queensland’s transport and precinct planning context. It brings together key obligations from state and federal legislation, relevant standards, and international conventions. Navigating accessibility requirements can be complex. Legislation often cross-references external standards without setting out the specific details, making it difficult to find all the information in one place. To make this simpler, this guide consolidates and rephrases key requirements from multiple sources. Extracts and references are included to improve clarity and make the information easier to use in day-

to-day planning and design decisions. However, due to copyright limitations, content from Standards Australia (Australian Standards) cannot be reproduced directly in this guide.

As such, this guide is intended as a practical reference, not a compliance verification tool. It should be used to inform planning and design decisions, with formal compliance checks carried out against the relevant legislation and standards.

To assist with readability, original guidance in this document appears as in Arial font, whereas text extracted from other sources is shown in Arial font but positioned in line with a blue background and grey border, as shown in the example below:

Example heading

This is how original guidance or explanatory text will appear.

> **Example:** This is how content extracted from another source will appear.

Reading this guide can be approached in three sections:

- Sections 1–3: overarching context and background to accessible and inclusive precincts
- Sections 4–18: element-specific chapters outlining regulatory requirements, guidance and good practice examples, and
- Sections 19–24: summary of recommendations, further reading, acknowledgements, figures and references.

The element-specific chapters follow a consistent structure:

- Overview: background information and examples of good practice
- Compliance requirements: key compliance obligations, including regulatory requirements and applicable standards
- Further guidance: references to relevant resources or further guidance material, and
- Recommendations for inclusive design: a summary table of good practice design recommendations.

1.3 Evolving best-practice

This guide focuses on promoting current good practice and emerging best-practice design. The ATN Program will update it periodically to capture new research, developments and standards. Despite best efforts to maintain the currency of this document, readers are encouraged to undertake independent research to identify opportunities for adopting best-practice solutions. This guide also refers to standard drawings and guidance material from local authorities and other jurisdictions, which may not be formally endorsed by the department. Additionally, images from across the network have been used to illustrate examples of good practice and common access challenges. These are not intended to identify specific assets or elements that do not meet desired outcomes. Instead, they show how minor design changes can significantly improve the experiences of users, while also highlighting that accessibility best practice continues to evolve and must maintain functionality in dynamic, operational environments.

2. Queensland's minimum compliance requirements

This section summarises the key legislation, standards and codes applicable to accessible public transport premises and infrastructure. It is important to note that meeting minimum compliance requirements does not guarantee functional outcomes for all users, nor does it ensure obligations under anti-discrimination legislation have been met.

2.1 United Nations' Convention on the Rights of Persons with Disabilities

The United Nations' *Convention on the Rights of Persons with Disabilities* (CRPD) defines the fundamental human rights of people with disability. Its principles and commitments should guide designers and service providers in the design, upgrade and operation of assets and services. While the CRPD is not Commonwealth law, it underpins all legislative obligations with respect to discrimination against people with disability in Australia.

2.2 Australia's Disability Strategy 2021-2031

Australia's Disability Strategy 2021–2031 is the national disability policy framework and supports Australia's obligations under the CRPD. The Strategy sets out a ten-year plan improving the lives of people with disability and builds on the National Disability Strategy 2010–2020, which introduced a range of reforms to better support and include people with disability. Accessible precincts are part of Policy Priority 5: Inclusive Homes and Communities in *Australia's Disability Strategy 2021-2031*. Refer to the appendix for further details. Relevant policy priorities for the design of inclusive precincts are outlined below.

2.2.1 Policy Priority 4: The built and natural environment is accessible

Applying universal design principles enables everyone, regardless of age or ability, to use buildings, transport, parks, and playgrounds without the need for specialised or adapted features. Inaccessible buildings and outdoor spaces exclude people with disability from participation in work, education, social and cultural life.

2.2.2 Policy Priority 5: Transport systems are accessible for the whole community

Being able to use public, private and community transport underpins participation in all aspects of life for all people, with positive impacts on health, social life, education and employment. For this to occur, transport and their entry points (for example stations and platforms) must be accessible to everyone, including people with disability.

Policy Priority 5:

Transport systems are accessible for the whole community.

Being able to use public, private and community transport to move around the community underpins all aspects of life for all people. Being able to move around the community has positive impacts on everyone's health, social life, education and employment. For this to occur, transport and its entry points (e.g. stations and platforms) need to be accessible to everyone, including people with disability.

Other key factors include access to emerging technology and point-to-point transport (e.g. rideshare), proximity of transport systems, frequency of services, information to support the journey (e.g. hearing loops and alerting devices), and getting to and from the transport (e.g. footpaths and walkways).

Other key factors include access to emerging technology and point-to-point transport (for example rideshare), proximity and frequency of services, accessible journey information (for example hearing loops and alerting devices), and safe, accessible connections to and from transport (for example footpaths and walkways).

2.2.3 Policy Priority 6: Information and communication systems are accessible, reliable and responsive

Access to information and communication is essential for safety, health, community participation, employment, education, transport use, banking and shopping. Providing information in accessible formats (for example Braille, Auslan, Easy Read) improves health outcomes and increases opportunities for people with disability. As technology plays an increasing role in daily life, it is important that it is inclusive and usable for all Australians.

2.3 Disability Discrimination Act 1992

The *Disability Discrimination Act 1992* (DDA) is a Commonwealth Act designed to ensure equality, fairness and community inclusion for people with disability. Its objects (the Act's purposes) include "to eliminate, as far as possible, discrimination against persons on the ground of disability." The DDA applies broadly to premises, services and facilities. In practice, the definition of 'premises' is very wide and covers most public places.

Note on language: in this guide, we use 'people with disability' in line with the Australian Government Style Manual. The quoted wording above reflects the DDA's original drafting.

2.4 Disability Standards

The DDA has three legislative instruments for different social contexts, collectively known as the ‘Disability Standards’. The Disability Standards are administered by the Commonwealth Government. The Disability Standards relevant to public transport are:

- The *Disability (Access to Premises – Buildings) Standards 2010* (Premises Standards): provide people with disability with dignified and equitable access to buildings, while giving industry certainty they are DDA compliant.
- The *Disability Standards for Accessible Public Transport 2002* (DSAPT): define the rights of passengers with disability and require public transport operators and providers to remove discrimination from public transport services.

2.5 National Construction Code

Each state and territory have its own building legislation that gives legal effect to the *National Construction Code 2022* (NCC) in that jurisdiction. In Queensland, it is the *Building Act 1975*. For consistency, NCC Part D4 (*Access for people with disability*, also known as the Access Code) mirrors the requirements of the Premises Standards. NCC Part I2 (*Public Transport buildings*, formerly Part H2) reflects the Transport Standards. The Australian Building and Construction Board (ABCB) is the standards-writing body responsible for the NCC and updates the code, typically every three years. The NCC website provides details on building classifications.

2.6 Australian Standards

The Disability Standards refer to a range of Australian Standards, which then become compliance requirements. Australian Standards are developed and owned by Standards Australia, and they are reviewed and updated independently of the Disability Standards. This means Standards Australia may publish a new version, or a Commonwealth agency may issue new guidance, but these updates do not automatically become compliance requirements. For a new standard to apply under the Disability Standards or the NCC, the legislative instrument must be amended through an Act of Parliament. Below is a list of relevant Australian Standards and their latest published versions. Not all versions are currently referenced in the Disability Standards or NCC.

- **AS 1428.1: 2021** – Design for access and mobility: General requirements for access - New building work
- **AS 1428.2: 1992** – Design for access and mobility: Enhanced and additional requirements - Buildings and facilities
- **AS 1428.4.1: 2009** – Design for access and mobility: Means to assist the orientation of people with vision impairment - Tactile ground surface indicators
- **AS 1428.4.2: 2018** – Design for access and mobility: Means to assist the orientation of people with vision impairment - Wayfinding signs
- **AS 1428.5: 2021** – Design for access and mobility: Communication for people who are deaf or hearing impaired
- **AS 2890.5: 2020** – Parking facilities: On-street parking
- **AS 2890.6: 2022** – Parking facilities: Off-street parking for people with disabilities
- **AS 1735.12: 2020** – Lifts, escalators and moving walks: Facilities for persons with disabilities

2.7 Queensland legislation

In Queensland, the DDA and Disability Standards are supported by two key state Acts, underpinned by the CRPD:

- The *Anti-Discrimination Act 1991* (ADA) outlines characteristics protected from discrimination, the areas where discrimination is unlawful, and other behaviours made unlawful by the Act.
- The *Human Rights Act 2019* (HRA) protects and promotes human rights, setting out 23 rights drawn from international human rights law.

Like the DDA, these Queensland acts outline broad objectives and impose legislative obligations. However, they do not directly reference design standards or functional requirements.

2.8 Relationship between standards

It is important to understand how difference Acts and standards relate to each other, and which take precedence. The simplified hierarchy of references is shown below.

Figure 1 Hierarchy of references

Legislation	Disability Discrimination Act, Anti-Discrimination Act, Human Rights Act
Legislative Instrument	Premises Standards, DSAPT
Building Code	National Construction Code
Standards	Australian Standards
Guidance	Non-regulatory guidance and advice

2.9 Definitional comparisons

Each compliance instrument provides specific definitions for the elements it applies to. Understanding the differences and similarities between these definitions helps determine whether an element, asset or service is covered by a particular instrument.

Figure 2 Comparison of definitions

Category	DSAPT	NCC Part I2	Premises Standard / NCC Part D4	Austroads/ RPDM Part 6A
Conveyances	"A conveyance includes any of the following, to the extent that they are used to provide a public transport service: (a) aircraft (b) buses or coaches (c) ferries (d) taxis (e) trains, trams, light rail, monorails, rack railways, and	Not applicable.	Not applicable.	Not applicable.

Category	DSAPT	NCC Part I2	Premises Standard / NCC Part D4	Austroads/ RPDM Part 6A
	(f) any other rolling stock, vehicle or vessel classified as public transport within its jurisdiction by regulation or administrative action of any Government in Australia." "A conveyance does not include the following: (a) charter boats (including water taxis) (b) limousines (including chauffeured hire cars), and (c) self-drive rental cars."			
Premises	"Structures, buildings or attached facilities that an operator provides for passenger use as part of a public transport service." **Note**: this excludes premises to which the Premises Standards apply, for example premises with a Building Class.	"The passenger use areas of a Class 9b or Class 10 building used for public transport."	"A new building, to the extent that the building is: (i) a specified Class 1b building, or (ii) a Class 2 building that has accommodation available for short-term rent, or (iii) a Class 3, 5, 6, 7, 8, 9 or 10 building.	Refer Infrastructure row. **Note**: for the purposes of this table, paths are categorised as 'Infrastructure' to align with Austroads' terminology. Paths are captured in the DDA's definition of Premises, therefore in the context of

Category	DSAPT	NCC Part I2	Premises Standard / NCC Part D4	Austroads/ RPDM Part 6A
			A new part, and any affected part, of a building, if the building is: (i) a specified Class 1b building, or (ii) a Class 2 building that: (A) is a new building, and (B) has accommodation available for short-term rent, or (iii) a Class 3, 5, 6, 7, 8, 9 or 10 building." **Note**: Refer Part 2.1 (2) for exemptions relating to class 10 buildings.	Austroads these terms are effectively interchangeable.
Infrastructure	"Any structure or facility that is used by passengers in conjunction with travelling on a public transport service." *"Infrastructure* does not include any area beyond immediate boarding points (for example, bus stops, wharves,	Not applicable.	Not applicable.	"Provides guidelines for the geometric design of paths (pedestrian, bicycle and shared paths)." "The types of paths are: • pedestrian path • bicycle path or cycle track • shared path, or • separated path."

Category	DSAPT	NCC Part I2	Premises Standard / NCC Part D4	Austroads/ RPDM Part 6A
	ranks, rail stations, terminals).”			
Services	“A public transport service is an enterprise that conveys members of the public by land, water or air. A public transport service includes: (a) community transport conveyances that are funded or subsidised by charity or public money and that offer services to the public, and (b) foreign aircraft and vessels that carry passengers to, from, or in Australia and that offer services to the public. A public transport service does not include a service that provides adventure travel (for example, white water rafting, ballooning or amusement park rides), except to the extent that the service operates to move the public from one location to another distant location.”	Not applicable.	Not applicable.	Not applicable.

3. Principles for accessible and inclusive precincts

The department's *Accessibility and Inclusion Strategy 2025-2027* defines two key terms, critical to this guide:

> **Accessibility**: Accessibility means being able to use the full range of products and services. It is having services that are functional and designed to allow dignified access for all. It results in a connected and easy experience.
>
> **Inclusion**: Inclusion is about everyone feeling confident and safe when accessing services and facilities. It means being included and having a sense of belonging and equitable opportunity.

Under these definitions, accessible and inclusive public transport is a pillar of human rights in society. Public transport networks and systems should support the widest possible diversity of travellers including people with the following diverse attributes:

- people with disability or medical conditions
- people of all ages and life stages
- people from diverse language and cultural backgrounds
- people of diverse gender identifies and sexual orientations
- people from difference socio-economic backgrounds, and
- people living in different locations.

This section outlines three principles for achieving accessible and inclusive precincts:

1. **Universal Design** of assets
2. **Co-design** of assets and services, and
3. **Exceeding minimum compliance** with legislation, regulations, standards and guidelines.

3.1 Principle 1: Universal Design

The Centre for Excellence in Universal Design Ireland defines Universal Design as the "*design and composition of an environment so that it can be accessed, understood and used to the greatest extent possible by all people regardless of their age, size, ability or disability*." Universally designed infrastructure, premises, information technology, features and facilities that allow all passengers equitable levels of service are considered the gold standard. Universal Design ensures inclusivity of all and maximises the functionality and efficiency of transport systems and their precincts. Universal Design is integral to the implementation of the United Nations' CRPD. It is also a policy priority of *Australia's Disability Strategy 2021–2031*. To achieve the objectives of these two instruments, Universal Design must become a core principle when planning, designing and delivering public facilities and services.

The Centre for Universal Design Australia provides a repository of Australian and international guidelines for the built environment, information and communication technology, transport, and many other fields. Universal Design is a design and social philosophy rather than a technical standard. Adopting this approach supports public transport to be accessible to all by translating human rights principles into practical design. In many cases, Universal Design enables the objects of the DDA to be realised – meaning all, or the great majority of passengers, are served by the same inclusive service rather than parallel services where the "accessible option" is almost always inferior.

3 Objects

The objects of this Act are:

(a) to eliminate, as far as possible, discrimination against persons on the ground of disability in the areas of:

(i) work, accommodation, education, access to premises, clubs and sport; and

(ii) the provision of goods, facilities, services and land; and

(iii) existing laws; and

(iv) the administration of Commonwealth laws and programs; and

(b) to ensure, as far as practicable, that persons with disabilities have the same rights to equality before the law as the rest of the community; and

(c) to promote recognition and acceptance within the community of the principle that persons with disabilities have the same fundamental rights as the rest of the community.

Environments can be disabling if they are carelessly designed. People may have impairments, but these only become disabling when environmental factors prevent access. For example, an inclined walkway is generally not disabling for a person using a wheelchair, but a stairway is. A stairway as the sole access path is therefore a disabling factor. A lift co-located with stairs enables access most of the time. However, if the lift is out of service, the stairway again becomes a disabling factor. The universal outcome is that all passengers should use the same access path – in this example, the walkway. Practicalities do not always allow for a walkway. Space may only be available for co-located stairs and a lift. In such cases, the frequency and duration of lift outages must be a critical factor in ensuring an accessible outcome. Adopting a Universal Design mindset early in the project helps identify opportunities to deliver more function solutions and inclusive solutions.

3.1.1 Principles of Universal Design

North Carolina State University developed the seven Principles of Universal Design in the mid-1990s. While originally focused on barriers to physical access in the built environment, particularly mobility requirements, these principles are broadly applicable to facilities and services in the public transport environment:

Equitable Use: The design is useful and marketable to people with diverse abilities.

Flexibility in Use: The design accommodates a wide range of individual preferences and abilities.

Simple and Intuitive to Use: Use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level.

Perceptible Information: The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities.

Tolerance for Error: The design minimizes hazards and the adverse consequences of accidental or unintended actions.

Low Physical Effort: The design can be used efficiently and comfortably and with a minimum of fatigue.

Size and Space for Approach and Use: Appropriate size and space is provided for approach, reach, manipulation, and use regardless of user's body size, posture, or mobility.

3.1.2 Goals of Universal Design

The University of Buffalo expanded on the seven Principles of Universal Design in the mid-2000s with the eight Goals of Universal Design. These goals consider human performance and social participation across both physical and digital environments. They aim to define the outcomes of Universal Design practice in ways that can be measured and applied across all design domains.

Body Fit: Accommodating a wide range of body sizes and abilities.

Comfort: Keeping demands within desirable limits of body function and perception.

Awareness: Ensuring that critical information for use is easily perceived.

Understanding: Making methods of operation and use intuitive, clear, and unambiguous.

Wellness: Contributing to health promotion, avoidance of disease, and protection from hazards.

Social Integration: Treating all groups with dignity and respect.

Personalization: Incorporating opportunities for choice and the expression of individual preferences.

Cultural Appropriateness: Respecting and reinforcing cultural values, and the social and environmental contexts of any design project.

3.1.3 Universal Design resources

The Centre for Universal Design Australia provides a repository of Australian and international guidelines for the built environment, information and communication technology, transport and many other fields.

3.1.4 Universal Design as part of government policy

Universal design is integral to implementing the United Nations' CRPD. An excerpt reads:

> **Article 2**
>
> Definitions
>
> For the purposes of the present Convention:
>
> "Universal design" means the design of products, environments, programmes and services to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design. "Universal design" shall not exclude assistive devices for particular groups of persons with disabilities where this is needed.
>
> **Article 4**
>
> General obligations
>
> 1. States Parties undertake to ensure and promote the full realization of all human rights and fundamental freedoms for all persons with disabilities without discrimination of any kind on the basis of disability. To this end, States Parties undertake:
>
> (f) To undertake or promote research and development of universally designed goods, services, equipment and facilities, as defined in article 2 of the present Convention, which should require the minimum possible adaptation and the least cost to meet the specific needs of a person with disabilities, to promote their availability and use, and to promote universal design in the development of standards and guidelines;

Universal Design is also a policy priority of *Australia's Disability Strategy 2021–2031*.

Inclusive Homes and Communities

Outcome: People with disability live in inclusive, accessible and well-designed homes and communities.

Policy Priority 4:

The built and natural environment is accessible

Adopting universal design principles enables everyone, regardless of age or ability, to use buildings, transport, parks, and playgrounds without the need for specialised or adapted features. Buildings and outdoor spaces that are not accessible exclude people with disability from participation in work, education, and social and cultural life.

3.2 Principle 2: Co-design

Co-design is a philosophy that places people at the centre of a design process, working as key contributors alongside designers and policy makers. Everyone involved in the construction, use, maintenance and upgrade of an asset has performance outcomes they want to achieve. These outcomes are often complimentary but sometimes competing. To ensure all voices are heard during design and implementation, a credible co-design process is recommended for all projects. Co-design is sometimes referred to as participatory design or inclusive design. The scope and scale of co-design will vary with each project. It should begin as early as possible so that design and procurement reflect the agreed outcomes. Co-design should then continue through all phases of the project. Problem solving is often required when unexpected challenges arise, and this problem solving is best conducted in a co-design process. Co-design is also valuable when balancing the benefits of compliance with standards against a bespoke solution. Prescriptive compliance offers consistency and uniformity, while a bespoke solution delivers relevance to a specific context. A co-design process can help validate which approach delivers the best functionality.

3.2.1 Informing, consulting, and co-designing

Collaborating, experimenting and innovating with diverse users gives them a voice to shape solutions. Compared to informing or consulting, co-design involves inviting customers into the process and empowering them to influence and shape decisions. For co-design to be genuine and effective, designers need to be open, willing to listen and ready to learn from diverse experiences. Co-design is about reaching consensus, not creating separate bespoke solutions for different customer groups. The table below outlines the differences between informing, consulting, and co-designing.

Figure 3 The co-design spectrum

Inform	Consult	Co-design
One-way communication from the department to customers.	Two-way communication between the department and customers.	Two-way collaboration where customers and the department shape solutions together.
Example: providing information via a mailout flyer about a train station upgrade.	Example: seeking feedback on an already developed design for an upgraded train station.	Example: engaging customers to help develop a train station precinct, where the intended design is not yet known.

3.2.2 Co-design resources

The New Generation Rollingstock Train Commission of Inquiry found that a lack of early consultation led to serious flaws in the train's design. The Commission recommended early and ongoing consultation on all projects, And these recommendations were adopted in full by the Queensland Government. Co-design makes good policy sense because it delivers better products and reduces the risk of costly rectification works. The Centre for Universal Design Australia provides co-design and design tools. Griffith University has published a practical guide to co-design, and the Victorian Government has an online resource on co-design processes. The University of Cambridge's Inclusive Design Team has published the *Inclusive Design Toolkit: Inclusive design of transport services*. The introduction to the *Inclusive Design Toolkit* states:

> Every design decision can make the user experience better or worse. Successful inclusive design requires informed decision-making at the concept stage, because it can become prohibitively expensive to make changes later on.
>
> This page describes the four main phases of inclusive concept design:
>
> 1. Manage: Review the evidence to decide 'What should we do next?'
>
> 2. Explore: Determine 'What are the needs?'
>
> 3. Create: Generate ideas to address 'How can the needs be met?'
>
> 4. Evaluate: Judge and test the design concepts to determine 'How well are the needs met?'

The Hopkins Centre and the Cross River Rail Delivery Authority collaborated to publish the highly regarded *TOOLKIT: Embedding Accessibility Co-design into the Delivery of Public Transport Infrastructure* in 2023. The document states:

This document outlines a toolkit for incorporating an accessibility co-design approach that can be integrated into the Queensland State Government's standard practices for delivering public transport infrastructure both now and in the future.

3.3 Principle 3: Exceeding minimum compliance

In most cases, legislation, regulations, standards and guidelines set minimum requirements for accessibility. There is scope to go beyond these minimums, and doing so usually delivers a more functional outcome. The Australian Human Rights Commission encourages this approach in its:

- *Guideline on the application of the Premises Standards*, version 2 – 2013, and
- *Guidelines: Equivalent Access under the Disability Standards for Accessible Public Transport 2002 (Cth)*.

Functionality for the convenient and comfortable use of a space or facility should be the primary consideration in designing public spaces and facilities. In most cases, a co-designed, Universal Design approach will deliver this functionality. For example, a single compliant passenger lift may not meet demand at peak times. Providing an appropriate number of lifts ensures the facility can accommodate peak time effectively for all users. Similarly, access paths built to lawful minimum width may become overcrowded at peak times. This can discourage use or even cause injuries due to trips and falls. To avoid this, access paths should be designed to provide a comfortable level of service during peak pedestrian activity, for the life of the asset.

3.3.1 The perceived cost of exceeding compliance

A common misconception is that going beyond minimum standards always increases project cost. While cost may rise if higher standards are considered too late in the design process, adopting this mindset early can reduce or even remove the financial impact. In cases where exceeding compliance is objectively more costly (for example, installing two lifts instead of one), the value of the more functional solution is typically equal to or greater than the extra cost, delivering a stronger return on investment. Designing for comfortable levels of service and future demand, rather than simply complying with minimum requirements, maximises the use of the space or facility. Exceeding minimum compliance should be viewed as an investment in optimal public use of an asset over its service life, not as a cost burden at the project delivery phase. A Universal Design approach does not ask "is the solution compliant?" but instead asks "is the solution sufficient?"

3.3.2 Greenfield and brownfield sites

The fundamental obligation under the DDA is to identify and remove discrimination as far as possible. In the built environment, this means providing access to and inclusion in infrastructure and premises to the greatest extent feasible. Inversely, this can be seen as removing barriers to access wherever possible. In transport projects, site context and other constraints heavily influence the feasibility of meeting compliance requirements– and by extension, exceeding them. The department's *Road Planning Design Manual (RPDM) Part 1: Objectives of Road Design*, while primarily focused on roads, provides useful definitions for greenfield and brownfield sites.

> A **greenfield site** is a location on which a new road is being built where there is no development that prevents the use of design values predominately within the guidelines relating to Normal Design Domain (NDD). Accordingly, the road alignment is relatively unrestricted in terms of the geometry that can be used. These sites are generally away from existing roads and do not need daily traffic control. At such sites all associated road infrastructure must be provided, and this often involves quite major work.

The same resource references the *Australian Road Research Board 2012* definition for brownfield sites.

> A **brownfield site** is one where infrastructure, such as the road pavements; utilities, such as power lines, telecommunication lines, water and sewer services; drainage systems, vegetation and the access to abutting or nearby properties has been in place for some time. Removing, altering or adjusting this existing infrastructure can be very expensive and so often, the retention of this infrastructure is required to minimise the costs of the work. There are also many cultural, heritage or environmental issues to be considered.

The legislative and human rights obligations extend to both greenfield and brownfield sites, but apply differently:

- **Greenfield projects:** with fewer constraints, these projects provide greater opportunity to exceed minimum compliance and deliver best-practice functional outcomes. This can be achieved by adopting Universal Design considerations early in the project, supported by co-designing novel approaches or design solutions.

- **Brownfield projects:** with more constraints, achieving best-practice or even compliant solutions may be limited or sometimes infeasible. These projects still provide opportunities to improve access and remove barriers as far as possible. This can be achieved by co-designing with impacted communities to identify functional solutions. Incorporating Universal Design considerations where the context does not impact compliance can improve amenity and access.

For example, topographical constraints often limit the ability for projects to achieve compliant longitudinal grades on access paths. A hill presents a potential barrier for all path users, but some more so than others. Short of excavating the hill to achieve a compliant grade, Universal Design enhancements can improve access, such as:

- mitigating longitudinal grades as far as possible
- providing high-quality offline landings with seating, shade, water and other amenities
- widening the access path to allow faster users to pass safely, and
- signage to communicate the steep path and alternative routes available.

In addition to these design enhancements, a co-design process with impacted users may:

- determine the true functional impact of the constraint in that context
- test the effectiveness of proposed solutions
- prioritise design enhancements where not all options are feasible, and
- identify novel design solutions or additional improvements.

3.3.3 Navigating non-compliance

This guide does not provide specific advice on addressing non-compliance. However, using the principles outlined here can support the achievement of broader obligations under anti-discrimination legislation. The DDA and the Disability Standards both include provisions that recognise there may be situations where obligations or compliance requirements cannot be fully met. However, the prevailing requirement of the Act and its legislative instruments remains: to eliminate discrimination as far as possible. In all cases, adopting the principles for inclusive precincts will help projects navigate non-compliance risks and continue to meet broader obligations. The RPDM also includes a relevant quote from Louis (2002): compliance does not necessarily guarantee a functional outcome.

> "Design dimensions that do not meet standards do not necessarily result in unacceptable design – dimensions that meet standards do not necessarily guarantee an acceptable design. In assessing the quality of a design, it is not appropriate simply to consider a checklist of standards. The design has to be reviewed with judgement; standards merely assist the reviewer in making those judgements."

3.3.4 Equivalent access

Equivalent access is an approach to meeting compliance with the DSAPT. It allows an operator or provider to vary the equipment or facilities that give access to a public transport service, provided an equivalent outcome is demonstrated across seven dimensions. Equivalent access may also involve providing direct assistance (for example, giving a passenger information about the approach of their stop) when compliance with the DSAPT cannot be achieved, or when requested. It does not include segregated or parallel services. Providers offering equivalent access solutions must commit to avoiding discrimination to the greatest extent possible. Minimum compliance is not the sole focus of this approach – the aim is to deliver outcomes that are inclusive and functional for all passengers.

3.4 Applying the three principles together

Individually, each of the three principles can add benefit to projects. However, they deliver the greatest value when applied together.

The table below outlines a hypothetical project exploring the design of lifts at a train station, and the potential design enhancements each principle could deliver:

Figure 4 Accessible and inclusive principles explained

Principle	1. Universal Design	2. Co-design	3. Exceed minimum standards
How the project adopted the principle	Incorporated Universal Design at the planning stages to identify opportunities for greater amenity and functionality for the community.	Worked with the Accessibility Reference Group and the broader community to identify user needs and design opportunities.	Identified opportunities to adopt newer standards in the development of technical requirements.
Design enhancement	Two lifts per platform instead of one.	Thru-lift instead of turn-around lift; advice on optimal location.	Adoption of AS1753.12: 2020 over AS1753.12:1999.

Principle	1. Universal Design	2. Co-design	3. Exceed minimum standards
Benefits	Provides additional amenity to the broader community, such as parents with prams, passengers with luggage and maintenance staff. Improved level of service for pedestrians. Contingency for lift failure.	Easier for mobility aid users to enter and exit the lift. Improved access for emergency staff. Optimal location makes it easier for passengers to find the lift.	Larger lift footprint. Braille and tactile controls. Hearing augmentation for passengers who are hard of hearing. Audible announcements for passengers who are blind or have low vision.

Staying with the hypothetical project, the table below shows how different combinations of the three principles affected the outcomes:

Figure 5 Design outcomes of adopting these principles

Principles adopted	Design outcome
1. Universal Design, and **2. Co-design** *(Without: Exceed minimum standards)*	Two thru lifts provided in optimal locations. Newer standards are excluded from technical requirements, resulting in so lifts being built to a 26-year-old standard.
2. Co-design, and **3. Exceed minimum standards** *(Without: Universal Design)*	One thru lift provided in an optimal location and designed to contemporary standards. A second lift is not considered during planning, so no benefit-cost analysis is undertaken to justify the expense.
1. Universal Design, and **3. Exceed minimum standards** *(Without: Co-design)*	Two turn-around lifts are provided in sub-optimal locations. Lifts are designed to newer standards, but their location and type of lift limits functionality and reduces return on investment.
All three principles adopted	Two thru lifts are provided in optimal locations and designed to contemporary standards. A benefit-cost analysis identified that additional lifts are justified due to broader community benefits. The co-design process confirmed the best lift type and location, supporting a strong return on investment. Adoption of newer standards in the technical requirements enables the contractor to deliver enhanced lift hardware.

4. Precinct planning

4.1 Convention on the Rights of Persons with Disabilities

Accessible public transport and inclusive precincts are recognised as basic human rights. The CRPD (Article 9: Accessibility) requires public environments to be accessible to everyone. In Australia, these obligations are given effect through the DDA and its instruments, including the Premises Standards and the DSAPT. See 'Relationship between standards' and the 'Appendix' for more detail. Precinct designers and managers should keep these human rights front of mind when planning, designing, constructing and maintaining precincts. Prioritise the integration of accessible amenities across the whole precinct, not just individual assets. Apply Universal Design (CRPD Article 4.1(f)) and co-design (CRPD Article 4.3) principles to achieve practical, inclusive outcomes for the community. See 'Principles for accessible and inclusive precincts' principles 1 and 2 for how to put this into practice. The CRPD includes precincts in its Article 9, Accessibility, binding State Parties to provide accessible public environments.

Article 9

Accessibility

1. To enable persons with disabilities to live independently and participate fully in all aspects of life, States Parties shall take appropriate measures to ensure to persons with disabilities access, on an equal basis with others, to the physical environment, to transportation, to information and communications, including information and communications technologies and systems, and to other facilities and services open or provided to the public, both in urban and in rural areas. These measures, which shall include the identification and elimination of obstacles and barriers to accessibility, shall apply to, inter alia:

(a) Buildings, roads, transportation and other indoor and outdoor facilities, including schools, housing, medical facilities and workplaces;

2. States Parties shall also take appropriate measures:

(a) To develop, promulgate and monitor the implementation of minimum standards and guidelines for the accessibility of facilities and services open or provided to the public;

(b) To ensure that private entities that offer facilities and services which are open or provided to the public take into account all aspects of accessibility for persons with disabilities;

4.2 Universal Design considerations

Taking a Universal Design approach to precincts and their access paths helps meet the requirements of the DDA by accommodating the needs of all users. Inclusive design benefits everyone – not just people with disability. It also supports people carrying goods, walking with children, pushing prams or trollies, or managing temporary injuries or fatigue. Well-designed pedestrian precincts improve safety, comfort and flow for all users. Universal Design makes public transport precincts more usable, intuitive and welcome. The Centre for Universal Design Australia provides a repository of Australian and international guidelines for the built environment.

4.2.1 Street furniture and facilities

Street furniture – such as seats, drinking fountains, and – supports comfort and rest for all members of the public. Trees can improve the microclimate but must not intrude onto access paths. Grassed areas with nearby waste bins allow toileting of assistance animals – such as guide dogs or assistance dogs. While these features benefit everyone, they are especially important for people with disability. The opportunity to rest, avoid heat stress, or toilet an assistance animal may determine whether a personal can complete a public transport journey. Street furniture and trees should be placed to maintain a clear pedestrian path. Wherever possible, position furniture near the kerb to keep the building line or property boundary free of obstructions. This supports wayfinding for people with vision impairment using the ‘shore lining’ technique, defined by Able Australia as:

> ***Shoreline**:* This technique allows the traveller to use a wall, building, or grass line to find a specific objective, or help maintain a straight line of travel. The traveller makes consistent contact with that surface, the ‘shoreline’, when they tap their cane to the side the shoreline is on.

Street furniture should also provide colour and luminance contrast against its background to support detection by people with low vision.

4.2.2 Shade and weather protection

Carefully designed shade and weather protection improve comfort and safety for all users. Exposure to heat, rain, or wind, can create barriers to travel – especially for people using mobility aids, medical equipment, or travelling with assistance animals. Shade can be provided through shelters, awnings, or tree canopies. Weather protection reduces hazards like slips and falls caused by wet or slippery surfaces. Permanent shade structures must consider sun path movements year-round, as well as the prevailing wind direction during wet weather. When using vegetation, choose species that do not drop leaves, seed, pods, berries, leaves, or bark that may affect access path surfaces. Avoid plants with overhanging foliage that could intrude into pedestrian space. Plants with distinctive scents, sounds (in wind) or appearance can also support wayfinding for people who are blind or have low vision. The PTIM provides further guidance on vegetation selection.

4.2.3 Assistance animal toileting facilities

Assistance animal toileting facilities are designated areas where guide, hearing or assistance dogs can be toileted. These facilities support dignity, comfort and hygiene for both the animal and their handler. Clear signage helps with wayfinding and assures other members of the public that toileting is permitted in that location. Toileting areas should be located near key precinct features– such as entry points, waiting areas, or platforms – and should be clearly signposted. Key design considerations include safe, enclosed spaces with appropriate surfacing (such as grass or artificial turf), water fountains and waste bins. Cross River Rail outlines the following requirements in its *Best Practice Accessibility Guide*:

> The Accessible Dog Toileting Zone must:
>
> a) be well illuminated with its own lighting;
>
> b) have CCTV coverage;
>
> c) have seating;
>
> d) have shelter over paved areas;
>
> e) have wayfinding and signage;
>
> f) have a minimum of 4m2 of natural grass (not synthetic);
>
> g) have a drinking fountain with
>
> i)lever handle operation; and
>
> ii) a pet bowl; and

iii) a timer controlled operation;

h) be located away from any smoking areas; and not be fenced.

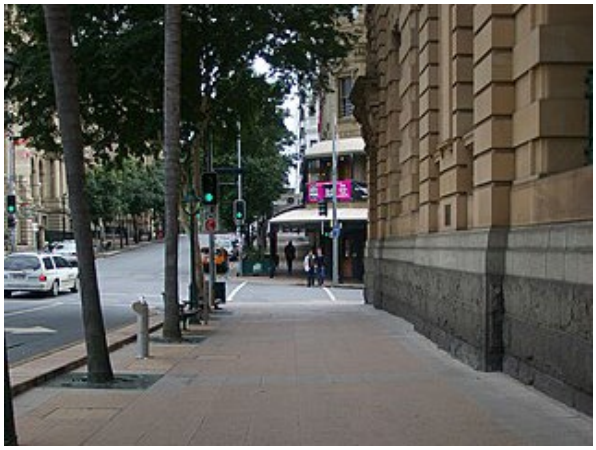


Figure 6
Clear building line, George Street, Brisbane

Good practice: The building line acts as a shoreline leading directly to the pedestrian crossing over Elizabeth Street.

Figure 7
Clear building line, Adelaide Street, Brisbane

Good practice: Sufficient waiting area is provided at the bus stops to encourage passengers to wait away from the access path.

Figure 8
Clear building line, Edward Street, Brisbane

Good practice: The building line can be used as a shoreline by white cane users as well as a visual cue due to its contrasting finish with the floor surface. Landscaping features are also clearly contrasted.

Figure 9
Clear access path on Adelaide Street with e-scooters to kerb.

Good practice: Consolidating shared e-mobilty devices ensures a clear access path wide enough to accomodate demand.

4.2.4 Micro-mobility

In Queensland, micro-mobility users – including e-scooter and e-bike riders – are legally permitted to travel on footpaths. Their needs, along with those of other path users, must be considered in precinct design. When properly regulated, shared micro-mobility services can provide a valuable support for many people with disability. For example, people who experience fatigue or chronic pain may be able to distances far beyond their normal walking range. When coordinated with public transport nodes, micro-mobility options form part of a Universal Design solution for 'first and last mile' travel, or for connecting between transport nodes. These services have also been shown to benefit people on low incomes, particularly when offered at discounted fare rates. The International Transport Forum has produced a useful policy document – ITF (2024), *Safer Micro-mobility, International Transport Forum Policy Papers, No. 129* – that may be considered when planning micro-mobility integration.

Many people with disability may be enthusiastic users of e-bikes or e-scooters. This includes people with hidden disabilities that cause fatigue or pain, people who are Deaf or hard-of-hearing, neurodivergent individuals, and others whose disability does not impair physical or cognitive function. These users may rely on active transport and micro-mobility to access precincts and transport nodes. A well-regulated micro-mobility system – with designated parking at or near transport nodes and other key destinations, and strict parking protocols away from major hubs – benefits a broad range of users, including many people with disability. The department is progressing a range of initiatives to improve the safety of Personal Mobility Devices in Queensland through the *e-Mobility Parking Plan*. Designated e-mobility parking areas should be located in the verge-side 'footpath furniture zone', not the property-side 'movement zone' near the shoreline. If the pavement does not provide visual contrast, these areas should be marked with Hazard / Warning TGIs.

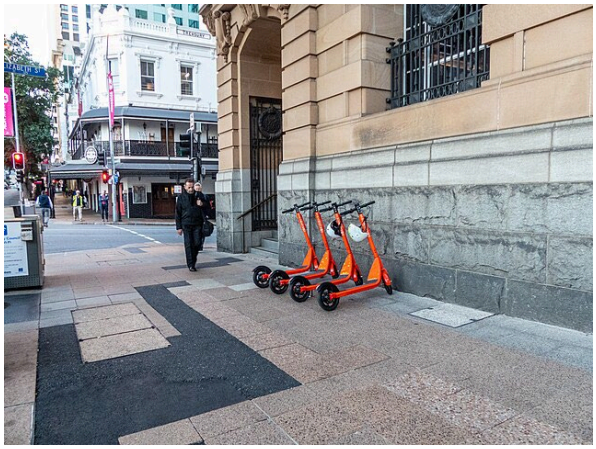


Figure 10
E-scooter parking, Adelaide Street, Brisbane

Could be better: E-scooters and e-bikes obstructing a footpath and shoreline, creating a barrier for white cane users.

Figure 11
E-scooter signage, William Street, Brisbane

Good practice: E-scooter with sign providing parking directions, encouraging users to adopt correct parking habits.

Figure 12
E-mobility and shorelines, Adelaide Street, Brisbane

Could be better: E-scooters and ebikes obstructing a footpath and shoreline, limiting effective path width for all users.

Figure 13
E-mobility and bus stops, Adelaide Street, Brisbane

Could be better: E-scooter obstructing a bus stop boarding point, creating a hazard for all users, particularly blind and low vision pedestrians.

Figure 14
Private e-scooter parking, Adelaide Street, Brisbane

Good practice: Privately owned e-scooter tethered at bicycle rack, reducing hazards for pedestrians.

Figure 15
E-mobility parking, King George Square bus station

Good practice: Adelaide Street designated e-scooter parking area ensures a clear entrance to the bus station.

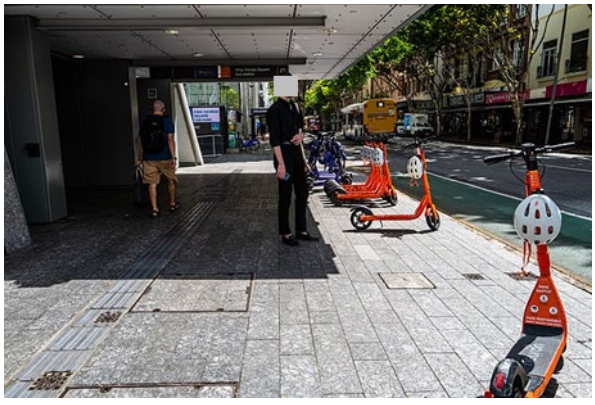


Figure 16
E-scooters parked near King George Square bus station

Good practice: E-scooter and e-bike parking location on Adelaide Street footpath, ensures the directional TGSI path is clear. The parking space is postioned out the access path, which is sufficiently wide to accommodate pedestrian demand.

Figure 17
E-mobility parking near Central rail station

Good practice: Designated e-scooter and e-bike parking on Ann Street near the Mincon Building encourages e-mobility users to consolidate their parked devices out of access paths.

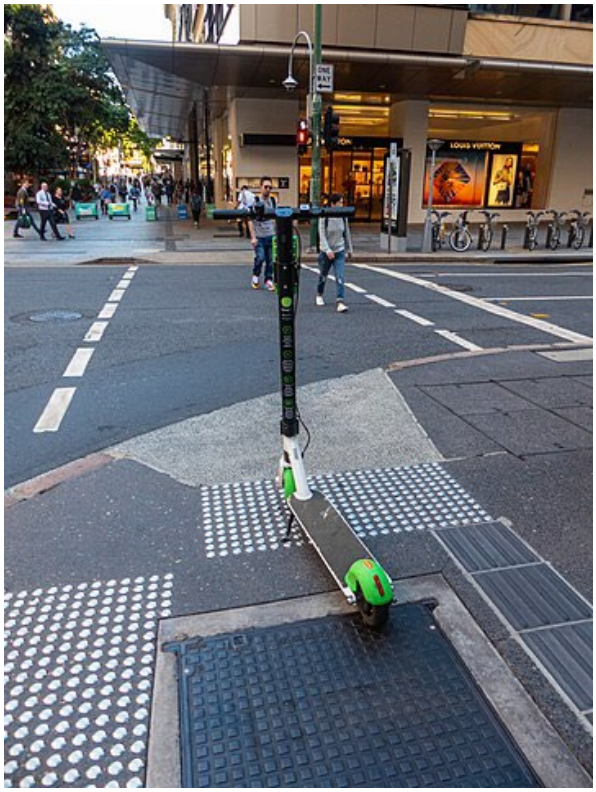


Figure 18
E-scooter and kerb ramps, Edward Street, Brisbane

Could be better: E-scooter obstructing a kerb ramp, creating a hazard and potential barrier for mobility device users.

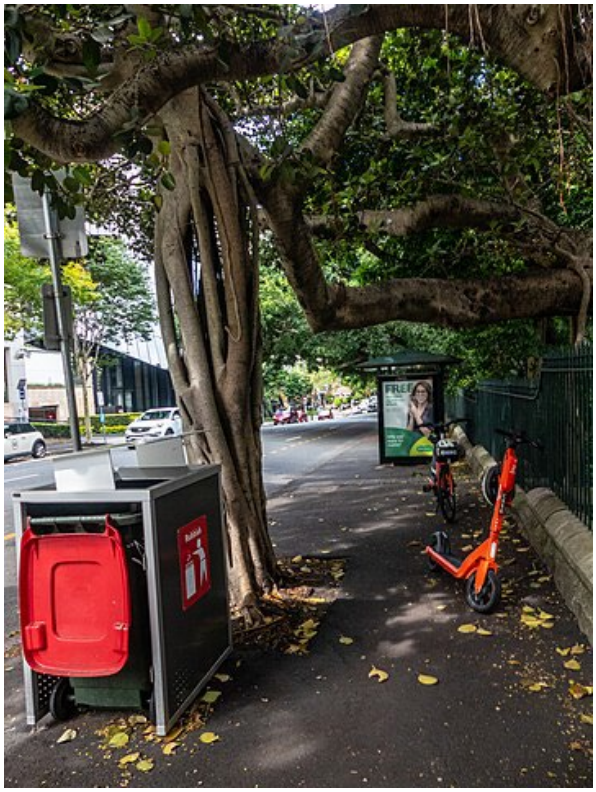


Figure 19
E-scooter and narrow path, Alice Street, Brisbane

Could be better: E-scooter obstructing a narrow section of footpath, limiting effective width for all users.

4.2.5 Neurodiversity

Neurodiversity recognises that people process information in different ways. While categories such as neurotypical, neurodivergent, and neurodegenerative are useful, they often overlap and include a wide range of experiences. Designing precincts to support neurodiversity creates spaces that work well for many different people. The British standard *PAS 6463-2022 Design for the mind – Neurodiversity and the built environment – Guide*, provides practical guidance for applying these principles in the built environment, including transport precincts. The BSI Knowledge website reads:

PAS 6463 gives guidance on the design of the built environment to include the needs of people who experience sensory/neurological processing differences. This includes neurodivergent, neurodegenerative, hypersensitive and other neurological conditions which can affect sensory processing and mental well-being.

It incorporates principles to ensure that people with or having a range of sensory/neurological processing differences are able to access and enjoy their experience of the built environment equally. This includes people with Autism, ADHD, Dementia and other neurodivergent or neurodegenerative conditions, while also providing inclusivity for all.

4.2.6 Temporary works

Access paths may be temporarily obstructed due to construction or maintenance. During these times, alternative access paths should be provided. If alternative access paths cannot be provided at the site, alternate accessible routes should be clearly identified and promoted using a range of accessible media. People with vision impairment often rely on memory and known landmarks to navigate. They benefit from access paths that are predictable and free from unexpected obstacles. Items placed randomly – such as e-scooters, e-bikes, signs, al fresco dining tables or goods – can create collision risks and disrupt navigation. People using wheeled mobility aids depend on clear access at critical points such as kerb ramps and narrow footpath sections. If these are blocked, it may be impossible to cross a street or continue along an access path. Regulating micro-mobility services and educating users helps keep access paths clear. Designating appropriate parking areas also supports safe use.

Figure 20
Temporary kerb ramp, Cherry Street, Ballina, NSW

Good practice: Temporary kerb ramp at footpath closure ensures access is maintained during construction.

Figure 21
Temporary kerb ramp, Edward Street, Brisbane

Good practice: Temporary bitumen kerb ramp at footpath closure maintains access for pedestrians and cyclists.

Temporary road closures require formal notification and approval from Council and relevant road authority prior to closure. Liaison with local authorities can assist with enforcing local laws that regulate the placement of goods, signs, and furniture. The department offers training through Cyclist and pedestrian safety at roadworks, the Austroads *Guide to Temporary Traffic Management* and *Queensland Guide to Temporary Traffic Management* (QGTTM) provides comprehensive advice on managing closures in the road environment.

4.2.7 Crime Prevention Through Environmental Design

Crime Prevention Through Environmental Design (CPTED) should be a core consideration in precinct design. The Queensland Police Service CPTED *Guidelines* outline how design can support safe, inclusive public spaces:

> The design of our towns and cities has a central role to play in the way they deliver and support the interconnecting public space. CPTED can help ensure people can move easily, feel safe, navigate, and participate in desirable activities by incorporating design features that discourage unwanted and anti-social activities or behaviours.

The *Guidelines* outline seven CPTED principles that should inform precinct design:

1. Activation
2. Surveillance
3. Ownership
4. Stakeholder management
5. Legibility
6. Territoriality
7. Vulnerability

4.3 Further guidance

This section summarises further guidance relevant to the design of accessible and inclusive public transport precincts.

4.3.1 Transport and Main Roads' Movement and Place Policy

Movement and Place is a best-practice planning methodology that guides how transport networks and the places they connect are planned, designed and operated. It seeks to balance the transport network's role in moving people and goods with the role of transport corridors, nodes and precincts as places – where people live, shop, work, do business and socialise. This approach recognises that transport infrastructure is not just for movement but also forms part of the public realm. Movement and place principles help ensure these areas support both efficient travel and vibrant, inclusive community life. A range of Movement and Place resources are available on the departmental website.

4.3.2 The Whole Journey: A guide for thinking beyond compliance to create accessible public transport journeys

The Australian Government's guide *The Whole Journey* encourages planners and designers to go beyond minimum compliance when designing public transport facilities. It promotes the idea that transport facilities are part of a broader precinct and should be fully integrated through safe, continuous and connected access paths.

> **3.2.4 Precinct planning and coordination**
>
> Stations often function as the centre of many communities and are important nodes in a neighbourhood. A series of activities at stations can transform a station or stop into a multi-use destination. Where public transport nodes sit within a precinct – such as a retail, health, education or sporting facility or airport terminal – planners and managers should consider how activities within the precinct impact access to public transport, especially for those with accessibility requirements.

4.3.3 Other precinct planning resources

- **Walking Space Guide: Towards Pedestrian Comfort and Safety**, Transport for NSW
- **Great Places Toolkit**, Transport for NSW
- **The Planning for Walking Toolkit**, Transport for London
- **Walking Network Planning Guidance**, Transport and Main Roads
- **Accessible and Inclusive Design Guide**, Transport and Main Roads
- **Cycling Guidelines**, Transport and Main Roads

- **Bicycle Network Signage and Wayfinding Guidelines**, Transport and Main Roads
- **Dementia-Friendly Community Tools and Resources**, Dementia Australia
- **Accessible Tourism in Queensland and Victoria**, Tourism and Events Queensland (TEQ)
- **Crime Prevention Through Environmental Design (CPTED) Guidelines for Queensland 2021**, Queensland Police Service
- **Urban Planning and Urban Design: CPTED Resources**, Transport and Main Roads
- **Night-Time Vulnerability Assessment**, ARUP

4.4 Recommendations for inclusive precincts

Figure 22 Inclusive precinct planning design recommendations

Subject	Design consideration
Adopt a precinct-wide approach	Consider accessibility across the entire precinct – not just individual elements. Ensure transport nodes (e.g. stations, platforms) are accessible and well-integrated with surrounding precincts. Provide accessible information systems (e.g. hearing loops, Braille, Easy Read formats). Include assistance animal toileting facilities with appropriate amenities.
Human Rights focus	Design with the human rights of all users in mind, as outlined in the CRPD. Apply Universal Design principles (CRPD Article 4.1(f)) and co-design features with stakeholders (CRPD Article 4.3). Use Universal Design to ensure precincts are inclusive for all users, including those with disabilities, parents with prams, and people carrying goods.
Compliance considerations	Ensure precincts meet obligations under the DDA, Premises Standards, and the DSAPT.

Subject	Design consideration
Street furniture and facilities	Provide seating, drinking fountains, and shelters in strategic locations. Include grassed areas with waste bins for assistance animal toileting. Avoid cluttering access paths – place furniture kerbside or in designated zones. Ensure street furniture contrasts in colour and luminance with its background for visibility.
Shade and weather protection	Incorporate shade structures and weather protection to improve comfort and safety for all users.
Assistance animal toileting	Provide accessible, well-maintained toileting areas for guide and assistance dogs.
Neurodiversity	Design precincts to accommodate diverse neurological needs (e.g. clear signage, quiet spaces, predictable layouts). Refer to PAS 6463-2022: Design for the Mind – Neurodiversity and the Built Environment for practical guidance
Temporary works	Provide alternative accessible routes during temporary obstructions. Ensure temporary kerb ramps and pathways are safe and clearly marked. Liaise with local authorities to regulate placement of temporary items (e.g. signs, tables).
CPTED	Apply CPTED principles to precinct design: Activation, Surveillance, Ownership, Stakeholder Management, Legibility, Territoriality, and Vulnerability.

5. Access paths

5.1 Overview

An access path (or accessway) provides a continuous, accessible path of travel within the precinct. Inclusive access paths improve the overall precinct experience and can be used by everyone. Relevant legislation, standards and strategies are referenced to support the design of inclusive precincts. Precinct access paths, kerbside facilities and street furniture will mostly be under the jurisdiction of the local council. The accessibility of the precinct often determines the accessibility of any transport nodes embedded within it. If people cannot reach or leave the node with ease – or at all – the accessibility of the node itself is of little importance to them. Design compliance with standards will not be the sole determiner of accessibility – 'lawfully designed' does not always mean 'functionally designed'. A narrow, crowded access path, or one that compromises security or comfort, may discourage use despite meeting technical requirements. The level of service offered by the access path is often the best determiner of its accessibility. Access paths within precincts should be safe, continuous and connected, offering good levels of service. However, in some precincts, topography and legacy infrastructure may pose challenges for some pedestrians. Manual wheelchair users, people who fatigue quickly or experience debilitating pain, and people with vision impairments may benefit from options such as on-demand transport or micro-mobility to access locations within the precinct.

Figure 23
Passenger loading zone, Yeronga Rail Station

Good practice: The loading zone is located on a public footpath next to the station and positioned as close as practicable to the entrance. It connects to the roadway via a kerb ramp and links directly to an access path, leading to the lift.

Figure 24
Bus stop on Adelaide Street footpath, near King George Square bus station

Good practice: Both bus stops are positioned as close as practicable to the station entrance and are connected via an access path.

Figure 25
Bus stops near Roma Street rail station

Good practice: Multiple stops on Roma Street connected via an access path to the station entrance.

Figure 26
Bus stop on Adelaide Street near King George Square bus station

Good practice: This stop connects via an access path and accessible pedestrian crossing to the station across Adelaide Street.

Figure 27
Taxi zone near bus interchange, Castletown, Townsville

Good practice: Locating connecting infrastructure, such as taxi zones, as close as possible to attractors like shopping centres, improves convenience and wayfinding for users. Shade and weather protection improve comfort and safety for waiting passengers. The taxi zone could be impoved by being at grade or by adding more kerb ramps.

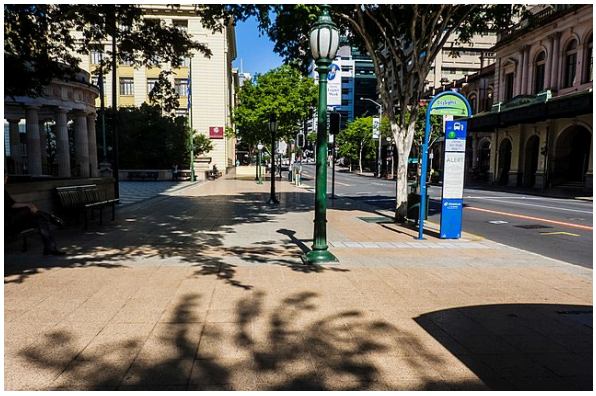


Figure 28
Bus stop on Ann Street footpath near Central rail station

Good practice: The stop connects to both the rail station entrance, e-mobility parking and local attractors.

5.1.1 Separated and segregated paths

Separated paths use physical barriers to divide pedestrians and cyclists, such as kerbs or landscaping. Whereas segregated paths rely on markings or surface treatments to achieve the same purpose. These paths aim to reduce conflicts between different user groups, providing a safer and more predictable environment– particularly in high-traffic areas. By ensuring adequate width, smooth surfaces and clear wayfinding, separated and segregated paths can accommodate all path users. Compared to shared paths, which allow multiple user groups to occupy the same space, separated and segregated paths offer greater safety and accessibility. Separated paths are highly effective in high-traffic areas, as they minimise collisions and provide a clear layout for all users. Segregated paths can also be suitable if designed with sufficient width and clear markings, though they may not offer the same level of safety as physically separated paths.

5.1.2 Shared paths

A shared path is a pedestrian and bicycle facility that gives pedestrians priority under Queensland Road Rules. The department's *Road Planning and Design Manual* (RPDM) Volume 3 Part 6A, deals with landings on shared paths. It references compliance with AS 1428.1 for landing design and spacing but notes the inconvenience and discomfort this may cause cyclists. While AS 1428.1 is referenced – and provides excellent guidance for access to buildings – it is not a standard that can be universally applied to precincts. It is therefore important to consider the purpose of landings in AS 1428.1. Essentially, they are level places where people ascending or descending on ramps or inclines can pause and rest for a short period. For this reason, they are located on the access path, are only 1200 mm in length, and have sharp transitions where they connect to the inclined surfaces of the access path. These AS 1428.1 landings only allow space for a person standing or using a wheelchair or similar mobility aid to pause in the access path, partly obstructing it. On shared paths and precinct footpaths, this is a poor outcome. Due to the length of shared paths and many footpaths, people experiencing fatigue may need to rest for some time– which is best achieved off the path. Austroads' AGRD06a in *Section 5.4 Path Gradients* proposes a solution to the conflicting needs of cyclists and pedestrians in the provision of 'offline landings':

> Where a gradient that requires landings under AS 1428.1:2009 is proposed on a path (including a longitudinal path on a road bridge) that has to provide for ramps greater than 200 m in length, the provision of standard landings may present an inconvenience or hazard for cyclists, particularly those travelling downhill. If there is a need for pedestrian landings in this situation they should be provided on a separated facility or outside the shared path, on both sides.

Offline landings and rest points are located directly next to the path of travel to provide a refuge free from other path users. Offline landings should, at a minimum, provide a seat and space for a wheelchair. Spacing of the landings can be determined via co-design processes, as each shared path and precinct footpath is in its own unique environment.

Figure 29
Offline rest areas on shared path, 7th Brigade Park, Chermside

Good practice: The level landing provides space for wheelchair users to rest outside the access path. An improvement would be to include space beside the seating, allowing a wheelchair user to sit next to their companion. Providing appropriate crossfall and grades at landings is also important.

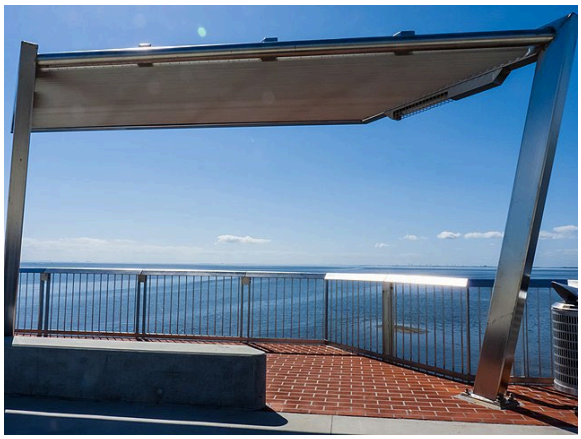


Figure 30
Offline rest area on shared path, Ted Smout Bridge, Pine River

Good practice: The canopy structure provides shade and weather protection for all path users. Seating and bins offer additional amenity.

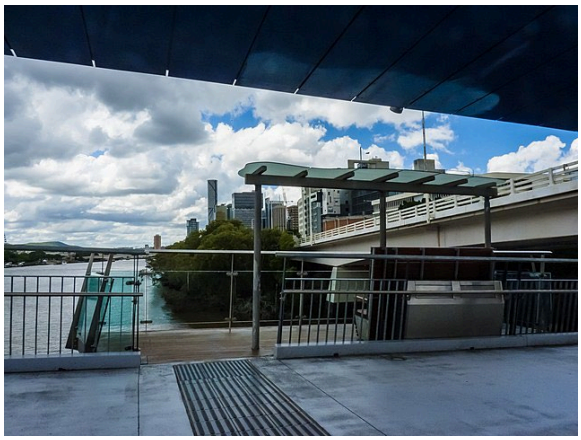


Figure 31
Offline rest area on shared path, Goodwill Bridge, Brisbane River

Good practice: The canopy structure provides shade and weather protection for all path users. The seating includes space for a wheelchair user to sit beside a companion to enjoy the view of the river.

Figure 32
Seating offset from the access path, Queen Street Mall, Brisbane

Good practice: Providing a variety of seating types – with and without armrests and back support – offers flexibility and choice. Locating seating clear of the access path and shorelines improves safety and amenity for both path users and seat users.

Figure 33
Seating offset from the shared path, City Botanic Gardens, Brisbane
Good practice: Locating seating in a shaded area provides additional amenity.

Figure 34
Seating offset from the access path, George Street, Brisbane

Good practice: Locating seating alongside other amenities– such as water fountains and bins– increases convenience.

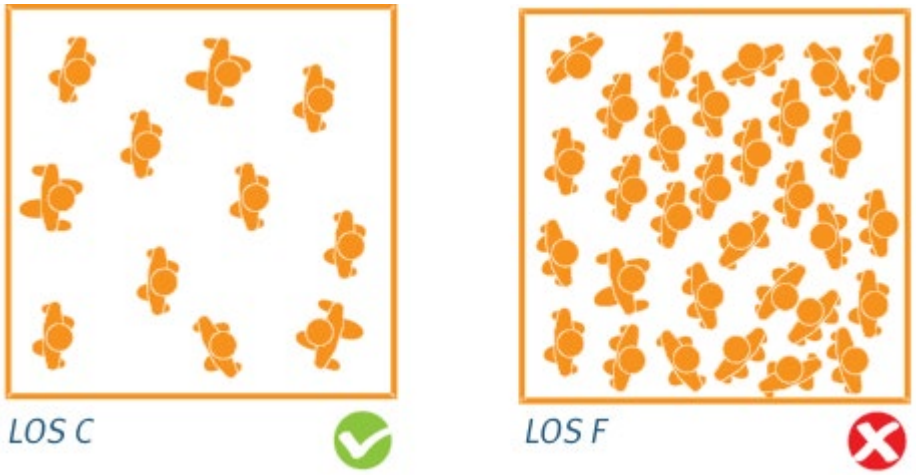
5.1.3 Level of Service

Level of Service (LOS) refers to the measure of comfort and amenity provided by an access path. When the LOS drops below a certain threshold, crowding and other discomforts can discourage pedestrian use. LOS should be assessed during peak periods of pedestrian activity. An excerpt from TransLink's *Public Transport Infrastructure Manual* reads:

> **2.4.2.3 Density of occupation**
>
> The public Level of Service (LOS) classification ranges from LOS A to F (Fruin, 1978, Pedestrian Planning and Design). Level A is the least crowded environment and Level F is the most crowded environment (and hence most undesirable). TransLink requires that an appropriate LOS be achieved for pedestrian areas to ensure comfortable pedestrian densities are not compromised during peak periods.
>
> The areas of pedestrian occupation which typically require a LOS design response include:
>
> - waiting and queuing areas including ticketing and information points such as information displays, fare machines, fare gates, and ticket validation equipment (SACIDS)
> - seating
> - walkways or other areas of circulation
> - stairways
> - overpasses
> - lifts
> - ramps, and
> - escalators and travelators.
>
> Note that the suitable LOS for different passenger areas of a station will warrant a different level of area allocation per pedestrian (e.g. the physical area of LOS C for stairways will be different from the LOS C for waiting areas). In addition to appropriate space allocation, all pedestrian areas of a station will comply with applicable disability standards.
>
> For pedestrian horizontal travel (that is, walkways and overpasses) and platform waiting areas, TransLink typically prefers that a LOS C (between 0.65–0.9 square metres per person of personal space) be achieved as a minimum during peak periods.

The diagram from PTIM below illustrates LOS C compared to LOS F.

Figure 35 LOS C versus LOS F



The Fruin LOS model may not account for the diversity of people with disability. It does not consider path width or volume calculations for wheelchairs, motorised mobility devices, wheeled recreational devices, personal mobility devices or bicycles– all of which are legally permitted on public footpaths.

LOS calculations should account for all potential path users, as well as anticipated future demand. They are also relevant in waiting areas, such as the space provided on station platforms. Other useful LOS resources include:

- Transport for London's *Pedestrian Comfort Guidance for London*, and
- John J. Fruin's *Designing for Pedestrians: A Level-of-Service Concept*.

5.1.4 Level crossings

There are currently more than 2800 level crossings in Queensland, around half of which are located on public roads. When included as part of an access path, level crossings can pose safety risks for all pedestrians and may act as access barriers for many. The Southeast Queensland Level Crossing Removal Program outlines the department's approach to removing 14 level crossings in the region, along with broader precinct design considerations. The program supports the Queensland Level Crossing Safety Strategy, which outlines five strategic objectives:

1. Improve level crossing user behaviour through education and enforcement.
2. Leverage opportunities from emerging technology and innovations.
3. Identify opportunities to deliver early, low-cost, and effective safety improvements.
4. Support the development of improved data and knowledge on level crossings.
5. Increase coordination and sharing between those responsible for level crossing safety.

For new and substantially upgraded rail infrastructure and precincts, grade separation for pedestrians offers a significantly safer and more accessible rail crossing solution. At rail stations, grade separation can be incorporated into the station design. For road crossings, grade separation for both vehicles and active transport users may also be viable– such as in the Beams Road upgrade rail level crossing project.

Figure 36
Royal Parade level crossing at Banyo Station 2008.

Could be better: Despite the safety barriers and signage, level crossings remain a significant safety and access barrier for many path users – especially when they are the only available option to cross the corridor.

Figure 37
Royal Parade level crossing at Banyo Station 2025.

Good practice: Although the level crossing remains availabile at the station, an accessible overpass is provided, offering a safer and more inclusive way to cross the corridor.

5.2 Compliance requirements

This section summarises the legislative requirements for access paths in public transport precincts.

5.2.1 Disability Discrimination Act 1992

Precincts are considered 'premises' under the DDA and are therefore subject to Section *23 Access to premises*. The DDA applies broadly to premises, services and facilities. Few public places would fall outside the definition of ‘premises under Section 4:

> **Section 4** Interpretation **‘**premises’ includes:
>
> (a) a structure, building, aircraft, vehicle or vessel; and
>
> (b) a place (whether enclosed or built on or not); and
>
> (c) a part of premises (including premises of a kind referred to in paragraph (a) or (b)).

While there is currently no Disability Standard specifically covering precincts, various advisory notes, guidelines and Australian Standards assist in meeting the objects of the DDA. Elements of precincts include footpaths, controlled and uncontrolled pedestrian crossings, level crossings, street furniture and public squares.

5.2.2 Disability Standards for Accessible Public Transport 2002

The DSAPT primarily addresses internal spaces and facilities of public transport infrastructure. However, Section *2.2 Continuous accessibility* includes an important exception – requiring an accessible connection between the transport node and the external facilities that serve it. These external connections may not be controlled by the transport authority and could be assets of the local council. Coordination between authorities is essential to ensure access path success.

> **2.2 Continuous accessibility**
>
> An access path must comply with AS 1428.2 (1992) Clause 7, Continuous accessible path of travel.
>
> Premises except premises to which the Premises Standards apply
>
> Infrastructure except airports that do not accept regular public transport services

Examples of ‘facilities that serve’ a transport node include nearby bus stops, passenger loading zones or taxi zones that serve a bus or rail station. These assets should be connected to the station by an access path that offers a satisfactory level of service. Major transport nodes may also be co-located but separated by public space not controlled by the transport authority. These must also be connected by access paths. For example, coach terminals, bus or tram stations may be next to rail stations.

5.3 Further guidance

This section summaries further guidance relating to access paths in public transport precincts.

5.3.1 Public Transport Infrastructure Manual

Translink's *Public Transport Infrastructure Manual* (PTIM) addresses integration of public transport infrastructure in Chapter 2 – *Planning and design*. PTIM places high priority on walking and active transport (cycling), recognising that safe, continuous, connected and accessible walking and cycling routes are essential to public transport success. Emerging micro-mobility options – such as hire or private e-scooters – may be prioritised third after walking and cycling. Bicycle storage and hire or private e-scooter parking facilities at transport nodes, are also important for precinct accessibility. While some people with mobility or vision impairments may not cycle or use e-scooters, many others with disability may be enthusiastic users of active transport and micro-mobility to access precincts and transport nodes within them. This includes people with hidden disabilities that cause fatigue or pain, people who are deaf, neurodiverse, hard-of-hearing or those whose disabilities do not affect physical or cognitive function.

2.2.2 Access to public transport infrastructure

Providing safe and easy access to the public transport network is important to enhance the overall public transport trip and encourage greater use of the public transport network. Translink supports access to public transport in the following order of priority:

- walking
- cycling
- transferring from another public transport service
- taxis
- kiss 'n' ride, and
- park 'n' ride (including motorcycles).

Access infrastructure provides the key connection between the public transport facility and the immediate surrounding environment.

PTIM excerpts highlight the importance of access paths to and from the surrounding precinct for public transport infrastructure to function successfully:

2.3 Integration of public transport infrastructure

Public transport infrastructure should be planned and designed to integrate with services to provide a seamless and connected journey for public transport users. The following sections detail some of the key design considerations for the planning and design of infrastructure.

2.3.1 Integration with land use

Integration with land use is critical for all public transport infrastructure, particularly in order to adequately cater for customers' needs, ensures community access to services and contributes to reducing dependency on cars.

While other factors, such as operational capacity and network characteristics, influence the functionality of public transport infrastructure, ultimately the location is the key driver for passengers using the facility.

PTIM also provides detailed guidance on designing accessible infrastructure. Refer to PTIM for further information on how to design inclusive transport precincts. Below are a selection of images showcasing the integration of transport infrastructure assets:

Figure 38
E-scooter parking, King George Square

Good practice: E-scooter parking located at the King George Square bus station's Adelaide Street portal both promotes active transport to the station, while encouraging e-mobility users to park their device in the correct locations.

Figure 39
Bus interchange, Nelly Bay ferry terminal, Magnetic Island.

Good practice: The bus interchange being located next to the ferry terminal ensures an accessible connection between modes.

Figure 40
Roma Street Station passenger loading zone

Good practice: The accessible passenger loading zone is co-located with the Brisbane coach terminal and Roma Street rail station, providing a simple modal interchange.

Figure 41
Roma Street Station taxi zone

Good practice: The taxi zone co-located with the Brisbane coach terminal and Roma Street rail station. The boarding point is at grade and connected via directional TGSIs.

Figure 42
Tamar Street bus interchange and taxi zones, Ballina, NSW

Good practice: Both the bus stops and taxi zones are co-located, providing choice and flexibility for users.

Figure 43
Tamar Street accessible parking, Ballina, NSW

Good practice: Accessible parking spaces are provided near the bus stop and taxi zone, providing a connection between private and public transport.

5.3.2 Australian Human Rights Commission

The Australian Human Rights Commission (AHRC) has published an *Advisory Notes on Streetscape, public outdoor areas, fixtures, fittings and furniture, 8 February 2013*. This document aims to assist asset owners and designers in implementing streetscapes that meet the Objects of the DDA. While some of the referenced Australian Standards are superseded, the principles of the Advisory Note remain sound.

5.3.3 Austroads

Austroads publish several useful guidelines particularly relevant to the accessibility of precincts:

- *Guide to Road Design* Part 4: *Intersections and Crossings – General*, and
- *Guide to Road Design* Part 6A: *Paths for Walking and Cycling*.

The department's *Road Planning and Design Manual* has supplements to Austroads *Guides to Road Design*.

5.3.4 Manual of uniform traffic control devices

Two editions of the *Manual of Uniform Traffic Control Devices* are particularly relevant to access paths within precincts.

- AS 1742.7-2016 *Manual of uniform traffic control devices* Part 7 *Railway crossings*, and
- AS 1742.10-2009 *Manual of uniform traffic control devices* Part 10 *Pedestrian control and protection*.

Queensland specific amendments to AS 1742.7-2016 *Manual of uniform traffic control devices* Part 7 *Railway crossings* and AS 1742.10-2009 *Manual of uniform traffic control devices* Part 10 *Pedestrian control and protection* are published by the department.

5.3.5 Australian Standards

Standards Australia publishes various Standards relevant to precincts:

- AS/NZS 1158.3.1-2020: *Lighting for Roads and Public Spaces: Pedestrian Area (Category P) Lighting: Performance and Design Requirements*
- AS 1428.1-2021 *Design for access and mobility Part 1: General requirements for access—New building work*
- AS 1428.2-1992 *Design for access and mobility Part 2: Enhanced and additional requirements—Buildings and facilities*
- AS 1428.4.1-2009 *Design for access and mobility Part 4.1 Means to assist the orientation of people with vision impairment—Tactile ground surface indicators*
- AS 1428.4.2-2018 *Design for access and mobility, Part 4.2: Means to assist the orientation of people with vision impairment — Wayfinding signs*

- AS 2353-2018 *Pedestrian push-button assemblies*
- AS 4663-2013 *Slip Resistance Measurements of Existing Pedestrian surfaces*
- AS 4586-2013 *Slip resistance classifications of new pedestrian surface materials*, and
- SA HB 198-2014 *Guide to the specification and testing of slip resistance of pedestrian surfaces*.

5.3.6 Transport and Main Roads' Pedestrian and Walking Guidance and Resources

The department has published an online library of pedestrian related publications titled *Pedestrian and Walking Guidance and Resources*. This is a comprehensive site listing many valuable references.

The Universal Design section includes specific guidance on the following elements:

- grades and surface treatments
- kerb ramps
- Tactile Ground Surface Indicators (TGSIs)
- audio tactile facilities, and
- legislation and guidance.

5.3.7 Brisbane City Council

Brisbane City Council provides Brisbane Standard Drawings (BSDs), which detail most of the elements of a streetscape or parkland. BSDs show construction layouts and infrastructure details that are acceptable to Brisbane City Council.

For pedestrian precincts, the following BSD series are particularly relevant:

- 2000 series - Road corridor
- 3000 series - Traffic management
- 5000 series - Pedestrian and cyclist facilities, and
- 7000 series - Fences, barriers and public furniture.

5.4 Recommendations for inclusive access paths

Figure 44 Inclusive access path design recommendations

Subject	Recommendations
General principles	Ensure access paths are safe, continuous, and connected, offering good levels of service for all users. Prioritise functional design over compliance alone to ensure accessibility is practical and user-friendly. Provide on-demand transport or micro-mobility options in precincts with challenging topography or legacy infrastructure.

Subject	Recommendations
Separated and shared paths	Where possible, clearly separate paths for different users (e.g. pedestrians and cyclists) to improve safety and usability. Design offline landings and rest points next to paths so users can pause without obstructing others. Include seating and wheelchair space at rest points, with shade and weather protection where possible.
Level of Service (LOS)	Evaluate LOS during peak pedestrian periods, considering all users – including those with mobility aids or micro-mobility devices. Ensure paths are wide enough to meet current and future demand.
Level crossings	Where possible, provide grade-separated crossings (e.g. overpasses or underpasses) for safer and more accessible rail crossings. Ensure level crossings comply with the *Queensland Level Crossing Safety Strategy* and are integrated into precinct design.
Compliance considerations	Precincts are considered premises under the DDA and must provide accessible paths to all facilities. Ensure continuous accessibility between transport nodes and external facilities, even when assets are managed by different authorities.
Active transport	Prioritise walking and active transport (e.g. cycling or e-scooters) to support precinct accessibility. Provide bicycle storage and e-scooter parking facilities at transport nodes.

6. Passenger loading zones

6.1 Overview

Passenger loading zones are designated areas where vehicles can briefly stop to load or unload passengers. These zones are typically located near key attractors and include one or more spaces for vehicles to stop outside the flow of traffic. In line with Universal Design principles and anti-discrimination legislation, all vehicle spaces in passenger loading zones should be accessible to passengers with disability. This approach also benefits passengers with luggage, those travelling with small children, older adults and others who benefit from inclusive design. Ride share drivers are not permitted to use taxi zones, so accessible passenger loading zones also support ride share users and drivers. Limiting the number of accessible vehicle spaces reduces the usability and efficiency of the facility. If accessible spaces are occupied, passengers who need them may be forced to wait – even when non-accessible vehicle spaces are vacant. This creates a ‘disabling environment’ where the design of the facility imposes limitations on people rather than their disability. By contrast, making all vehicle spaces accessible (without designating or signing them as exclusive-use spaces) provides flexibility and choice for passengers with disability, without reducing the functionality or availability of other passengers.

6.2 Universal Design features

Universal Design is a human-centred, human rights-based approach to design – not a technical standard. It is a key method for implementing the policy objectives of both the UN's CRPD and *Australia's Disability Strategy 2021-2031*. Universal Design is the most practical way to eliminate 'disabling environments' – where facility design imposes limitations on people rather than their disability. It does so by providing functional outcomes for all or most users. The seven principles of Universal Design should be front of mind when designing passenger loading zones, to maximise functionality and efficiency for all users. A Universal Design outcome is best achieved by ensuring that all vehicle spaces and associated infrastructure are accessible. Numerous examples of universally designed passenger loading zones can be found in Brisbane. These serve all passengers at all vehicle spaces. Some feature kerb ramps where others are at the same grade.

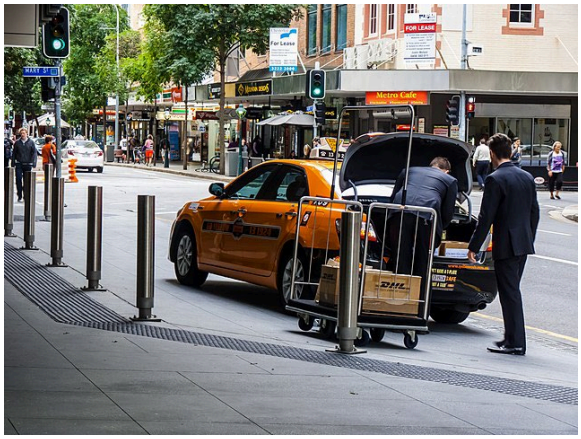


Figure 45
Passenger loading zone, Albert Street, Brisbane CBD

Good practice: Loading zones at-grade are easier to use for people with mobility devices, luggage, prams, and delivery drivers.

Figure 46
Passenger loading zone, Yeronga Railway Station
Good practice: Grade-separated loaing zones must be connected by kerb ramps, ideally to every space.

Figure 47
Passenger loading zone, Edward Street, Brisbane CBD.

Good practice: At-grade zones provide seamless connection between pedestrian areas and the loading zone. Contrasting bollards improve safety and help define pedestrian space.

Figure 48
Passenger loading zone, Roma Street, Brisbane CBD.

Good practice: Grade-separated zones with multiple kerb ramps offer flexibility for users and can be easily integrated with pedestrian thoroughfares.

Figure 49
Passenger loading zone, Roma Street Railway Station

Good practice: The grade-separated loading zone has clearly marked kerb ramps to each space.The designated acessible spaces are clearly signed and connected via directional TGSIs.

Figure 50
Designated accessible passenger loading zone, Rockhampton Airport.

Could be better: The absence of bollards makes it easier for passengers to load and unload at grade, but creates safety risks for blind and low vision users.

Figure 51
Passenger loading zone, Rockhampton Airport.

Could be better: This grade-separated section of the passenger loading zone provides one accessible space for rear loading. Additional kerb ramps would improve flexibility and offer more options for users.

Figure 52
Passenger loading zone, Rockhampton Airport

Good practice: Providing the entire loading zone at grade ensures all spaces are accessible.

6.3 Compliance requirements

This section summaries the legislative requirements for passenger loading zones in public transport precincts.

6.3.1 Disability Discrimination Act 1992

Passenger loading zones – whether on-street or off-street – are public facilities and are therefore subject to the DDA. These zones may be used by passengers of taxis, rideshare services or private vehicles. The critical factor is the accessibility of the entire loading zone, not just one or a few vehicle spaces. During peak times, vehicles arrive and depart randomly. To ensure efficient and equitable use, all vehicle spaces should be accessible. This maximises functionality and reduces dwell time, as vehicles will not need to wait for an accessible space to become available while other non-accessible spaces remain vacant. Section 24 of the DDA applies:

24 Goods, services and facilities

It is unlawful for a person who, whether for payment or not, provides goods or services, or makes facilities available, to discriminate against another person on the ground of the other person's disability:

(a) by refusing to provide the other person with those goods or services or to make those facilities available to the other person; or

(b) in the terms or conditions on which the first-mentioned person provides the other person with those goods or services or makes those facilities available to the other person; or

(c) in the manner in which the first-mentioned person provides the other person with those goods or services or makes those facilities available to the other person.

6.3.2 Disability Standards for Accessible Public Transport 2002

If taxis are permitted to load or unload at lawfully designated passenger loading zones, these zones are classified as public transport infrastructure and are subject to the DSAPT requirements for boarding points. General kerbside boarding points do not qualify under DSAPT if their use is random – including vehicle parking, passenger loading or informal pedestrian crossing. DSAPT Section *8.1 Boarding points and kerbs*, outlines physical infrastructure requirements.

8.1 Boarding points and kerbs

(1) Operators and providers may assume that passengers will board at a point that has a firm and level surface to which a boarding device can be deployed.

(2) If a kerb is installed, it must be at least 150 mm higher than the road surface.

DSAPT Part 2 addresses access paths, and Section 3.1 covers manoeuvring space. Other sections may apply depending on the design – for example, if a waiting area is associated with the passenger loading zone.

6.4 Further guidance

This section summaries further guidance relating to passenger loading zones in public transport precincts.

6.4.1 Public Transport Infrastructure Manual

The PTIM refers to passenger loading zones as 'kiss 'n' ride' facilities:

Kiss 'n' ride: Vehicle drop-off or pick-up zone for passengers arriving from, or leaving for, a public transport service (also includes taxis).

Chapter 2 – Planning and design provide recommendations for kiss ‘n’ ride facilities:

Kiss ‘n’ ride infrastructure should:

- have a separate facility for TOD and public transport network access
- clearly designate its use as a ‘public’ facility
- where possible, segregate kiss ‘n ‘ride bays and their through-lanes from other traffic
- minimise inter-modal conflict
- provide direct connections to public transport infrastructure that are accessible, direct and legible and incorporate CPTED principles
- be located at or near pedestrian crossings which then provide direct access to the primary stop / station entry point
- have priority over park ‘n’ ride for proximity to the stop / station, and
- meet the requirements of Australian Standard AS 2890.6 for accessible bays. These bays must be located as close as possible to the stop / station entrance and incorporate appropriate accessibility design features, such as kerb ramps and direct access.

Chapter 3 expands on accessibility:

Chapter 3 – Supporting access infrastructure

3.6 Kiss ‘n’ ride infrastructure

3.6.3.1 Accessibility

Kiss ‘n’ ride access and infrastructure should meet the applicable Australian Standards for parking bays for use by people with a disability. These bays must be located as close as possible to the stop or station entrance and incorporate appropriate accessibility design features, such as kerb ramps and direct access.

Planning and design of public transport infrastructure should give consideration to location-specific demand for facilities that cater for people with a disability.

The applicable Australian Standards are:

- AS 2890.5-2020 *Parking facilities* Part 5: *On-street parking*
- AS 2890.6-2022 *Parking facilities* Part 6: *Off-street parking for people with disabilities*

6.4.2 Manual of uniform traffic control devices

AS 1742.11:2016 *Manual of uniform traffic control devices* Part 11: *Parking controls* specifies the signs and pavement markings used to indicate areas available for parking or where parking is restricted or prohibited – either part-time or full-time – by means of either linear or area parking control. Failure to comply with AS 1742.11 invalidates any regulation of kerbside management practices. Clause 3.3.2 deals specifically with signs designating passenger loading zones. Queensland-specific amendments to AS 1742.11 are published by the department.

6.4.3 Austroads

Austroads publications that provide guidance on passenger loading zones include:

- *Guide to Traffic Management* Part 7: *Activity Centre Transport Management*, 2020 – Appendix I *Passenger Transport Interchanges*
- *Guide to Traffic Management* Part 11: *Parking Management Techniques*, 2020 – C14.5 *Other Park-and-ride Factors—Kiss-and-ride*

An excerpt from Part 7 reads:

> **Appendix I Passenger Transport Interchanges**
>
> An interchange facility should provide safe and efficient access for all modes of transport.
>
> The provision of equitable access to public transport for persons who have a disability is most important and is supported by legislation. In relation to public transport and traffic management, provisions should be made so that new vehicles and new system infrastructure are accessible. Public transport authorities and operators, and road agencies are responding to this requirement by developing guidelines and programs for new works, and with respect to retrofitting existing facilities.
>
> The primary planning and design object of interchanges is to ensure that all patrons can access the facility and pass through it and onto public transport vehicles in a safe and efficient manner. Wherever practicable, it is desirable that access for each mode of transport is separated in order to remove conflict between them and to provide efficient access for each.

The department's *Guide to Traffic Management* includes supplements to Austroads *Guides to Traffic Management*.

6.4.4 Australian Standards

The dimensions of accessible parking spaces – which apply to accessible passenger

loading spaces within a passenger loading zone – are detailed in two Australian Standards:

- AS 2890.5-2020 *Parking facilities*, Part 5: *On-street parking*
- AS 2890.6-2022 *Parking facilities*, Part 6: *Off-street parking for people with disabilities*

The dimensions proposed in AS 2890.5-2020 are identical to those of AS 2890.6-2022. These are strongly recommended as the minimum provision, with additional length and width provided where practicable. Section 4.5.2 – items (a), (b), (c) and (f) – are applicable to vehicle spaces in passenger loading zones, as are Figures 4.2, 4.3 and 4.4.

6.4.5 Brisbane City Council

Brisbane City Council publishes Brisbane Standard Drawings (BSDs). *BSD-3162 - loading zone* details a grade-separated passenger and commercial loading zone. BSD–3162 was developed in response to the recommendations from the Brisbane Parking Taskforce. Section 4.8 proposes new loading zone layouts that include space for safer wheelchair access.

- *BSD-3162 - Loading Zone* includes notes to assist with interpretation.
    - Note 6: Kerb ramps and supplementary white pavement may be provided at the front of intermediate bays.

It is strongly recommended that kerb ramps be mandatory – not discretionary – at all vehicle spaces in grade-separated passenger loading zones.

6.5 Recommendations for inclusive passenger loading zones

Figure 53 Inclusive passenger loading zone design recommendations

Subject	Recommendations
General principles	Provide accessible loading zones as close as possible to key destinations. Ensure all vehicle spaces are accessible for people with disability, as well as those with luggage, small children, or mobility needs. Refer to PTIM for guidance on accessible "kiss ‘n’ ride" facilities.
Universal Design features	Apply Universal Design principles to maximise functionality and efficiency for all users. Ensure all vehicle spaces and related infrastructure are accessible. Prioritise level (at-grade) loading zones where possible or provide kerb ramps at all spaces. Where possible, provide extra length and width for accessible spaces.

Subject	Recommendations
Compliance considerations	Passenger loading zones are public facilities and must comply with Section 24 of the DDA. Ensure all spaces are accessible to improve efficiency and reduce vehicle dwell time. Passenger loading zones used by taxis are classified as public transport infrastructure and must meet DSAPT requirements for boarding points. Ensure compliance with DSAPT Section 8.1 (*Boarding Points and Kerbs*) and Section 3.1 (*Manoeuvring Space*).

7. Taxi zones

7.1 Overview

All vehicle spaces in taxi zones should be accessible to people with disability. This aligns with Universal Design principles and anti-discrimination legislation. Accessible taxi zones also benefit people with luggage, those accompanied by small children, older adults and others who benefit from inclusive design outcomes. Providing only one or a few accessible vehicle spaces in a taxi zone reduces the usability and efficiency of the facility. People who require accessible vehicle spaces may have to wait if these spaces are occupied by non-accessible taxis, or if Wheelchair Accessible Taxis (WATs) are parked in non-accessible spaces. This creates a ‘disabling environment’ where design of the facility imposes barriers, rather than the person's disability. Numerous examples of universally designed taxi zones in Brisbane, where all vehicle spaces are accessible to all passengers. Some use at-grade design, while others are grade-separated. However, non-accessible taxi zones are still common.

Figure 54
Busy taxi zones, Brisbane Domestic Airport

Good practice: Providing taxi zones at-grade for the whole rank means all spaces are accessible. For both of these ranks, bollards and TGSIs are provided to support the safety of blind and low vision pedestrians.

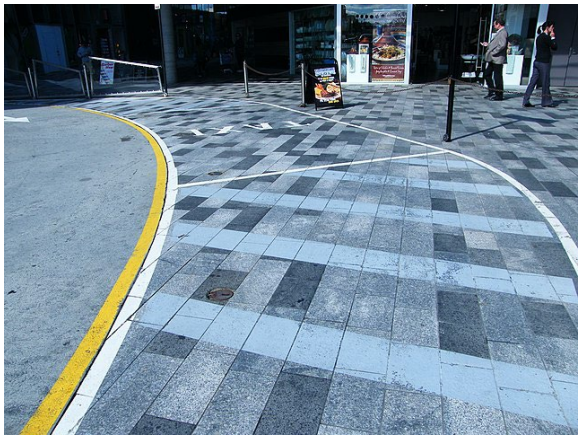


Figure 55
Taxi zone, The Barracks, Petrie Terrace.

Could be better: This at-grade taxi zone provides step-free access to multiple spaces, promoting fexibility. However, the lack of TGSIs and continuous floor treatment makes it difficult to identify the transition between the roadway and pedestrian areas.

Figure 56
Taxi zone, Chatsworth Rd, Greenslopes.

Could be better: This grade-separated taxi zone does not feature a kerb ramp, rendering it inaccessible.

Figure 57
Taxi zone, Lutwyche Rd, Lutwyche.

Could be better: This grade-separated taxi zone features a single kerb ramp. However, multiple kerb ramps would provide greater flexibility and options for various users.

7.2 Compliance overview

This section summaries the legislative requirements for taxi zones in public transport precincts.

7.2.1 Disability Discrimination Act 1992

Taxi zones are public places that provide services and facilities and are therefore subject to the DDA via the DSAPT. For any matters not covered by the DSAPT, the DDA's Sections *23 Access to premises* and *24 Goods, services and facilities* apply. The DSAPT Guidelines 2004 state:

> **1.8 Issues not dealt with by Disability Standards**
>
> If the Disability Standards do not deal with an issue in relation to public transport, the requirements of the *Disability Discrimination Act 1992* apply in relation to the issue.

7.2.2 Disability Standards for Accessible Public Transport 2002

Taxi zones are considered boarding points and must meet DSAPT-2002 requirements for boarding points. DSAPT Section 8.1 addresses the physical requirements for infrastructure at boarding points.

> **8.1 Boarding points and kerbs**
>
> (1) Operators and providers may assume that passengers will board at a point that has a firm and level surface to which a boarding device can be deployed.
>
> (2) If a kerb is installed, it must be at least 150 mm higher than the road surface.

Part 2 covers access paths and Section 3.1 covers manoeuvring space. Other Parts and Sections may also apply, for example, if a waiting area is associated with the taxi zone.

7.2.3 Disability Standards for Accessible Public Transport Guidelines 2004 (No. 3)

The DSAPT guidelines assist in interpreting the DSAPT-2002. Section 8.3 *Kerbs* addresses taxi boarding points, but not other types of passengers loading zones.

7.3 Further guidance

This section summaries further guidance relating to taxi zones in public transport precincts.

7.3.1 Public Transport Infrastructure Manual

PTIM addresses taxi loading zones in Chapter 7 – Taxi Facilities

> The Taxi facilities chapter will inform the design of taxi facilities by providing a clear and consistent set of principles and guidelines. The objectives of this chapter are to:
>
> - establish guiding principles for the planning and design of taxi infrastructure
> - ensure a consistent approach to provide high quality customer access, convenience, safety and comfort, and
> - provide an overview of available standards for taxi facilities design.

Taxi boarding points may be at the same grade as the access path (flush), or grade separated. PTIM Section *7.5 Functional design elements for taxi facilities* places preference on at-grade boarding points.

> Passenger waiting areas need to consider:
>
> - Kerbs adjacent to the taxi rank should be flush to assist passengers, including those with disabilities, the elderly or frail, to easily access taxis.

All spaces in a taxi zone should be of a length suitable for WATs. This is a Universal Design outcome, as it allows equal convenience of boarding and alighting for WAT passengers and others. Otherwise, WATs may have to queue until accessible spaces are vacated, which may significantly delay boarding and alighting.

7.3.2 Manual of uniform traffic control devices

AS 1742.11:2016 *Manual of uniform traffic control devices* Part 11: *Parking controls* specifies the signs and pavement markings to be used for indicating areas of a road available for parking or where parking is restricted or prohibited, either part-time or full-time basis, by means of either linear or area parking control.

Failure to comply with the requirements of AS 1742.11 invalidates any regulation of kerbside management practices. Clause 3.3.2 addresses signs designating taxi zones. Queensland-specific amendments to AS 1742.11:2016 *Manual of uniform traffic control devices* Part 11: *Parking controls* are published by the department.

7.3.3 Austroads

Austroads provides guidance on the design and location of taxi loading zones in:

- *Guide to Traffic Management* Part 7: *Activity Centre Transport Management*
- *Guide to Traffic Management* Part 11: *Parking Management Techniques*

The department's *Queensland Guide to Traffic Management* includes supplements to Austroads' *Guides to Traffic Management*. As per PTIM, this material should be interpreted in a Universal Design context. All vehicle spaces in a taxi zone should be accessible and of a length suitable for a WAT.

7.3.4 Australian Standards

The dimensions of accessible parking spaces, which apply to vehicle spaces in a taxi zone, are detailed in two Australian Standards.

- On-street accessible taxi spaces: AS 2890.5:2020 *Parking facilities, Part 5: On-street parking*
- Off-street accessible taxi spaces: AS 2890.6:2022 *Parking facilities, Part 6: Off-street parking for people with disabilities*

7.4 Recommendations for inclusive taxi zones

Figure 58 Inclusive taxi zone design recommendations

Subject	Recommendations
General principles	Provide accessible taxi zones as close as possible to key destinations. Ensure all vehicle spaces are accessible to people with disability, as well as benefiting a wide range of users, including those with luggage, small children, or mobility challenges. Ensure taxi zones are of sufficient length to accommodate Wheelchair Accessible Taxis (WATs) at all spaces, to avoid delays for passengers requiring accessible taxis. Refer to PTIM Chapter 7 which recommends at-grade boarding points for taxi zones to improve accessibility.
Universal Design features	Apply Universal Design principles to maximise functionality and efficiency for all users. Ensure all vehicle spaces and associated infrastructure are accessible. Prioritise at-grade loading zones where possible or provide kerb ramps at all vehicle spaces. Where possible, provide extra length and width for accessible spaces.
Compliance considerations	Taxi zones are public facilities and must comply with the DDA, including Sections 23 (*Access to premises*) and 24 (*Goods, services, and facilities*). Where the Disability Standards for Accessible Public Transport (DSAPT) are silent, the DDA applies by default. Taxi zones are classified as boarding points and must meet DSAPT Section 8.1 (*Boarding Points and Kerbs*) requirements. Ensure compliance with DSAPT Part 2 (*Access Paths*) and Section 3.1 (*Manoeuvring Space*). Use the DSAPT Guidelines to interpret DSAPT requirements, particularly Section 8.3 (*Kerbs*).

8. Accessible parking

8.1 Overview

Private vehicles can provide a ‘first and last mile’ connection between public transport nodes and people’s homes, work, or education. For many people with disability, private vehicles may be the only viable way to reach a public transport node. Accessible parking spaces are therefore an essential part of transport precincts, alongside spaces for other vehicles, bicycles, and mobility devices. Only vehicles displaying a valid Australian Disability Parking Permit may use accessible parking spaces. All public parking is subject to the DDA-1992. The Premises Standards set out specific requirements for accessible parking, while the DSAPT-2002 do not address this matter. Where parking is provided in areas covered only by the DSAPT, the DDA-1992 applies, and the requirements of the Premises Standards should be adopted as a default. Some rail stations and ferry terminals provide accessible parking in public road reserves next to the station or terminal. While intended for passengers, these spaces sit outside the property boundary and are therefore regulated by the local authority, not covered by the Premises Standards. However, they remain subject to the DDA-1992. Parking for micro-mobility devices is addressed separately in Section 4.4.4.

8.1.1 Location and type

Decisions about whether accessible parking is provided on-street or off-street are typically influenced by site constraints and context. Where possible, off-street parking should be prioritised, as it is safer and more convenient for users. Where on-street parking is the only option, road safety treatments such as speed reductions should be considered. As a minimum, accessible parking spaces and their connecting access paths, should be designed and constructed in line with the Premises Standards and the DSAPT-2002. Using the most recent edition of relevant Australian Standards is recommended as a Performance Solution. In all cases, accessible parking spaces should be located as close as possible to an accessible entrance or facility.

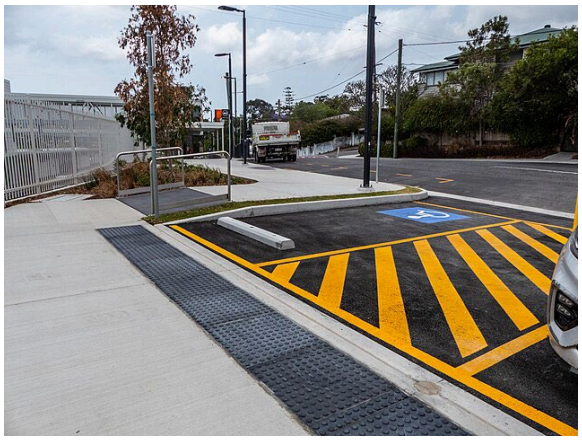


Figure 59
On-street accessible parking, Equity Street, Fairfield station

Good practice: These parking spaces are provided at-grade and as close as possible to the station entrance.

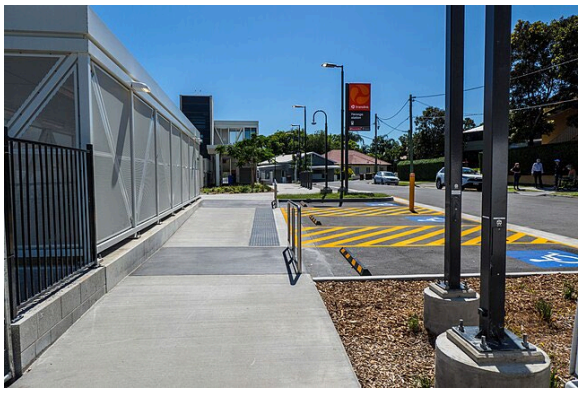


Figure 60

Accessible parking signage, Lake Street, Yeronga station

Good practice: The spaces are provided as close as possible to the station entrance, which is clearly visible from the spaces. The spaces feature the international symbol of access in blue, as well as additional wayfinding signage.

Figure 61
On-street accessible parking, Gordon Street, Hawthorne ferry terminal

Good practice: Although an older asset, this space provides good functionality for rear and side loading. The space is connected via an access path along the roadway and then past the contrasting bollards. This space has since been upgraded with kerb ramps and an improved access path.

Figure 62
On-street accessible parking, Lake Street, Yeronga station

Good practice: These at-grade spaces feature two shared zones, which have direct access to the access path.

8.1.2 Promoting correct use

On-street accessible parking spaces are usually strictly regulated by local authorities. However, off-street accessible parking spaces are rarely regulated. For accessible parking spaces located in car parks at public transport nodes, asset owners should consider measures to prevent misuse. This may include penalties for drivers or others who misuse accessible parking spaces. Options include cameras, staff monitoring and enforcement, where applicable.

Figure 63
Abandoned vehicle in accessible parking, Chermside bus interchange

Could be better: The abandoned vehicle renders the space unusable.

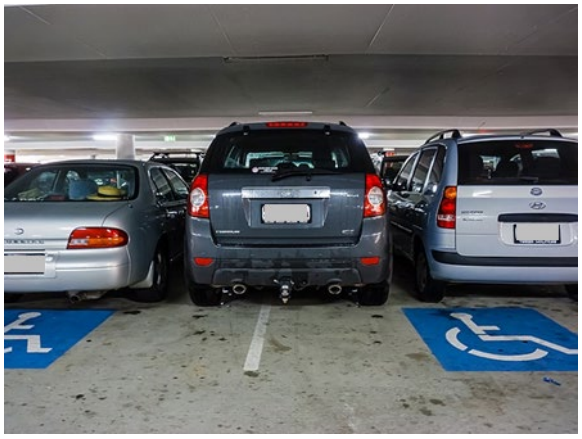


Figure 64
Incorrectly parked vehicle, Westfield Chermside

Could be better: A vehicle is parked in the space between the accessible parking spaces, preventing access to or from either vehicle.

Figure 65
Ice chest in accessible parking space, Kangaroo Point, Brisbane

Could be better: The ice chest in the accessible parking space limits functionality for users and is unsafe for staff accessing the ice.

Figure 66
Toilets occupying accessible parking space, Stones Corner, Brisbane

Could be better: The portable toilets in the accessible parking space impacts usability for the space, blocks signage and is unsafe for all users.

8.2 Compliance requirements

This section summarises the legislative requirements for accessible parking in public transport precincts.

8.2.1 Disability (Access to Premises — Buildings) Standards 2010

The Premises Standards cover off-street parking only. Public transport premises (Class 9b) must meet both Performance Requirements and Deemed-to-Satisfy Requirements in the Premises Standards. These are minimum standards, and it is recommended to exceed them through a Performance Solution developed with co-design. Performance Requirements:

DP1 Access for people with a disability

Access must be provided, to the degree necessary, to enable:

(a) people to:

(i) approach the building from the road boundary and from any accessible carparking spaces associated with the building; and

DP8 Carparking for people with a disability

Carparking spaces for use by people with a disability must be:

(a) provided, to the degree necessary, to give equitable access for carparking; and

(b) designated and easy to find.

Limitation: Clause DP8 does not apply to a building where:

(a) a parking service is provided; and

(b) direct access to any carparking spaces by the general public or occupants is not available.

Deemed-to-Satisfy Requirements:

D3.2 Access to buildings

(1) An accessway must be provided to a building required to be accessible:

(c) from any required accessible carparking space on the allotment.

D3.5 Accessible carparking

Accessible carparking spaces:

(a) subject to (b), must be provided in accordance with Table D3.5 in:

(i) a Class 7a building required to be accessible; and

(ii) a carparking area on the same allotment as a building required to be accessible; and

(b) need not be provided in a Class 7a building or a carparking area where a parking service is provided and direct access to any of the carparking spaces is not available to the public; and

(c) subject to (d), must comply with AS/NZS 2890.6; and

(d) need not be identified with signage where there is a total of not more than 5 carparking spaces, so as to restrict the use of the carparking space only for people with a disability.

Table D3.5 Carparking spaces for people with a disability

Class 9b:

(b) Other assembly buildings:

(i) up to 1 000 carparking spaces: 1 space for every 50 carparking spaces or part thereof.

(ii) for each additional 100 carparking spaces or part thereof in excess of 1 000 carparking spaces: 1 space.

AS/NZS 2890.6-2009 *Parking facilities Part 6: Off-street parking for people with disabilities* is a primary reference in the Premises Standards. This standard has been superseded by AS 2890.6-2022 *Parking facilities Part 6: Off-street parking for people with disabilities*. The 2022 edition includes requirements for locating accessible parking spaces near accessible entrances, which were not addressed in the Premises Standards or AS 2890.6-2009. The 2022 edition should therefore be used as a Performance Solution. The Australian Building Codes Board (ABCB) periodically updates the National Construction Code (NCC), which includes the Premises Standard. The ABCB has released a Public Consultation Draft for *NCC 2025 Public Comment Draft (PCD 2025)*. The referenced Australian Standard, AS/NZS 2890.6, is proposed to be updated to its latest edition:

- AS 2890.6-2022 P*arking facilities Part 6: Off-street parking for people with disabilities*

PCD 2025 - NCC Referenced documents lists this and other Australian Standards proposed for update in *Table 1 Potential changes to referenced documents for the next edition of the NCC*. To future-proof accessible parking, the latest editions of Australian Standards should be used wherever possible.

Figure 67
Accessible parking, Rockhampton airport

Good practice: These parallel accessible parking spaces are next to an accessible entrance of the airport, resulting in a shorter journey.

Figure 68
Accessible parking spaces, Mount Isa Airport

Could be better: Although well designed to new standards, these accessible parking spaces are provided over 100 m from an accessible entrance to the airport.

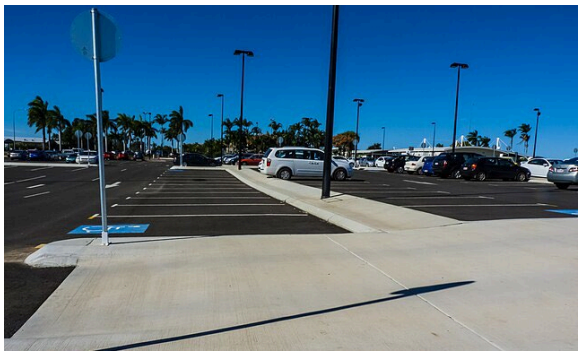


Figure 69
Accessible parking spaces, Bundaberg airport

Could be better: These older accessible parking spaces are greater than 100 m from an accessible entrance.

Figure 70
Accessible parking, Chermside bus interchange

Good practice: These older accessible parking spaces are next to the accessible entrance.

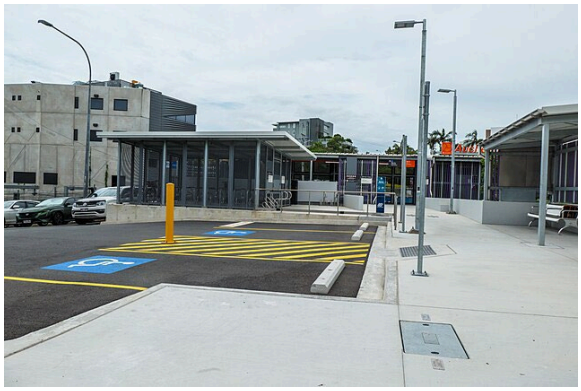


Figure 71
Accessible parking, Auchenflower station

Good practice: These newer accessible parking spaces are next to an accessible entrance, connect via a kerb ramp to the access path, and feature a clearly marked shared zone.

8.2.2 Guideline on the application of the Premises Standards, version 2 – 2013

The Guidelines provide explanatory material to help interpret the following requirements in the Premises Standards':

- Performance Requirement DP1
- Performance Requirement DP8
- Clause D3.5 Accessible carparking, and
- Table D3.5 Carparking spaces for people with a disability.

8.3 Further guidance

This section summarises further guidance relating to parking in public transport precincts.

8.3.1 Public Transport Infrastructure Manual

PTIM primarily addresses off-street parking but also recognises on-street parking in some situations. Relevant information can be found in Chapters 2 and 10:

Chapter 2 – Planning and design

Park 'n' ride infrastructure

Park 'n' ride parking should:

provide accessible parking bays and locate these close to the stop/station entry point

Chapter 10 – Park 'n' ride infrastructure

10.3.3 Universal design

10.6 Specific considerations for park 'n' ride

Table 10.4: Design considerations for park 'n' ride infrastructure

Accessible parking bays Persons with disability (PWD) parking to be provided at 1 space per 50 total parking spaces as per the Building Code of Australia (National Construction Code Volume 1).

As per Queensland Rail, Station Design Manual, rail station park 'n' ride are to provide a minimum of two PWD bays.

PWD bays to be designed as per AS/NZS 2890.6.

Of the referenced Australian Standards, all but AS/NZ 2890.1-2004 have been superseded. PTIM references are currently:

- AS/NZS 2890.1-2004 *Parking facilities—Off-street car parking*
- AS 2890.5–1993 *Parking facilities—On-street parking*
- AS/NZS 2890.6:2009 *Parking facilities—Off-street parking for people with disabilities*

The latest editions of these Standards should be used:

- AS 2890.5-2020 *Parking facilities* Part 5: *On-street parking*
- AS 2890.6-2022 *Parking facilities* Part 6: *Off-street parking for people with disabilities*

Austroads' *Guideline for parking* (Part 11) is also cited but has been superseded. The latest edition should be used:

- Austroads (2020) *Guide to Traffic Management* Part 11: *Parking Management Techniques*, Edition 3

8.3.2 Australian Standards

Standards Australia publishes three Standards that cover accessible parking wholly or in part.

- AS 2890.5 and AS 2890.6 provide technical and dimensional requirements for parking spaces
- AS/NZS 2890.1 specifies how accessible parking spaces should connect to accessible entrances.

Superseded editions of AS 2890.5-2005 and AS/NZS 2890.6-2009 are of often referenced in Disability Standards and other publications. The latest editions should be used as a Performance Solution or Equivalent Access Solution:

- AS 2890.5-2020 *Parking facilities* Part 5: *On-street parking*
- AS 2890.6-2022 *Parking facilities* Part 6: *Off-street parking for people with disabilities*

AS 2890.6-2022 includes requirements for access path design, proximity of accessible parking spaces to accessible entrances, and distance between rest points on longer access paths (Clause 2.2), pavement slope and surface (Clause 2.6), and general advice on accessible parking space ergonomics (Appendix A.3).

AS 2890.1-2004 *Parking facilities* Part 1: *Off-street car parking* is current but pending revision. It shares some requirements with AS 2890.6-2022 and remains relevant, especially if AS 2890.6-2009 is referenced, as AS 2890.6-2009 does not address access paths to entrances and exits. Relevant accessibility clauses in AS 2890.1-2004 include clear unobstructed access paths and colour contrast of objects abutting an access path (Clause 2.4.5), pedestrian direction signs (Clause 4.3.3), pedestrian crossing markings (Clause 4.4.2), lighting (Clause 4.7), humps on access paths (Clause 4.9) and proximity of accessible parking spaces to entrances (Figure 2.1).

AS 2890.5-2020, in Clause *4.5 Parking for people with disabilities,* provides technical details for on-street accessible parking spaces and recommends the minimum number of accessible parking spaces based on the development type and land use. Several referenced Australian Standards have been superseded. Superseded Part 11 references include:

- AS/NZS 1158.3.1-2005 *Lighting for Roads and Public Spaces: Pedestrian Area (Category P) Lighting: Performance and Design Requirements*
- AS 1428.1-2001 *Design for Access and Mobility – General Requirements for Access – New Building Work*
- AS 2890.5-1993 *Parking facilities—On-street parking*
- AS/NZS 2890.6-2009 *Parking facilities - Off-street parking for people with disabilities*

The current editions of these standards should be used:

- AS/NZS 1158.3.1-2020 *Lighting for roads and public spaces*, Part 3.1: *Pedestrian area (Category P) lighting — Performance and design requirements*
- AS 1428.1-2021 *Design for access and mobility* Part 1 *General requirements for access — New building work*
- AS 2890.5-2020 *Parking facilities* Part 5: *On-street parking*
- AS 2890.6-2022 *Parking facilities* Part 6: *Off-street parking for people with disabilities*

8.3.3 Manual of uniform traffic control devices

AS 1742.11:2016 *Manual of uniform traffic control devices* Part 11: *Parking controls* specifies the legally required signage for on-street accessible parking spaces in Clause 3.3.2 *Type of control.* Queensland-specific amendments to AS 1742.11:2016 are published by the department.

8.3.4 Austroads

Guide to Traffic Management Part 11: Parking Management provides guidance for planners and engineers to ensure parking is provided safely, efficiently. and with consideration for access and impacts on the wider road and transport system. Austroads (2020) *Guide to Traffic Management* Part 11: *Parking Management Techniques*, Edition 3 covers parking for people with disability in the following chapters and sections:

- **5. Supply of Parking**
    - 5.2.2 Parking Provision Standards
    - Parking provision rates for people with disabilities
- **6. Parking Policy Framework**
    - 6.2 Parking Policy Objectives
- **8. Off-Street Parking**
    - 8.15 Parking Provisions for Other Road User Groups
    - 8.15.4 People with Disabilities
    - Figure 8.21: Example of a well-located parking bay for people with disabilities
- **9. On-Street Parking**
    - 9.2 General Priorities for Allocation of Parking Space
    - 9.2.5 Disability Permit Holders
    - 9.9 Provision for Other Road Users

- 9.9.4 People with Disabilities

8.4 Recommendations for inclusive accessible parking

Figure 72 Inclusive accessible parking design recommendations

Subject	Recommendations
General principles	Accessible parking provides a vital "first and last mile" connection for people with disability to use public transport nodes. Only vehicles displaying a valid Australian Disability Parking Permit may use accessible parking spaces. Accessible parking spaces should be located as close as possible to accessible entrances or facilities.
Location and type	Off-street parking is generally safer and more convenient than on-street parking. Where on-street parking is the only option, consider speed reductions and other road safety treatments. Design accessible parking spaces and connecting access paths to meet or exceed the requirements of the Premises Standards and DSAPT-2002.
Promote correct use	Implement enforcement measures (e.g. cameras or staff monitoring) to prevent misuse of accessible parking spaces. Ensure accessible parking spaces are free from obstructions, including abandoned vehicles, improperly parked cars, or temporary structures.
Compliance considerations	The Disability (Access to Premises – Buildings) Standards 2010 covers off-street parking for public transport premises (Class 9b). Use AS 2890.6-2022 for updated requirements, including proximity to accessible entrances and ergonomic considerations.

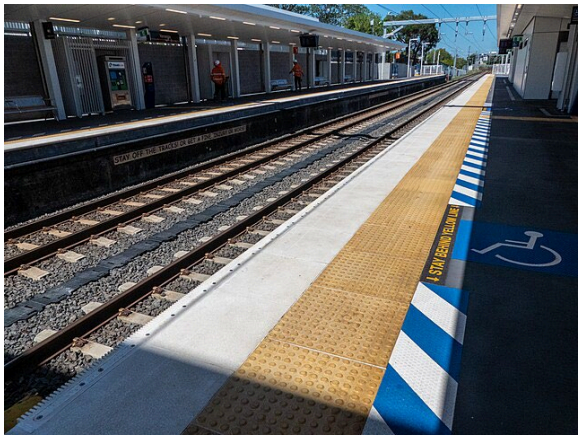
9. Rail, bus and light rail stations

9.1 Overview

All public areas and facilities of rail, bus and light rail stations should be accessible to people with disability. This aligns with Universal Design principles and anti-discrimination legislation. Accessible stations also benefit passengers with luggage, those accompanied by small children, older adults and others who benefit from inclusive design. Providing only partial access to stations reduces the usability and efficiency of the facility. A ‘disabling environment’ – where facility design imposes limitations on people rather than their disability – should be avoided.

9.1.1 Accessible boarding

Passengers who require assistance to board or alight may be provided with designated assisted boarding points, but ideally, boarding should be possible at all passenger boarding points. The best way to achieve independent access is to ensure platform-to-treadplate gaps for the entire platform are within the vertical and horizontal limits set in DSAPT-2002 Section *8.2 When boarding devices must be provided*. Where this is not practicable, raised platform mid-sections or boarding assistance from staff are valid alternatives. However, assisted boarding can increase dwell time at the platform and reduce network efficiency.



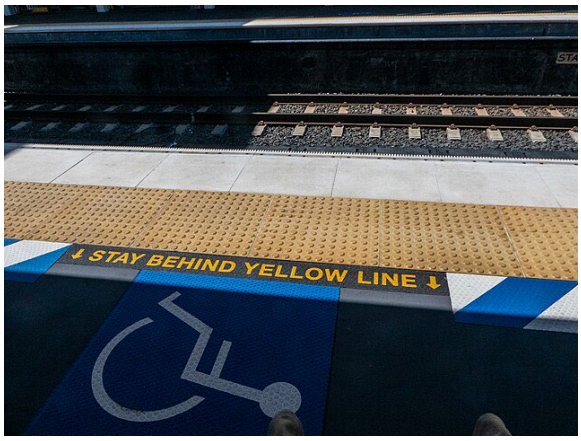
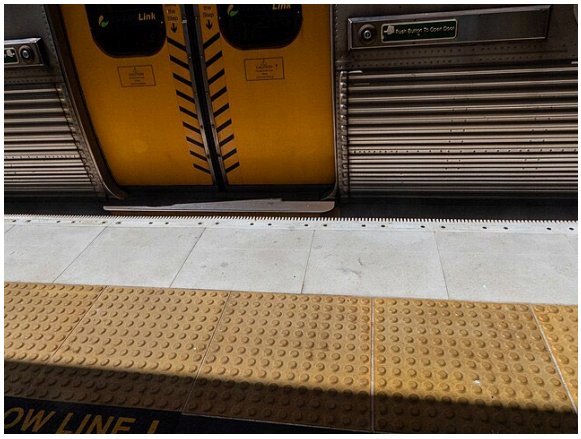


Figure 73
High level platform, Yeronga rail station

Good practice: High level platforms reduce the vertical step gap between the platform and the train, providing a safer and more accessible boarding experience for all passengers.

Figure 74
Platform gap filler and treadplate, Yeronga rail station



Good practice: Platform gap filler (also called frangible gap fillers or ‘fingers’) reduce the horizontal step gap to the treadplate.

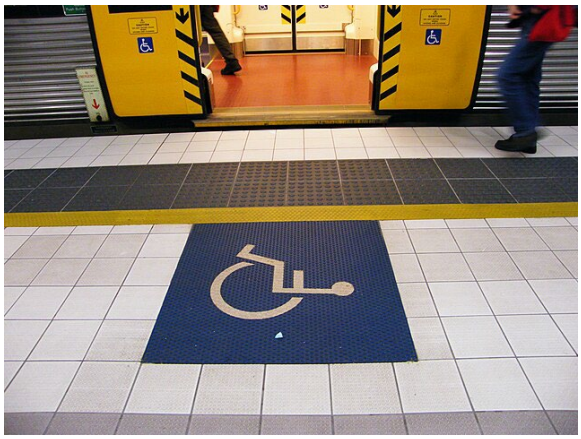


Figure 75
Raised platform section, Fortitude Valley station

Could be better: The high-level mid-section of the platform features the assisted boarding point.This approached is used where there are technical challenges associated with raising the entire length of the train platform.

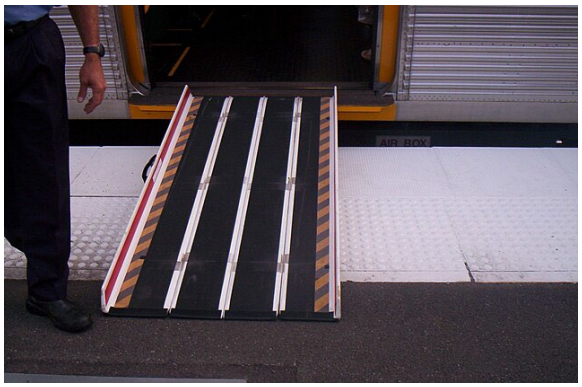


Figure 76
Boarding ramp at low level platform, Geebung station

Could be better: Low level platforms require a boarding ramp by staff, impacting passenger independence.

Figure 77
Boarding ramp at low level platform, Roma Street station

Could be better: The boarding ramp is placed across the TGSIs and feature edge barriers as a safety precaution.

9.1.2 Universal Design features

A Universal Design outcome is best achieved by ensuring all spaces, features and associated infrastructure are accessible to people with disability. For example, while assisted boarding points may be nominated on a rail platform, passengers who can board or alight independently should have the option to board at any point on the platform. Information on services and platform help intercoms should be available in formats accessible to people with sensory, cognitive and neurodivergent disabilities. Grassed areas with waste bins allow assistance animals to be toileted, which is essential for people who depend on them for mobility.

9.2 Compliance requirements

This section summarises the legislative requirements that apply for rail, bus, and light rail station precincts and ferry terminals.

9.2.1 Disability Discrimination Act 1992

Rail, bus, light rail stations and ferry terminals are public places that provide public services and facilities. They are therefore subject to the DDA, primarily through its Disability Standards. Because stations combine both premises and infrastructure, they are covered by both the Premises Standards and the DSAPT-2002 apply.

- If building approval is required for a premises or structure, the relevant Disability Standard is the Premises Standards.
- For infrastructure, facilities, and fixtures that do not require building approval, the DSAPT-2002 applies. Where the Disability Standards do not cover a matter, the DDA's applies directly via Section *23 Access to premises* and Section *24 Goods, services and facilities*.

The DSAPT *Guidelines* 2004 confirm this:

> **1.8 Issues not dealt with by Disability Standards**
>
> If the Disability Standards do not deal with an issue in relation to public transport, the requirements of the *Disability Discrimination Act 1992* apply in relation to the issue.

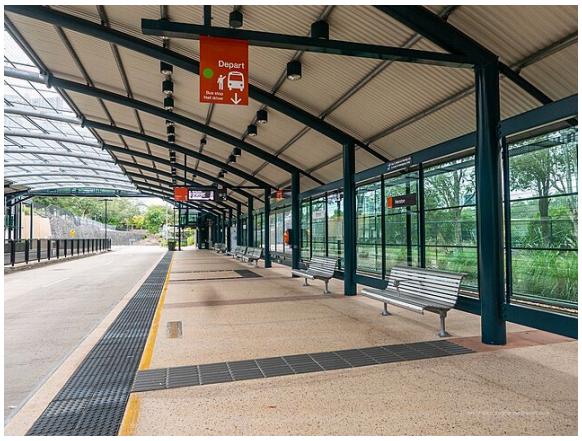


Figure 78
Station amenities, Herston bus station

Good practice: Boarding points, information displays, TGSIs, seats and signs are covered by DSAPT-2002, Herston bus station.

Figure 79
Station elements, Yeronga station

Good practice: Boarding points, information displays, TGSIs and signs are covered by DSAPT-2002.

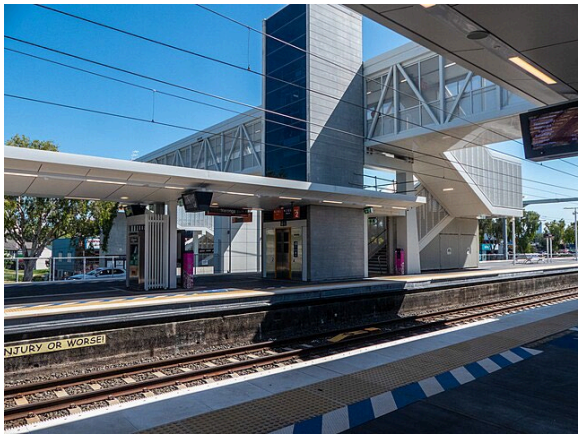


Figure 80
Station architecture, Yeronga station

Good practice: Platforms, overbridges, stairs, lifts and shelters are covered by the Premises Standards, Yeronga rail station.

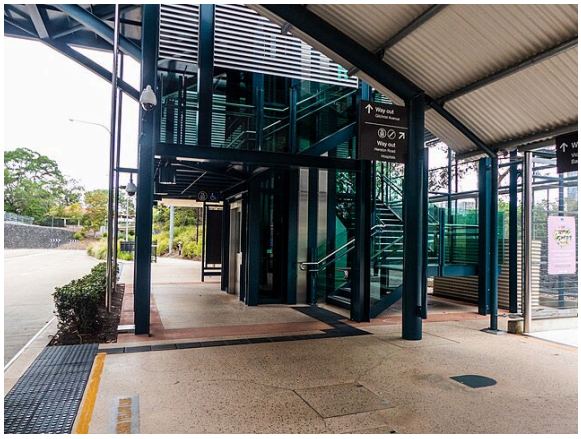


Figure 81
Station architecture, Herston bus station
Good practice: Platforms, overbridges, stairs, lifts and shelters are covered by the Premises Standards, Herston bus station.

Figure 82
Station amenities, Cultural Centre bus station

Good practice: Boarding points, information displays, TGSIs, seats and signs are covered by DSAPT-2002, Cultural Centre bus station.

9.2.2 Disability (Access to Premises — Buildings) Standards 2010

The Premises Standards are Disability Standards built around Performance Requirements. Compliance may be achieved by a Performance Solution, a Deemed-to-Satisfy Solution or a combination of the two, provided the Performance Requirements are met. This approach is detailed in Section 3.2 '*Compliance with Access Code*'. Performance Solutions encourage innovation and often deliver outcomes superior to the minimum requirements of Deemed-to-Satisfy Solutions and should therefore be the preferred option. Rail, bus, light rail stations and ferry terminals are Class 9b or Class 10 public transport premises. Various Parts of the Premises Standards therefore apply, usually covering the structural elements of premises rather than their fit-out. For example:

A1.1 Definitions

assembly building means a building where people may assemble for:

(d) transit purposes, including a bus station, railway station, airport or ferry terminal.

Part *H2 Public transport buildings* are particularly relevant:

Part H2 contains Deemed-to-Satisfy Provisions for Class 9b and Class 10 public transport buildings additional to those contained in Parts D3, E3 and F2 that apply to public transport buildings.

Part H2 reads together with the DSAPT-2002 and sets out technical requirements that take precedence over those in Parts D3, E3 and F2.

Part D Access and egress—Performance Requirements:

- DP1 Access for people with a disability
- DP4 Exits
- DP6 Paths of travel to exits
- DP7 Evacuation lifts
- DP8 Carparking for people with a disability, and
- DP9 Communication systems for people with hearing impairment.

Part E3 Lift installations:

- EP3.4 Performance Requirement.

Part F2 Sanitary and other facilities:

- FP2.1 Performance Requirement.

Compliance with these Performance Requirements can be achieved through a Performance Solution, the Deemed-to-Satisfy Solutions of Sections D3.0, E3.0 and F3.0, or by a combination of the two. There can be significant discrepancies between the Deemed-to-Satisfy solutions of Part H2 and those in other Parts of the Premises Standards. For example, Part *D3.7 Hearing augmentation* requires an induction loop system to cover at least 80% of a space in most premises:

D3.7 Hearing augmentation

(2) If a hearing augmentation system required by subclause (1) is:

(a) an induction loop, it must be provided to not less than 80% of the floor area of the room or space served by the inbuilt amplification system;

By contrast, in a public transport premises the minimum coverage required is only 10%:

H2.13 Hearing augmentation

If a public address system is installed, it must comply with clause 21.1 of AS 1428.2.

If a Deemed-to-Satisfy solution is used, it should default to the Part of the Premises Standards that provides the best public outcome – for example, adopting the greater coverage area where provisions differ. The Premises Standards also references a range of Australian Standards that must be applied when using the Deemed-to-Satisfy Provisions. Alternative or updated standards may be used if they form part of a Performance Solution that achieves an equal or better outcome. Performance Solutions are often best developed through a co-design process, ensuring a practical and user-focused results. For example, accessible toilet requirements in Part E3 are stronger than those in Part H2 and should be adopted where possible. Similarly, more recent editions of Australian Standards can be used as part of Performance Solutions. The Premises Standards currently cite superseded editions, including:

- AS 1428.1-2001 *Design for access and mobility* Part 1: *General requirements for access — New building work*
- AS 1428.1-2009 *Design for access and mobility* Part 1: *General requirements for access — New building work*
- AS 1735.12-1999 *Lifts, escalators and moving walks*, Part 12: *Facilities for persons with disabilities*
- AS/NZS 2890.6-2009 *Parking facilities - Off-street parking for people with disabilities*

The preferred approach is to refer to the most current editions:

- AS 1428.1-2021 *Design for access and mobility Part 1: General requirements for access—New building work*
- AS 1735.12-2020 *Lifts, escalators and moving walks Part 12 Facilities for persons with disabilities (EN 81-702018, MOD)*
- AS 2890.6-2022 *Parking facilities Part 6: Off-street parking for people with disabilities*

The Australian Building Codes Board (ABCB) periodically updates the National Construction Code (NCC), which incorporates the Premises Standards. Consultation on the draft NCC 2025 proposes updating several reference standards to their latest editions:

- AS 1428.1-2021 *Design for access and mobility Part 1: General requirements for access—New building work*
- AS 1735.12-2020 *Lifts, escalators and moving walks Part 12 Facilities for persons with disabilities (EN 81-702018, MOD)*
- AS 2890.6-2022 *Parking facilities Part 6: Off-street parking for people with disabilities*

PCD 2025 - NCC Referenced documents lists these and other Australian Standards proposed for update in *Table 1 Potential changes to referenced documents for the next edition of the NCC*. To future-proof projects and avoid the need for later upgrades, the latest Standards should be adopted wherever possible.

9.2.3 Guidelines on application of the Premises Standards

The *Premises Standards Guidelines* assist with interpreting the Premises Standards. Each part of the Guidelines corresponds directly to the equivalent Part of the Standards, making cross-referencing easy.

9.2.4 Disability Standards for Accessible Public Transport 2002

The DSAPT-2002 applies to elements of stations that are not covered by the Premises Standards. These are generally the non-structural elements and systems that support passengers in using a station. Examples include information systems, controls, boarding points, waiting areas, seating, allocated spaces, fare collection and ticketing equipment such as Add Value Vending Machines (AVVM) and Stand-Alone Card Interface Devices (SACID), as well as Intelligent Transport Systems (ITS). Many DSAPT-2002 requirements overlap with those in Part *H2 Public transport buildings* of the Premises Standards. Where requirements are shared, both instruments should be read together to ensure compliance and to achieve the most functional and inclusive outcome.

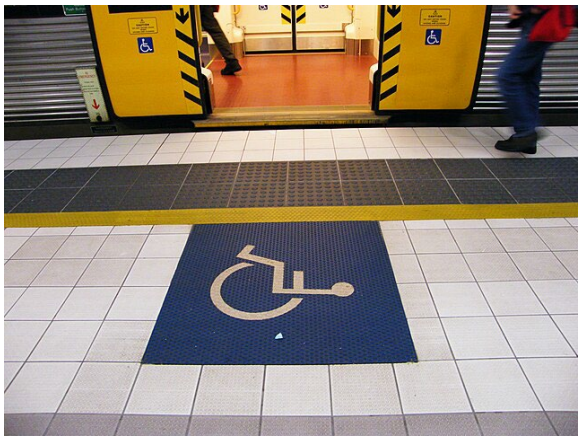


Figure 83
Accessible boarding point, Fortitude Valley rail station

Good practice: The accessible boarding point, clearly marked with the international symbol of access.

Figure 84
Accessible boarding point, King George Square bus station

Good practice: The accessible boarding point at the front of the bus features a boarding ramp and international symbol of access on the bus.

Figure 85
Fare validators and accessible fare gate, Roma Street rail station

Good practice: Accessible fare gates are wider than the standard, providing access for wheelchair users, people with assistance animals, luggage or a pram.

Figure 86
Platform amenities, Fairfield rail station

Good practice: SACID, hearing loop, priority seat, platform help, and assistance phones are all provided on the platform and clearly signed.

Figure 87
Platform seating, RBWH bus station

Good practice: Seating along entire platform with space for mobility aids on either side of the seats, RBWH bus station, Herston.

Figure 88
Add Value Vending Machine, Fairfield rail station

Good practice: Add Value Vending Machine is clearly signed and co-located with the portable boarding ramp storage cabinet.

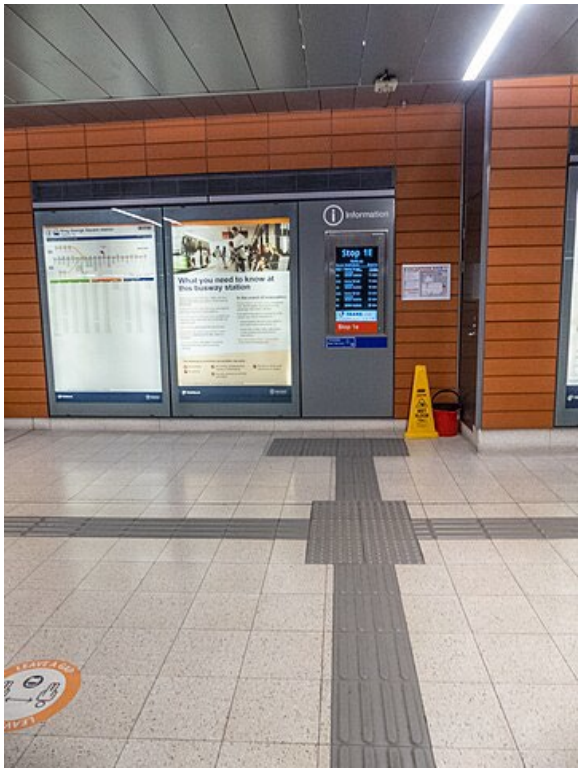


Figure 89
Service information, King George Square bus station

Good practice: Timetable, service information, TGSIs and passenger information displays are all co-located.

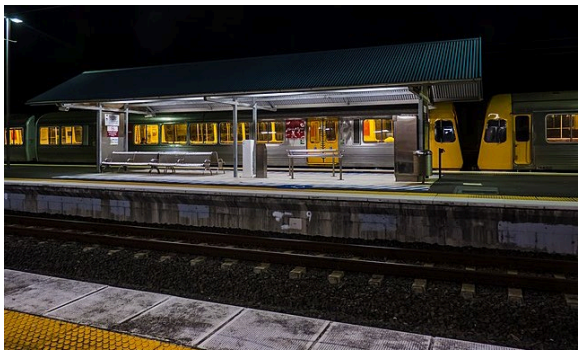


Figure 90
Platform amenities, Sunshine rail station

Could be better: Seating confined to platform, shelter with space for mobility aids on one side of the seats, Sunshine rail station, Geebung.

Waiting areas are addressed in Part 7 of DSAPT-2002. This Part sets out minimum requirements for priority seating and allocated spaces. The entire platform is considered a waiting area, so the minimum number of priority seats required under a Prescriptive Solution should be calculated as a proportion of all seats on the platform. In contrast, the number of allocated spaces should be based on the floor area of the platform, rather than the number of seats, if a Prescriptive Solution is being considered. Equivalent Access Solutions developed through co-design are likely to deliver more appropriate outcomes, as they respond to the actual needs of passengers. Designating seats as ‘priority’ does not reduce the number of seats available to passengers. Instead, it encourages fit passengers to offer seats to people who need them most. Priority is a prompt for courtesy and supports a Universal Design outcome. Exceeding the minimum provision is encouraged. Designating all seats as priority can improve comfort for all passengers without reducing seat availability.

Part 7 Waiting areas

7.1 Minimum number of seats to be provided

If a waiting area is provided, a minimum of 2 seats or 5% of the seats must be identified as available for passengers with disabilities if required.

Premises

Infrastructure, except airports that do not accept regular public transport services

Section 7.2 does not require allocated spaces in waiting areas to be identified. Instead, it requires they be 'available'. The best location for allocated spaces is next to platform seating, allowing people who require them the space to wait with travelling companions. When not required for mobility aids, the space can be used for luggage, shopping and other items.

Rail platforms use Sign FI-5.7 in Section 4.19.1 of the *Signage Manual – Rail Stations*. No equivalent sign currently exists for bus stations.

7.2 Minimum number of allocated spaces to be provided

If a waiting area is provided, a minimum of 2 allocated spaces or 5% of the area must be available for passengers with disabilities if required.

Premises

Infrastructure, except airports that do not accept regular public transport services

Public seats at stations are covered by Part 23 Street furniture.

Part 23 Street furniture

23.1 Seats

Seats must comply with AS 1428.2 (1992) Clause 27.2, Seating in pedestrian areas.

Premises

Infrastructure, except airports that do not accept regular public transport services

Clause 27.2 recommends providing a range of seat heights in places where a diversity of people is expected – such as at stations. However, most current station designs provide only one seat. Clause 27.2 also only recommends armrests, but these should be considered a standard feature – especially on priority seats – as they support people standing up. A co-design process can help determine appropriate seating arrangements at stations. Any controls related to fixtures or facilities in station buildings or on platforms must comply with Section 21.1 if a Prescriptive Solution is intended.

21.1 Compliance with Australian Standard — premises and infrastructure

Controls must comply with AS 1428.1 (2001) Clause 11.

Premises, except premises to which the Premises Standards apply

Infrastructure, except airports that do not accept regular public transport services

Clause 11 of AS 1428.1-2001 does not specify control button dimensions or feedback signals that help people with vision or hearing impairment know when a button has been successfully activated. A co-designed Equivalent Access solution can provide a better outcome. The DSAPT-2002 references several Australian Standards that must be used to meet Prescriptive Solutions. However, alternative standards or products may be used if they support an Equivalent Access Solution that is equal to or better than the Prescriptive Solution. Co-design is the preferred method for developing Equivalent Access Solutions. Superseded Australian Standards are:

- AS 1428.1-2001 *Design for access and mobility Part 1: General requirements for access — New building work*
- AS 1428.4-1992 *Design for access and mobility, Part 4: Tactile ground surface indicators for the orientation of people with vision impairment*
- AS 1735.12-1999 *Lifts, escalators and moving walks, Part 12: Facilities for persons with disabilities*
- AS 2899.1-1986 *Public information symbol signs. Part 1: General information signs*, and
- AS/NZS 3856.1-1998 *Hoists and ramps for people with disabilities — Vehicle-mounted, Part 1: Product requirements*.

Preferred current editions:

- AS 1428.1-2021 *Design for access and mobility Part 1: General requirements for access—New building work*
- AS 1428.4.1-2009 *Design for access and mobility Part 4.1 Means to assist the orientation of people with vision impairment—Tactile ground surface indicators*
- AS 1735.12-2020 *Lifts, escalators and moving walks Part 12 Facilities for persons with disabilities (EN 81-702018, MOD)*
- ISO 7001-2007 *Graphical symbols — Public information symbols*, and
- AS 3856.1-2021 *Hoists and ramps for people with disabilities — Vehicle mounted, Part 1: Product requirements*.

AS 3856.1 is included because boarding ramps are often stored on platforms rather than being vehicle mounted.

9.2.5 Disability Standards for Accessible Public Transport Guidelines 2004 (No. 3)

The DSAPT Guidelines help interpret the DSAPT-2002. While they do not have legal status, they provide useful information and commentary on the DSAPT's requirements and specifications. Part numbers in the Guidelines match those in the DSAPT-2002, making cross-referencing straightforward.

9.2.6 The Whole Journey: A guide for thinking beyond compliance to create accessible public transport journeys

The DSAPT Guidelines in Section 1.8 clarify that any issue not directly addressed by DSAPT-2002 is subject to the DDA.

> **1.8 Issues not dealt with by Disability Standards**
>
> If the Disability Standards do not deal with an issue in relation to public transport, the requirements of the Disability Discrimination Act 1992 apply in relation to the issue.

The Australian Government's *The Whole Journey* Guide supports decision-makers – including policy makers, planners, designers, builders, building surveyors and certifiers, and public transport operators and providers – to think beyond compliance. It encourages a focus on people's accessibility needs across their entire journey, rather than just the physical or governance boundaries of infrastructure and services.

9.3 Further guidance

This section summarises further guidance relating to rail, bus, and light rail station precincts.

9.3.1 Public Transport Infrastructure Manual

The PTIM outlines best practice planning and design principles for public transport infrastructure. It defines the key elements of quality public transport facilities, supports the evaluation of existing infrastructure, and serves as a design tool for new developments within the TransLink network. Relevant PTIM chapters for station design are:

- Chapter 6: *Bus station infrastructure*
- Chapter 9: Rail station infrastructure, and
- Chapter 11: *Light rail station infrastructure*.

9.3.2 Australian Standards

In addition to the Australian Standards referenced for compliance with the Premises Standards and DSAPT-2002, the following Standards should be considered when applying Deemed-to-Satisfy or Prescriptive Solutions:

- AS/NZS 1158.3.1-2020 *Lighting for Roads and Public Spaces: Pedestrian Area (Category P) Lighting: Performance and Design Requirements*
- AS 1428.1-2021 *Design for access and mobility Part 1: General requirements for access—New building work*
- AS 1428.4.2-2018 *Design for access and mobility, Part 4.2: Means to assist the orientation of people with vision impairment — Wayfinding signs*
- AS 1428.5-2021 *Design for access and mobility Part 5 Communication for people who are deaf or hearing impaired*
- AS/NZS 1680.2.1-2008 *Interior and workplace lighting, Part 2.1: Specific applications — Circulation spaces and other general areas*
- AS 1735.12-2020 *Lifts, escalators and moving walks Part 12 Facilities for persons with disabilities (EN 81-702018, MOD)*
- AS 3856.1-2021 *Hoists and ramps for people with disabilities — Vehicle mounted, Part 1: Product requirements*
- AS/NZS 4282-2019 *Control of the obtrusive effects of outdoor lighting*
- AS 4663-2013 *Slip Resistance Measurements of Existing Pedestrian surfaces*
- AS 4586-2013 *Slip resistance classifications of new pedestrian surface materials*
- AS EN 301 549-2020 *Accessibility requirements for ICT products and services*
- SA HB 198-2014 *Guide to the specification and testing of slip resistance of pedestrian surfaces*, and
- ISO 7001-2007 *Graphical symbols — Public information symbols*.

9.4 Recommendations for inclusive rail, bus and light rail stations

Figure 91 Inclusive rail, bus and light rail stations design recommendations

Subject	Recommendations
General principles	All public areas and facilities of rail, bus, and light rail stations must be accessible to passengers with disability, in line with Universal Design principles and anti-discrimination legislation. Ensure all spaces, features, and related infrastructure are accessible to passengers with disability.

Subject	Recommendations
	Provide information in multiple accessible formats (e.g. for sensory, cognitive, and neurodivergent disabilities). Include grassed areas with waste bins to support toileting assistance animals.
Accessible boarding	Ensure platform-to-treadplate gaps meet the vertical and horizontal limits set out in DSAPT-2002 Section 8.2. Provide boarding options across the entire platform, not only at designated assisted boarding points.
Compliance considerations	Stations are public places and must comply with the DDA, including: – Sections 23 (*Access to premises*) – 24 (*Goods, services, and facilities*). The DDA applies where the Premises Standards or DSAPT-2002 do not cover a matter. The *Disability (Access to Premises – Buildings) Standards 2010* apply to structural elements of public transport premises (Class 9b or Class 10). Compliance may be achieved through Performance Solutions (preferred for innovative and best outcomes) or Deemed-to-Satisfy Solutions. Use the latest editions of referenced Australian Standards to support futureproofing. The DSAPT apply to non-structural elements and systems, including boarding points, waiting areas, seating, fare systems, platform amenities, information displays, hearing loops, and TGSIs. Waiting areas must include priority seating and allocated spaces for mobility aids.

10. Ferry terminals

10.1 Overview

All public areas and facilities at ferry terminals should be accessible to passengers with disability, in line with Universal Design principles and anti-discrimination legislation. It will also benefit passengers with luggage, those accompanied by small children, older adults and others who benefit from inclusive design. Providing only partial access compromises the usability and efficiency of the terminal. A ‘disabling environment’ – where design imposes limitations on people rather than their disability – should be avoided. Universal Design outcomes are best achieved by ensuring all spaces, features, and associated infrastructure are accessible to passengers with disability. For example, minimising gangway gradients at low tide supports all passengers, especially those with luggage or accompanied by small children. Information about services and help points (such as assistance intercoms) should be available in formats accessible to people with sensory, cognitive and neurodivergent disabilities.

10.1.1 Gangplanks

All passengers who board or alight from ferries at designated boarding points on pontoons, where deckhands or masters deploy portable gangplanks. These gangplanks are usually stored on the pontoon near the boarding point. Gangplanks bridge the gap between two potentially moving surfaces – the ferry deck and the pontoon – and cross a section of open water. Their design requirements differ from those of vehicle boarding ramps. DSAPT-2002 covers vehicle boarding ramps in:

- Sections *6.2 Boarding ramps*
- *6.3 Minimum allowable width*, and
- *6.4 Slope of external boarding ramps*.

Many specifications in these sections are not suitable or achievable for gangplanks. Equivalent Access Solutions developed through co-design allow for more appropriate gangplank design. Previous co-designed gangplanks have featured:

- a gently convex in profile
- handrails and fall barriers, and
- articulated design for easy storage on the pontoon.

10.1.2 Gangways

Gangways are access paths referred to as ‘ramps connected to pontoon wharves’ in DSAPT-2002 Section *6.5 Slope of ramps connected to pontoon wharves*. Their gradient changes with the tide, ranging from steep to nearly level, which affects the effort required to use them. Matthew East’s paper, *Design for accessibility for floating structures* (published in *Proceedings of the Institution of Civil Engineers - Maritime Engineering*, Volume 171 Issue 3, September 2018, pp. 98-108), details accessible gangway design in tidal environments, including auto-levelling landings.

The Lowest Astronomical Tide (LAT) has been the Chart Datum for all Australian Hydrographic Charts since 1994, as stated by Maritime Safety Queensland. Gangway gradients at low tide should be calculated using LAT as the datum point.

Tidal datum information

The vertical reference level for each standard port is the port datum. Since 1994, this datum was set to the lowest astronomical tide (LAT) at Queensland ports.

10.1.3 Pontoons

Pontoons are floating structures affected by wind, waves, vessel wash, currents, and occasionally flood or storm conditions. As boarding points, manoeuvring areas, access paths, and sometimes waiting areas, pontoons must be stable. Stability in dynamic environments can be improved by following the pontoon design recommendations in AS 3962-2020 *Marina design*. Based on East's paper, pontoons may include raised sections that allow for gentler gangway gradients at low tide. These raised areas connect to boarding points using fixed ramps and stairs.

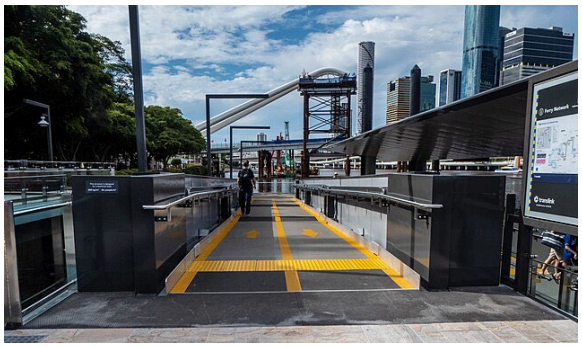


Figure 92
Gangways, South Bank ferry terminal

Good practice: The gangway features auto-leveling landings, ensuring a compliant ramp grade throughout the tidal range.

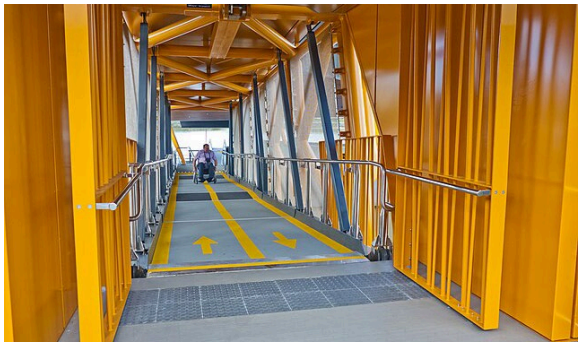


Figure 93
Gangways with weather protection, Milton ferry terminal

Good practice: The auto-levelling gangway features handrails, landings and weather protection.

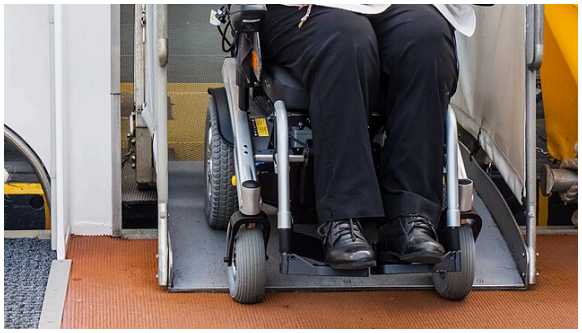


Figure 94
Gangplank and wheelchair user, Riverside ferry terminal

Good practice: The convex profile ensures an accessible grade along the full length of the ramp during varying tidal heights.

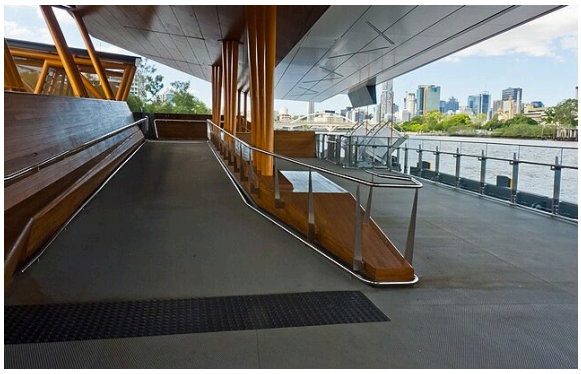
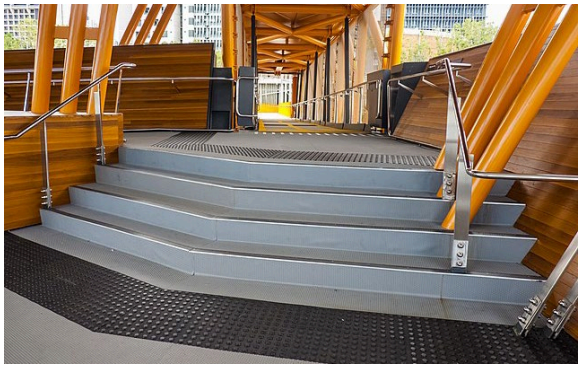


Figure 95
QUT Gardens Point ferry terminal pontoon



Good practice: Access to the ferry terminal pontoon is provided using a fixed ramp or stairs.

Figure 96
Stowed gangplank, Hawthorne ferry terminal

Good practice: Gangplank not deployed showing ramp articulation.

10.2 Compliance requirements

This section summarises the legislative requirements for ferry terminal precincts. Ferry terminals include both premises and infrastructure and are therefore subject to the Premises Standards and the DSAPT-2002. The Premises Standards define ferry terminal as public transport premises:

A1.1 Definitions

assembly building means a building where people may assemble for:

(d) transit purposes, including a bus station, railway station, airport or ferry terminal.

Onshore structures may be classified as Class 9b or Class 10 premises. Offshore infrastructure and service-related fixtures and features are subject to DSAPT-2002.

10.2.1 Disability Discrimination Act 1992

Ferry terminals are public places that provide public services and facilities. As such, they are subject to the DDA through its Disability Standards. If building approval is required, the applicable Disability Standard is the Premises Standards. For infrastructure, facilities and fixtures that do not require building approval, DSAPT-2002 applies. Where the Disability Standards do not cover a matter, the DDA's Sections *23 Access to premises* and *24 Goods, services and facilities* apply by default. This is confirmed in the DSAPT Guidelines 2004:

1.8 Issues not dealt with by Disability Standards

If the Disability Standards do not deal with an issue in relation to public transport, the requirements of the Disability Discrimination Act 1992 apply in relation to the issue.

10.2.2 Disability (Access to Premises — Buildings) Standards 2010

The Premises Standards are built around Performance Requirements. Compliance can be achieved through a Performance Solution (preferred for innovative and improved outcomes), a Deemed-to-Satisfy Solution, or a combination of both, provided the Performance Requirements are met. Premises Standards' compliance is covered in Section 3.2 'Compliance with Access Code'. Ferry terminals are Class 9b or Class 10 public transport premises, and various Parts of the Premises Standards apply – typically to structural elements rather than fit-out. The Premises Standards' Section A1.1(d) reads:

A1.1 Definitions

assembly building means a building where people may assemble for:

(d) transit purposes, including a bus station, railway station, airport or ferry terminal.

Part H2 *Public transport buildings* are particularly relevant:

Part H2 contains Deemed-to-Satisfy Provisions for Class 9b and Class 10 public transport buildings additional to those contained in Parts D3, E3 and F2 that apply to public transport buildings.

Part H2 reads together with the DSAPT-2002 and takes precedence over Parts D3, E3 and F2.

Part D Access and egress—Performance Requirements:

- DP1 Access for people with a disability
- DP4 Exits
- DP6 Paths of travel to exits
- DP7 Evacuation lifts
- DP8 Carparking for people with a disability
- DP9 Communication systems for people with hearing impairment

Part E3 Lift installations:

- EP3.4 Performance Requirement

Part F2 Sanitary and other facilities:

- FP2.1 Performance Requirement

Compliance with these Performance Requirements can be achieved through a Performance Solution, Deemed-to-Satisfy Solutions in Sections D3.0, E3.0 and F3.0, or a combination of both. There may be discrepancies between the Deemed-to-Satisfy Solutions in Part H2 and other Parts of the Premises Standards. For example, Part *D3.7 Hearing augmentation* requires induction loop coverage of least 80% of the room or floor space:

D3.7 Hearing augmentation

(2) If a hearing augmentation system required by subclause (1) is:

(a) an induction loop, it must be provided to not less than 80% of the floor area of the room or space served by the inbuilt amplification system;

In contrast, Clause H2.13 only requires 10% coverage in public transport premises:

H2.13 Hearing augmentation

If a public address system is installed, it must comply with clause 21.1 of AS 1428.2.

Where a Deemed-to-Satisfy Solution is used, it should default to the provision that delivers the best public outcome, such as greater coverage. Various Australian Standards are referenced in the Premises Standards and must be used when applying Deemed-to-Satisfy provisions. However, alternative standards or products may be used if they support a Performance Solution that meets or exceeds the required outcome. Co-design is recommended for developing effective Performance Solutions. For example, the superior requirements for accessible toilets in Part E3 should be preferred over the inferior requirements in Part H2. Later editions of Australian Standards can also support Performance Solutions. Superseded editions referenced in the Premises standards are:

- AS 1428.1-2001 *Design for access and mobility Part 1: General requirements for access — New building work*
- AS 1428.1-2009 *Design for access and mobility Part 1: General requirements for access — New building work*
- AS 1735.12-1999 *Lifts, escalators and moving walks, Part 12: Facilities for persons with disabilities*, and
- AS/NZS 2890.6-2009 *Parking facilities - Off-street parking for people with disabilities*.

Preferred current is:

- AS 1428.1-2021 *Design for access and mobility Part 1: General requirements for access—New building work*
- AS 1735.12-2020 *Lifts, escalators and moving walks Part 12 Facilities for persons with disabilities (EN 81-702018, MOD)*, and
- AS 2890.6-2022 *Parking facilities Part 6: Off-street parking for people with disabilities*.

Figure 97
Terminal amenities, West End ferry terminal

Good practice: The terminal features an onshore waiting area and toilets, which improves amenity and convenience.

The Australian Building Codes Board (ABCB) periodically updates the National Construction Code (NCC), which includes the Premises Standard. A public consultation draft of *NCC 2025, the Public Comment Draft (PCD 2025),* is now available. It proposes updates to several referenced Australian Standards, including:

- AS 1428.1-2021 *Design for access and mobility Part 1: General requirements for access—New building work*
- AS 1735.12-2020 *Lifts, escalators and moving walks Part 12 Facilities for persons with disabilities (EN 81-702018, MOD)*, and
- AS 2890.6-2022 *Parking facilities Part 6: Off-street parking for people with disabilities*.

These updates are listed in Table 1 *PCD 2025*. To support futureproofing, the latest editions of these Australian Standards should be used.

10.2.3 Disability Standards for Accessible Public Transport 2002

The DSAPT-2002 applies to elements of ferry terminals not covered by the Premises Standards. This includes non-structural elements and systems that support passengers in using of the terminal. This includes, information and controls, boarding points, waiting areas, seating, allocated spaces, fare and ticketing systems (including Add Value Vending Machines (AVVM) and Intelligent Transport Systems (ITS)). Many infrastructure requirements of DSAPT-2002 align with those in Part *H2 Public transport buildings* of the Premises Standards. DSAPT-2002 also includes infrastructure unique to ferry terminals, such as gangways and pontoons. Gangways present particular accessibility challenges due to their changing gradient with the tide. DSAPT-2002 refers to gangways as ‘ramps connected to pontoon wharves’ in Section 6.5, which sets the maximum permitted gradient across the tidal range. The ‘standard tide charts’ quoted in Section 6.5 use Lowest Astronomical Tide (LAT) as the Chart Datum point.

6.5 Slope of ramps connected to pontoon wharves

The slope of a ramp connected to a pontoon wharf must comply with section 6.1 for at least 80% of the high and low tide levels listed in standard tide charts.

Infrastructure, Pontoon wharves

Section 6.1 references AS 1428.2-1992 Clause 8 as the requirement for a Prescriptive Solution. Clause 8 requires flat landings at intervals based on the ramp gradient – for example, every 6 metres on ramps with a gradient of 1:14.

6.1 Ramps on access paths

A ramp on an access path must comply with AS1428.2 (1992) Clause 8.

Premises, except premises to which the Premises Standards apply

Infrastructure, except airports that do not accept regular public transport services

Flat landings can be achieved on gangways using auto-leveling landings, as detailed in Matthew East's paper *Design for accessibility for floating structures* (*Proceedings of the Institution of Civil Engineers - Maritime Engineering*, Volume 171 Issue 3, September 2018, pp. 98-108).

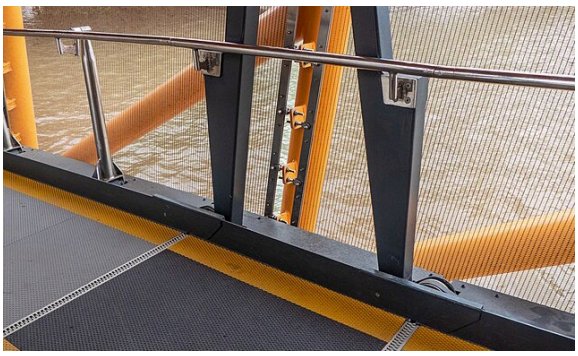


Figure 98
Gangway landings, QUT Gardens Point ferry terminal

Good practice: Auto-levelling gangway landing (black) ensures landings provide appropriate intervals throughout varying tidal changes.

Figure 99
Handrail joint, QUT Gardens Point ferry terminal

Good practice: Handrail joints on the auto-levelling gangway landing ensures a continuous handrail that matches the ramp profile.

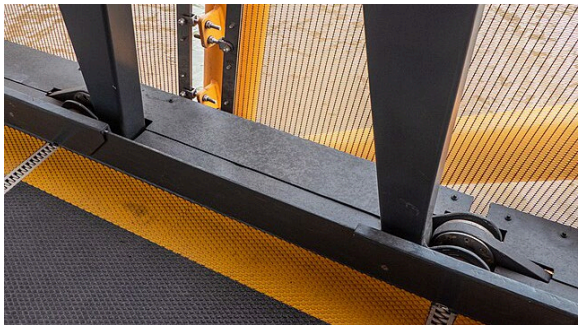


Figure 100
Landing mechanism, QUT Gardens Point ferry terminal

Good practice: Auto-levelling gangway landing mechanism rotates with tidal changes.

Waiting areas are addressed in Part 7 of DSAPT-2002. This Part sets minimum requirements for priority seating and allocated spaces. The entire terminal is considered a waiting area, so:

- The number of priority seats should be proportionate of all seats in the terminal.
- The number of allocated spaces should be based on the floor area, not the number of seats, when applying a Prescriptive Solution.

Equivalent Access Solutions developed through co-design are encouraged, as they better reflect the actual needs of passengers. Designating seats as ‘priority’ does not reduce the number of seats available. Instead, it encourages fit passengers to offer seats to those who need them. This is a prompt to common courtesy and supports a Universal Design outcome. Exceeding the minimum requirement is encouraged. Designating all seats as priority simply improves comfort for everyone.

Part 7 Waiting areas

7.1 Minimum number of seats to be provided

If a waiting area is provided, a minimum of 2 seats or 5% of the seats must be identified as available for passengers with disabilities if required.

Premises

Infrastructure, except airports that do not accept regular public transport services

Section 7.2 does not require allocated spaces to be identified, only that they be ‘available’. However, identifying these spaces improves accessibility and has already been implemented at several ferry terminals. While there is no standard signage, a sign similar

to FI-5.7 in Section 4.19.1 of the *Signage Manual – Rail Stations*, Transport and Main Roads, April 2023, could be considered.

7.2 Minimum number of allocated spaces to be provided

If a waiting area is provided, a minimum of 2 allocated spaces or 5% of the area must be available for passengers with disabilities if required.

Premises

Infrastructure, except airports that do not accept regular public transport services

The best location for allocated spaces is next to seating, so people with travelling companions or mobility aids can wait. When not in use, these spaces can be used for luggage or shopping. Public seating at ferry terminals is covered in Part 23 Street furniture.

Part 23 Street furniture

23.1 Seats

Seats must comply with AS 1428.2 (1992) Clause 27.2, Seating in pedestrian areas.

Premises

Infrastructure, except airports that do not accept regular public transport services

Clause 27.2 recommends a variety of seat heights in areas where a diversity of people is expected – such as ferry terminals. However, most terminals currently provide only one seat design. Clause 27.2 also only recommends armrests, but these should be standard – especially on priority seats – as they assist people when standing. A co-design process can help determine appropriate seating arrangements. Controls associated with fixtures or facilities in ferry terminals must comply with Section 21.1 if a Prescriptive Solution is intended.

21.1 Compliance with Australian Standard — premises and infrastructure

Controls must comply with AS 1428.1 (2001) Clause 11.

Premises, except premises to which the Premises Standards apply

Infrastructure, except airports that do not accept regular public transport services

Clause 11 of AS 1428.1-2001 does not specify control button dimensions or feedback signals that help people with vision or hearing impairments know when a button has been activated. A co-designed Equivalent Access Solution can provide a better outcome. Various Australian Standards are referenced in the DSAPT-2002 and must be used to meet the Prescriptive Solutions. However, alternative standards or products may be used if they support an Equivalent Access Solution that is equal to or better than the Prescriptive Solution. Co-design is the preferred approach for developing these solutions. Superseded

Australian Standards in DSAPT-2002 are:

- AS 1428.1-2001 *Design for access and mobility Part 1: General requirements for access — New building work*
- AS 1428.4-1992 *Design for access and mobility, Part 4: Tactile ground surface indicators for the orientation of people with vision impairment*
- AS 1735.12-1999 *Lifts, escalators and moving walks, Part 12: Facilities for persons with disabilities*, and
- AS 2899.1-1986 *Public information symbol signs. Part 1: General information signs*.

Preferred current editions are:

- AS 1428.1-2021 *Design for access and mobility Part 1: General requirements for access—New building work*
- AS 1428.4.1-2009 *Design for access and mobility Part 4.1 Means to assist the orientation of people with vision impairment—Tactile ground surface indicators*
- AS 1735.12-2020 *Lifts, escalators and moving walks Part 12 Facilities for persons with disabilities (EN 81-702018, MOD)*, and
- ISO 7001-2007 *Graphical symbols — Public information symbols*.

AS 3856.1 is included in list of Australian Standards in the DSAPT-2002. However, it is not easily applied to gangplanks, as it assumes a flat-profile ramp that is permanently or temporarily attached to a vehicle. Gangplanks require a gentle convex profile to maintain contact between two dynamic surfaces – —the ferry deck and the pontoon deck. They also require handrails and guardrails to comply with the *National Standard for Commercial Vessels, Part C – Design and construction, Section 1 – Arrangement, accommodation and personal safety*.

- AS/NZS 3856.1-1998 *Hoists and ramps for people with disabilities — Vehicle-mounted, Part 1: Product requirements*

Gangplanks should be co-designed through an Equivalent Access process to address their unique stability and safety requirements.

Figure 101
Priority seating signage, Teneriffe ferry terminal

Could be better: Seating has arm rests, back rests, and signage, however there is no braille or tactile equivalent.

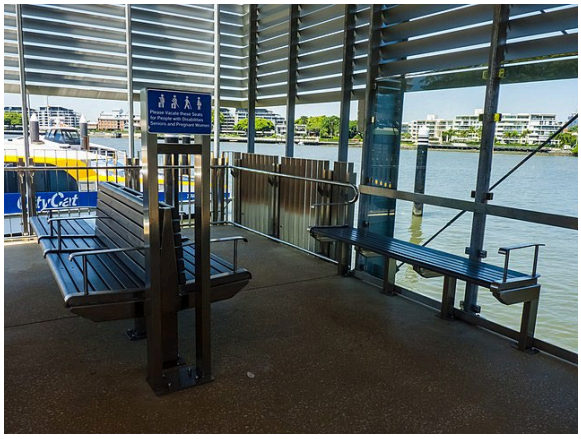


Figure 102
Priority seating layout, Teneriffe ferry terminal

Good practice: Seating has signage, arm rests, back rests, under seat clearance, and a range of seating options.

Figure 103
Auto Priority seating, South Bank ferry terminal

Good practice: Signage has braille and tactilce equivalents. This helps potential occupants know this is a seat intended for them.

Figure 104
Priority seating, South Bank ferry terminal

Good practice: Seating has signage, armrests, backrests, under seat clearance, and a range of seating options.

Figure 105
Auto Priority seating, QUT Gardens Point ferry terminal

Good practice: Seating has arm rests, backrests, signage and under seat clearance.

Figure 106
Auto Priority seating, Riverside ferry terminal

Could be better: Seating is signed, but no arm rests, back rests or diversity of seating is provided.

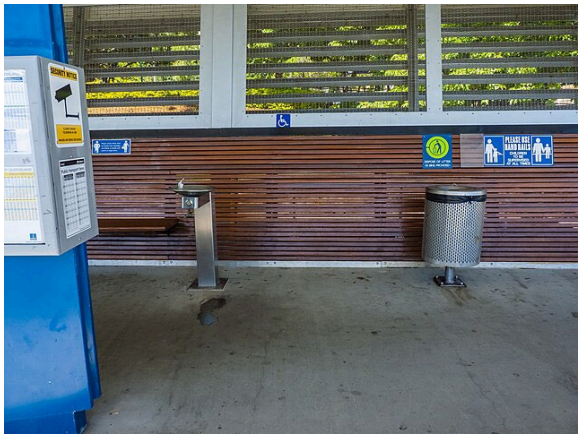


Figure 107
Allocated space, Mowbray Park ferry terminal

Could be better: Sufficient space is provided, however having bins and water fountain located next to the seating is not ideal. Signage could also be clearer.

Figure 108
Allocated space, Apollo Road ferry terminal

Good practice: Sufficient space is provided next to seating, enabling mobility device users to sit with travelling a companion. Signage is provided.

Figure 109
Allocated spaces, Teneriffe ferry terminal

Good practice: Sufficient space is provided next to seating, enabling mobility device users to sit with a travelling companion. Co-location of multiple allocated spaces is okay.

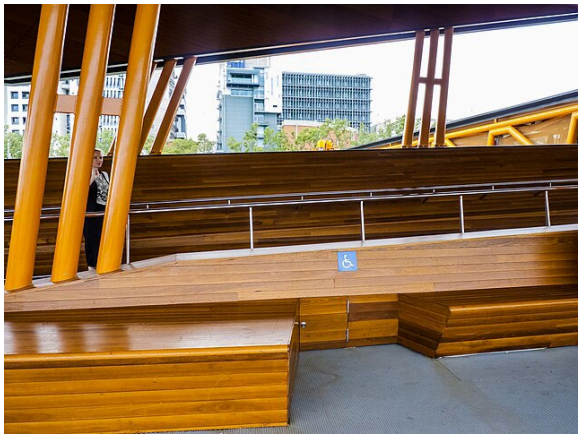


Figure 110
Allocated space, QUT Gardens Point ferry terminal

Good practice: Sufficient space is provided next to seating, enabling mobility device users to sit with a travelling companion. Signage is provided.

10.3 Further guidance

This section summarises further guidance relating to ferry terminal precincts.

10.3.1 Public Transport Infrastructure Manual

The PTIM outlines best practice planning and design principles for public transport infrastructure. It defines the key elements of quality public transport facilities, supports the evaluation of existing infrastructure, and serves as a design tool for new developments within the TransLink network. The relevant PTIM chapter PTIM:

- Chapter 8: *Ferry terminal infrastructure*

10.3.2 Guidelines on application of the Premises Standards

The *Premises Standards Guidelines* assist in interpreting the Premises Standards.

Part numbers in the Guidelines directly match those in the Premises Standards, making cross-referencing straightforward.

10.3.3 Disability Standards for Accessible Public Transport Guidelines 2004 (No. 3)

The *DSAPT Guidelines* support interpretation of the DSAPT-2002. While they do not have legal standing, they provide useful information and commentary about the DSAPT's requirements and specifications. Part numbers in the Guidelines directly match those in the DSAPT-2002, making cross-referencing straightforward.

10.3.4 The Whole Journey: A guide for thinking beyond compliance to create accessible public transport journeys

The *DSAPT Guidelines* (Section 1.8) clarify that any matter not directly addressed by DSAPT-2002 is subject to the DDA.

1.8 Issues not dealt with by Disability Standards

If the Disability Standards do not deal with an issue in relation to public transport, the requirements of the Disability Discrimination Act 1992 apply in relation to the issue.

The Australian Government's *The Whole Journey* guide encourages policy makers, planners, designers, builders, building surveyors and certifiers, and public transport operators and providers to think beyond compliance. It promotes a focus on people's accessibility needs across their entire journey, rather than just the physical or governance boundaries of infrastructure and services.

10.3.5 Australian Standards

In addition to the Australian Standards cited for compliance with the Premises Standards and DSAPT-2002, the following Standards should be considered when applying Deemed-to-Satisfy or Prescriptive Solutions:

- AS/NZS 1158.3.1-2020: *Lighting for Roads and Public Spaces: Pedestrian Area (Category P) Lighting: Performance and Design Requirements*
- AS 1428.1-2021 *Design for access and mobility Part 1: General requirements for access—New building work*
- AS 1428.4.2-2018 *Design for access and mobility, Part 4.2: Means to assist the orientation of people with vision impairment — Wayfinding signs*
- AS 1428.5-2021 *Design for access and mobility Part 5 Communication for people who are deaf or hearing impaired*
- AS/NZS 1680.2.1-2008 *Interior and workplace lighting, Part 2.1: Specific applications — Circulation spaces and other general areas*
- AS 1735.12-2020 *Lifts, escalators and moving walks Part 12 Facilities for persons with disabilities (EN 81-702018, MOD)*
- AS 3962-2020 *Marina design*
- AS/NZS 4282-2019 *Control of the obtrusive effects of outdoor lighting*
- AS 4586-2013 *Slip resistance classifications of new pedestrian surface materials*
- AS 4663-2013 *Slip Resistance Measurements of Existing Pedestrian surfaces*
- AS EN 301 549-2020 *Accessibility requirements for ICT products and services*
- SA HB 198-2014 *Guide to the specification and testing of slip resistance of pedestrian surfaces*, and
- ISO 7001-2007 *Graphical symbols — Public information symbols*.

10.4 Recommendations for inclusive ferry terminals

Figure 111 Inclusive ferry terminals design recommendations

Subject	Recommendations
General principles	All public areas and facilities at ferry terminals must be accessible to passengers with disability, in line with Universal Design principles and anti-discrimination legislation. Accessibility benefits a wide range of users, including those with luggage, small children, and older adults. Avoid creating "disabling environments" where facility design imposes unnecessary barriers.
Universal Design considerations	Minimise gangway gradients at low tide to support all passengers. Provide accessible information in multiple formats (e.g. for sensory, cognitive, and neurodivergent disabilities). Ensure priority seating is clearly signed and includes features such as armrests and backrests. Allocate spaces next to seating so people using mobility device can sit and wait with companions.
Gangplanks	Gangplanks bridge the gap between the ferry deck and the pontoon, accommodating two moving surfaces. Design requirements include: • Gentle convex profiles • Handrails and fall barriers • Articulated designs for easy storage. Use Equivalent Access Solutions developed through co-design to meet these unique requirements.
Gangways	Gangways (ramps connected to pontoon wharves) must accommodate changing gradients due to tides. Design considerations include: • Calculate gradients using Lowest Astronomical Tide (LAT) as the datum point. • Include auto-levelling landings to maintain compliance across tidal ranges.
Pontoons	Pontoons must remain stable in dynamic environments, such as wind, waves, vessel wash. Raised sections can help reduce gangway gradients at low tide. Refer to AS 3962-2020 *Marina Design* for guidance on pontoon stability.

Subject	Recommendations
Compliance considerations	Ferry terminals are public places and must comply with the DDA, including Sections 23 (*Access to premises*) and 24 (*Goods, services, and facilities*). The DDA applies where the Premises Standards or DSAPT-2002 do not cover a matter. The *Disability (Access to Premises – Buildings) Standards* 2010 apply to structural elements of ferry terminals (Class 9b or Class 10 premises). Compliance can be achieved through Performance Solutions (preferred for innovative and improved outcomes) or Deemed-to-Satisfy Solutions. Use the latest editions of referenced Australian Standards to support futureproofing. The DSAPT apply to non-structural elements and systems, including boarding points, waiting areas, seating, fare systems, and platform amenities. Gangways and pontoons have specific requirements for gradients and landings. Waiting areas must include priority seating and allocated spaces for mobility aids.

11. Bus stops

11.1 Overview

Bus stops are the most common type of public transport infrastructure. There are over 17,000 active bus stops in Queensland, with local Councils playing a key role in their maintenance and upgrades. This number reflects the high demand for bus services. The departments *Annual Report 2022–23* highlights the popularity of buses in Southeast Queensland compared to other transport modes.

Modality	Patronage
Bus	97.18 million
Rail	41.45 million
Tram	10.39 million
Ferry	4.23 million
Southeast Queensland total	153.25 million

11.1.1 Challenging locations

Historically, many bus stops were installed in public road reserves with steep terrain, narrow verges, or roads lacking formed kerb and channels. These conditions make DSAPT compliance difficult or impossible. Altering the slab gradient along the kerb face affect the use of the bus boarding ramp, especially if slab gradient differs from the road gradient. However, adjusting the slab crossfall may be possible – particularly where the slope falls toward the kerb – through careful excavation and retention. Where the slope falls away

from the kerb, the boarding point can be raised and fenced. Where possible, relocating the bus stop to a more suitable site should be considered. Solutions should be co-designed through the Equivalent Access process.

Figure 112
Bus stop on unsealed road verge, Marine Parade, Arcadia, Magnetic Island

Could be better: The bus stop shelter does not connect to the boarding point by an access path. Shade also does not cover the seat.

Figure 113
Bus stop on unsealed road verge, Main Myrtletown Road, Brisbane Airport

Could be better: The bus stop does not have a kerb, hardstand, seating or TGISs. The stop does not connect to a boarding point.

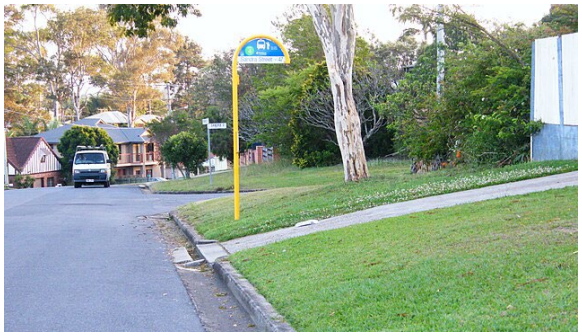


Figure 114
Bus stop with steep crossfall, Picadilly Street, Geebung

Could be better: The bus stop does not have a hardstand, seating or TGISs. It also does not connect to the local footpath network.

Figure 115
Bus stop located with steep crossfall, Edinburgh Castle Road, Wavell Heights

Could be better: The bus stop has a steep crossfall, is located on a hill, and too small to support accessible boarding.

Figure 116
Footpath at higher grade than roadway, Ellison Road, Geebung

Could be better: Although a ramp is provided, the hardstand is too small to support accessible boarding.

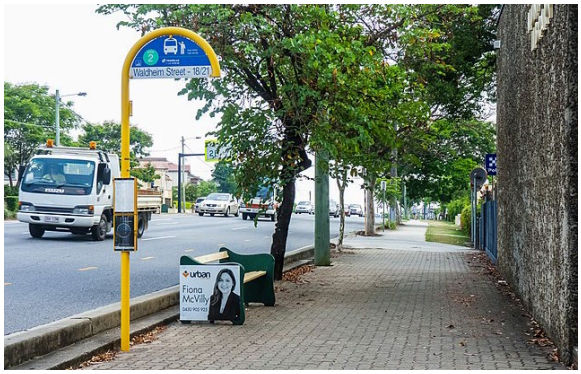


Figure 117
Footpath at lower grade than roadway, Ipswich Road, Annerley

Could be better: The step down from the kerb makes using the boarding ramp extremely difficult.

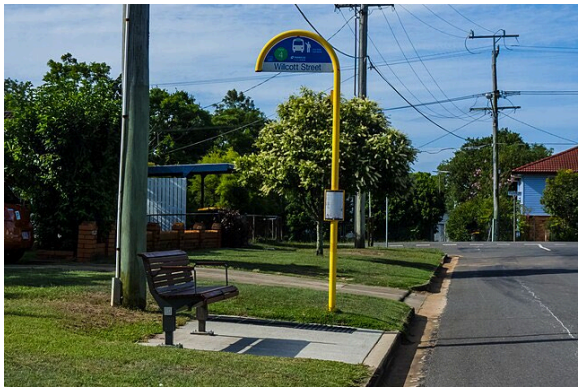


Figure 118
Isolated boarding point, Wilcott Street, Geebung

Could be better: The boarding point does not connect to the local footpath network and is not shaded.

Figure 119
Narrow footpath at bus stop, Railway Parade, Geebung

Could be better: The narrow footpath impacts manoeuvring area dimensions and accessible boarding.

Figure 120
Steep road gradient at bus stop, Gladstone Road, Highgate Hill

Could be better: The steep grade of the road makes safe use of the bus boarding ramp extremely difficult.

Figure 121
Narrow footpath at bus stop, Gladstone Road, Highgate Hill

Could be better: The narrow footpath and structural elements constrain the manoeuvring area dimensions and impact accessible boarding.

11.2 Compliance requirements

This section summaries the legislative requirements for bus stop precincts.

11.2.1 Disability Standards for Accessible Public Transport 2002

Bus stops are classified as infrastructure and are therefore regulated by DSAPT, not the Premises Standards – even when located within premises such as shopping centres. Relevant DSAPT parts and sections for bus stops are:

- Part 2 *Access paths*
- Part 3 *Manoeuvring areas*
- Part 4 *Passing areas*
- Part 6 *Ramps*
- Part 7 *Waiting areas*
- Part 8 *Boarding*
- Part 9 *Allocated space*
- Part 10 *Surfaces*
- Part 11 *Handrails and grabrails*
- Part 14 *Stairs*
- Part 16 *Symbols*

- Part 17 *Signs*
- Part 18 *Tactile ground surface indicators*
- Part 20 *Lighting*
- Part 23 *Street furniture*, and
- Part 27 *Information*.

Under DSAPt-2002 bus stops fall into two categories: waiting areas (with seating) or boarding points (no seating). The *Australian Human Rights Commission accessible bus stops guidelines* clarify this distinction:

> 3.5 This Guideline is also based on the view that a basic accessible bus stop is not required to include a 'waiting area'.
>
> 3.6 However, if bus stations and interchanges and other major facilities such as BRT platforms have seating provided, they are likely to meet the definition of a 'waiting area' in the DSAPT.
>
> 3.7 A bus stop is a piece of infrastructure which functions as a boarding point. Requirements for a basic boarding point are set in Section 4 of this Guideline.

Basic stops are considered boarding points only, while regular, intermediate, and premium stops are considered waiting areas because they have seats. Some facilities near bus stops – such as connecting access paths – are not covered by DSAPT-2002 and instead fall under the DDA. A well-designed bus stop may still be inaccessible if it lacks a compliant access path. *Part 27 Information* in DSAPT-2002 is particularly challenging at unstaffed locations. Sections 27.1 and 27.2 are more easily complied with at staffed locations. However, most bus stops are unstaffed, with drivers being the only personnel present. While drivers can and do provide brief information, detailed explanations may affect service reliability.

27.1 Access to information about transport services

General information about transport services must be accessible to all passengers.

27.2 Direct assistance to be provided

If information cannot be supplied in a passenger's preferred format, equivalent access must be given by direct assistance.

Information such as timetables, service updates, and disruption notices are often not accessible to all passengers. Many people with vision impairments or print disabilities use smartphones to access information through NFC tags or QR codes on blades or J-poles Call centres also support passengers who cannot access printed information. However, not all people own smartphones, and not all smartphone users are competent using apps. Further innovation is needed to ensure equal access to service-related information – especially during service disruptions. Translink run a range of projects and initiatives to improve customer experience on the network. Trials relevant to bus stops include the Braille, tactile and QR-coded bus stop numbers, as well as E-paper digital bus stops, which have audio announcements for next services.

11.2.2 Disability Standards for Accessible Public Transport Guidelines 2004 (No. 3)

The DSAPT Guidelines support interpretation of DSAPT-2002. While they do not have legal standing, they provide helpful commentary and explanatory material for each part of the DSAPT.

11.3 Further guidance

This section summarises further guidance relating to bus stop precincts.

11.3.1 Public Transport Infrastructure Manual

The PTIM provides consistent principles and design guidelines for bus stops across the TransLink network. It supports DSAPT-2002 compliance and considers different bus stop designs based on usage. Relevant PTIM chapters and appendices are:

- Chapter 5: *Bus stop infrastructure*
- Appendix 5A: Ex*ample scenarios for the application of the transport standards*
- Appendix 5B: *Layout and technical drawings*
- Appendix 5B: *Bus stop technical drawings*

TransLink categorises bus stops based on demand, location, and function (land use type, attractors, interchanges, and corridors). These categories are described in Section *5.3.2 Bus stop categories*:

- Minimum boarding point—very low customer demand, or at outbound stops where most passengers alight
- Regular stop—low customer demand
- Intermediate stop—moderate customer demand, and
- Premium stop—high customer demand.

Figure 122
Minimum boarding point, Ellison Road, Geebung

Good practice: Minimum boarding point connects to the footpath and has a hardstand, J-pole and TGSIs.

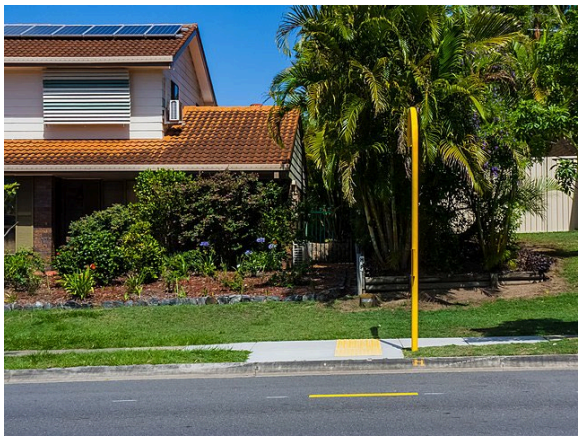


Figure 123
Minimum boarding point, Ridgewood Road, Algester

Good practice: Minimum boarding point connects to the footpath and has a hardstand, J-pole and TGSIs.

Figure 124
Regular bus stop, Murphy Road, Zillmere

Good practice: Regular bus stop connects to the footpath and has a hardstand, J-pole, TGSIs, and seating.

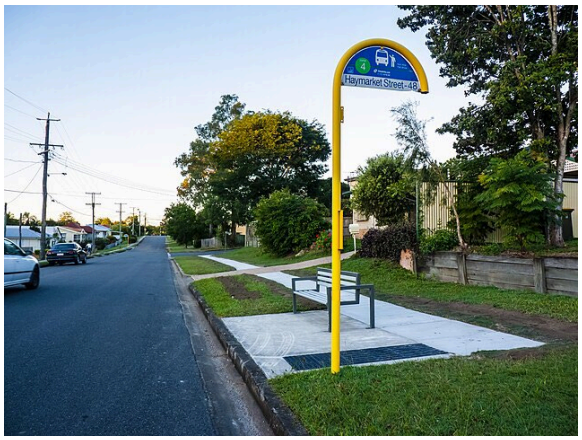


Figure 125
Regular bus stop, Piccadilly Street, Geebung

Good practice: Regular bus stop connects to the footpath and has a hardstand, J-pole, TGSIs, and seating.

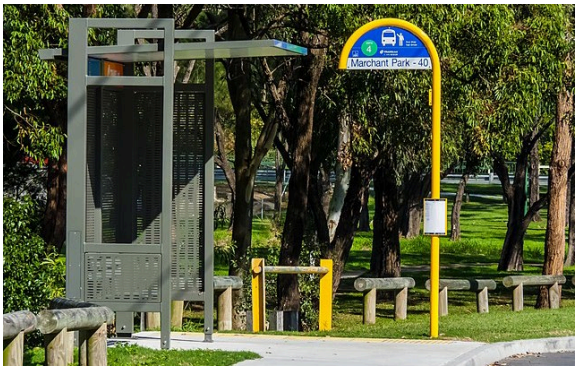


Figure 126
Intermediate bus stop, Murphy Road, Chermside

Good practice: Intermediate bus stop connects to the footpath and has a hardstand, J-pole, TGSIs, seating, and shelter.

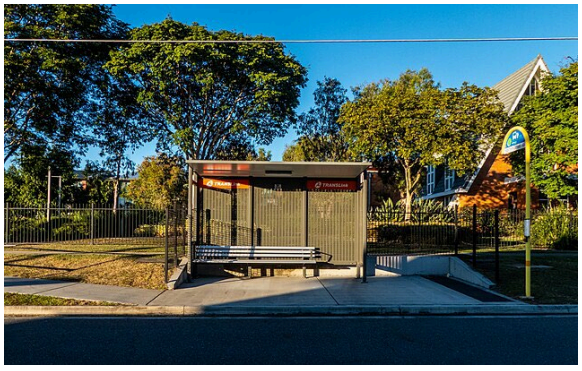


Figure 127
Intermediate bus stop, Halsmere Street, Geebung

Good practice: Intermediate bus stop connects to the footpath and has a hardstand, J-pole, TGSIs, seating, and shelter.

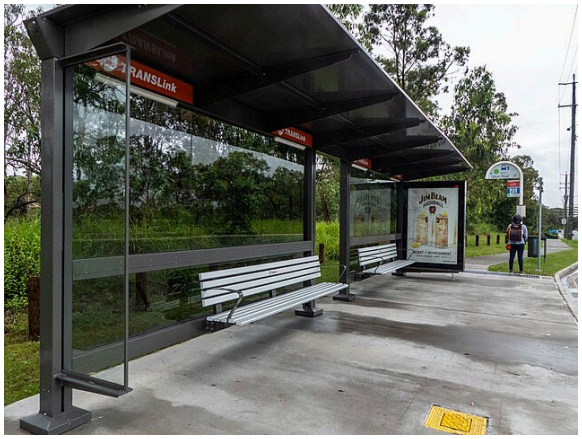


Figure 128
Premium bus stop, Murphy Road, Chermside

Good practice: Intermediate bus stop connects to the footpath and has a hardstand, J-pole, TGSIs, seating, and larger shelter.

Figure 129
Adshel bus stop, Brunswick Street, New Farm

Good practice: Bus stop connects to the footpath and has a hardstand, J-pole, TGSIs, seating, and glass shelter.

11.3.2 Transport and Main Roads Standard Drawings

The department provides a series of Standard Drawings that offer guidance on preferred treatments of bus stops. These drawings support consistent and accessible design across the network.

11.3.3 Manual of uniform traffic control devices

On-street bus stops are subject to parking regulations, which are typically enforced by local authorities. Enforcement requires correct signage, as detailed in AS 1742.11 Clause 3.3.2 Type of control:

- AS 1742.11-2016 *Manual of uniform traffic control devices Part 11: Parking controls*

Queensland specific amendments to AS 1742.11:2016 are published by the department.

11.3.4 Australian Human Rights Commission accessible bus stops guidelines (December 2010)

The Australian Human Rights Commission has published a guideline to support compliance of bus stops with DSAPT-2002. This consolidates relevant DSAPT-2002 material and provides interpretive guidance to assist with understanding and applying the requirements.

11.3.5 Local Councils

Local Councils play a key role in the design, installation and maintenance of bus stop infrastructure. Councils may have additional design and performance requirements that complement DSAPT-2002. For example, Brisbane City Council is a major installer and asset owner of bus stops. It has developed Brisbane Standard Drawings (BSD) that specify layouts for different classes of bus stops. These designs align with DSAPT-2002 requirements and reflect the hierarchies of use across the network. Relevant BSD drawings include:

- BSD-2103 - *Bus stop premium*

- BSD-2104 - *Intermediate bus stop - Sheet 1 of 3*
- BSD-2104 - *Intermediate bus stop - In centres - Sheet 2 of 3*
- BSD-2104 - *Intermediate bus stop - constrained site - Sheet 3 of 3*
- BSD-2105 - *Regular bus stop - without seat - Sheet 1 of 3*
- BSD-2105 - *Regular bus stop - with seat - Sheet 2 of 3*
- BSD-2105 - *Regular bus stop - in centres - Sheet 3 of 3*
- BSD-2107 - *oOh!media mini boulevard bus shelter*
- BSD-2108 - *oOh!media boulevard bus shelter*, and
- BSD-2109 - *TransLink standard bus shelter typical layout*.

11.4 Recommendations for inclusive bus stops

Figure 130 Inclusive bus stops design recommendations

Subject	Recommendations
General principles	Bus stops are the most common type of public transport infrastructure, with over 17,000 active bus stops in Queensland. Local Councils play a key role in maintaining and upgrading bus stops to meet demand. Ensure bus stops connect to the local footpath network and include hardstands, TGSIs, and shelters. Provide adequate manoeuvring areas for accessible boarding.
Challenging locations	Bus stops on steep terrain, narrow verges, or unformed kerbs can present compliance challenges. Use co-design processes to address these challenging and support compliance wherever possible. Technical solutions may include: • Adjusting slab crossfalls through excavation or retention work. • Raising and fencing boarding points where slopes fall away from the kerb. • Relocating stops to more suitable sites, co-designed through the Equivalent Access process.

Subject	Recommendations
Compliance considerations	Bus stops are regulated under DSAPT and fall into two categories: • Boarding points: Minimum stops without seating. • Waiting areas: Stops with seating and additional amenities. Relevant DSAPT parts include: • Part 2: *Access paths* • Part 8: *Boarding* • Part 18: *Tactile ground surface indicators (TGSIs)*, and • Part 27: *Information*. Access paths connecting bus stops to surrounding precincts are often regulated under the DDA, rather than DSAPT.
Information accessibility	Service-related information – such as timetables, service updates, and disruptions notices - is often not accessible to passengers with vision impairments or print disabilities. Innovative solutions include: • NFC tags and QR codes • e-paper digital bus stops with audio announcements, and • call centres for passengers who do not use smartphones or apps.

12. Lighting

12.1 Overview

Effective lighting within public transport infrastructure, premises and conveyances is essential for providing safe, comfortable and accessible journeys for all passengers. This is particularly important for many people with disability, who may rely on well-designed lighting to access public transport and its amenities safely and confidently. There is no single lighting approach that will meet every individual need. However, there are general principles that support most people. Public transport precincts also create unique challenges. Unlike many other premises, they are often open to the elements and subject to changes in natural light throughout the day and in different weather conditions. They must also accommodate moving vehicles and vessels, balancing passenger and driver safety with operational requirements. In addition, public transport precincts must integrate with surrounding urban and suburban environments, which may include nearby residences and buildings with competing lighting needs.

12.1.1 Task and amenity lighting

Task lighting should be provided wherever people need to perform specific activities such as reading signs and timetables, operating controls, interacting with staff at counters, or boarding and alighting from vehicles or vessels. Task lighting is usually focussed and brighter than surrounding amenity lighting, but it should not create visual discomfort. Clause 19.1 of AS 1428.2-1992 recommends illumination levels between 150 and 300 lux for common task locations. Amenity lighting applies to general areas such as access paths, platforms, pontoons, waiting areas, and car parks. As a minimum, it should comply with the relevant standards or guidelines for each space. A 'layered' approach is best, providing light from multiple sources to reduce deep shadows. Deep shadows can create safety concerns, as they may appear to be hiding places or be misinterpreted as obstacles by people with vision or cognitive disability.

12.1.2 Uniformity of illuminance

Uniformity of illuminance (how evenly light is distributed) is a key factor in lighting quality. People who adjust slowly to changing light levels benefit from consistent illumination and gradual changes between lighting conditions. Abrupt changes –from light to dark or dark to light – can cause temporary blindness or dazzle, especially for older people or people with vision or cognitive impairments. Similarly, sharp contrasts and hard shadows at the edges of bright areas may be perceived as unsafe. Illuminance uniformity is measured differently for indoor and outdoor locations:

- U1 = the ratio of the minimum to average illumination levels, as defined in AS/NZS1158.3.1-2020 *Lighting for Roads and Public Spaces: Pedestrian Area (Category P) Lighting: Performance and Design Requirements*
- U2 = the ratio of the maximum to average illumination levels, as defined in AS/NZS 1680.1-2006 *Interior and workplace lighting, Part 1: General principles and recommendations*

12.1.3 Glare

Glare from reflective surfaces can cause both discomfort and reduced visibility. To minimise glare, low sheen or matt surface finishes should be used on walls, pavements, floors, fixtures and signs. This benefits most people, including those with low vision, visual sensitivity, or cognitive disability. Light sources should also be positioned to prevent them shining directly into people's eyes, as this can cause discomfort or impair vision. Lamps should be used to avoid causing unnecessary glare.

12.1.4 Lighting temperature and colour

Lighting colour temperature is important for many groups, including people with vision impairment and people on the autism spectrum. Task lighting in public transport facilities should use a colour temperature between 3000 to 3500 kelvins. CIE 227:2017 *Technical Report—Lighting for Older People and People with Visual Impairment in Buildings* provides detailed guidance on appropriate colour choices. Other colour temperatures may be suitable for amenity lighting, as outlined in the IPWEA *Model Public Lighting Strategy*, Section 2.4.

Figure 131
Lighting at North Quay ferry terminal pontoon, Brisbane

Good practice: Uniform illumination at the ferry terminal waiting area and boarding point.

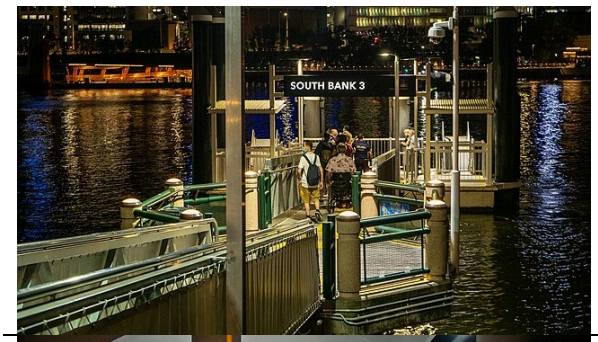


Figure 132
Lighting at South Bank 3 ferry terminal, South Brisbane

Good practice: Uniform illumination at the ferry gangway, pontoon, and boarding point.

Figure 133
Lighting at Sydney Street ferry terminal gangplank, New Farm

Good practice: Uniform illumination at the boarding point.

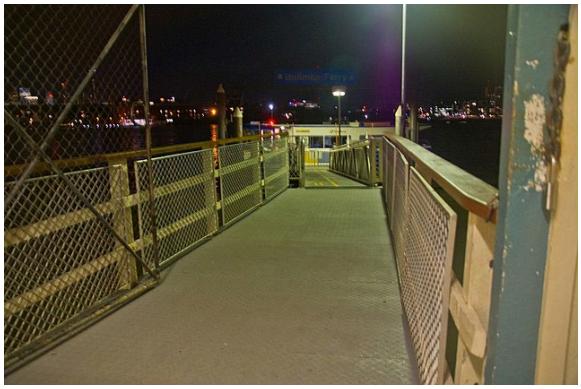


Figure 134
Lighting at Bulimba ferry terminal, Bulimba

Good practice: Uniform illumination, at the gangway and jetty.

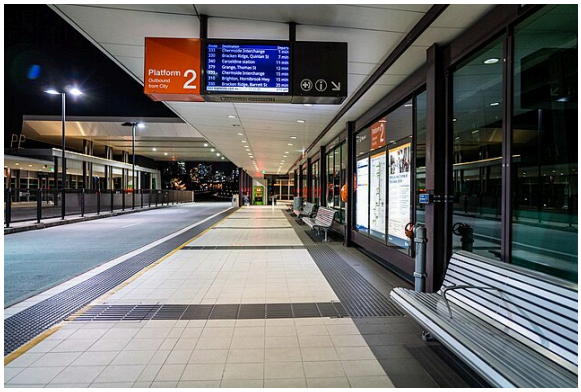


Figure 135
Lighting at RBWH bus station, Herston

Good practice: Uniform illumination at platform 2's waiting area and boarding point.

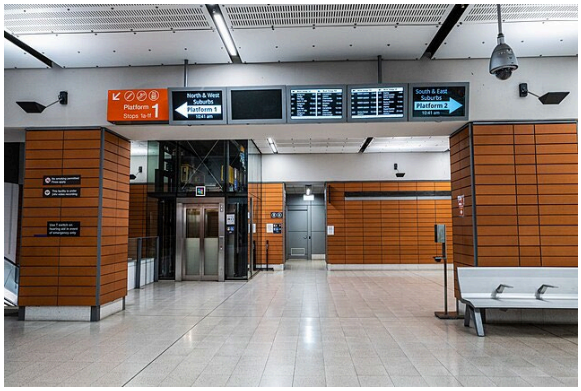


Figure 136
Lighting at King George Square bus station, Brisbane

Good practice: Uniform illumination at the station concourse.

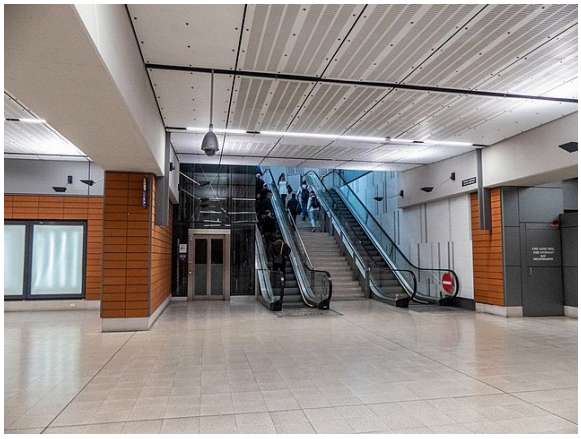


Figure 137
Lighting at King George Square bus station, Brisbane

Good practice: Uniform illumination at the station concourse, escalators, and stairs.

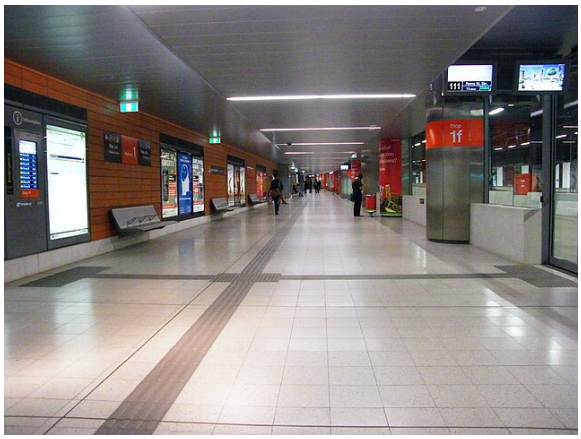


Figure 138
Lighting at King George Square bus station, Brisbane

Good practice: Uniform illumination at platform 1's waiting area and boarding point.

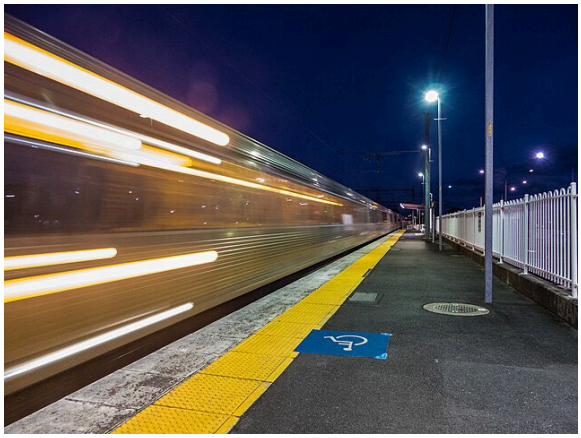


Figure 139
Lighting at Sunshine rail station, Geebung

Good practice: Uniform illumination at platform 1's assisted boarding point

Figure 140
Lighting at Sunshine rail station, Geebung

Good practice: Uniform illumination at platforms 2 and 3's waiting areas and boarding points.

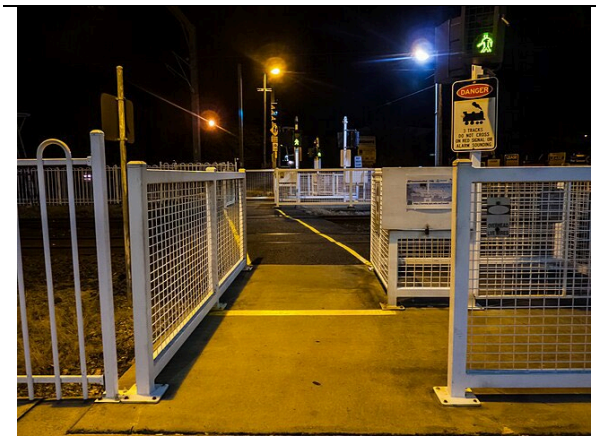


Figure 141
Lighting at Sunshine rail station level crossing, Geebung

Good practice: Uniform illumination at Sunshine rail station level crossing is critical for safety.

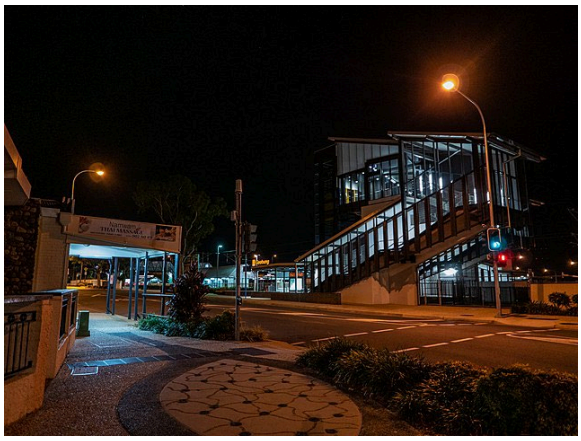


Figure 142
Lighting at Geebung rail station precinct, Geebung

Good practice: Uniform illumination throughout the rail station precinct.

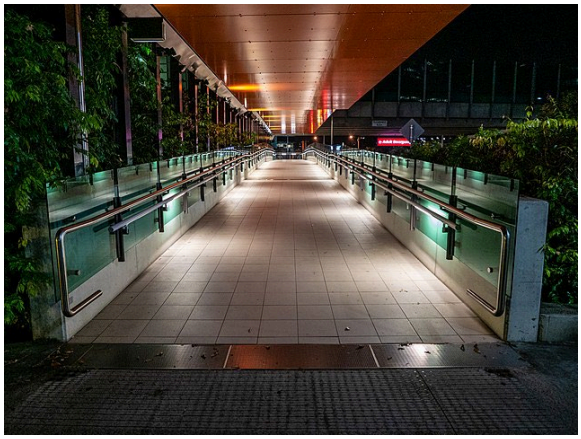


Figure 143
Lighting at RBWH bus station, Herston

Could be better: Non-uniform illumination at the station access ramp is challenging for people with vision impairments.

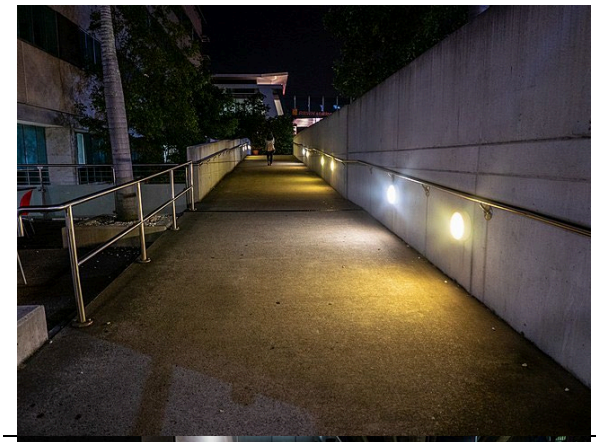


Figure 144
Lighting at RBWH bus station, Herston

Could be better: Non-uniform illumination and glare from inappropriately placed lamps at the station access ramp.

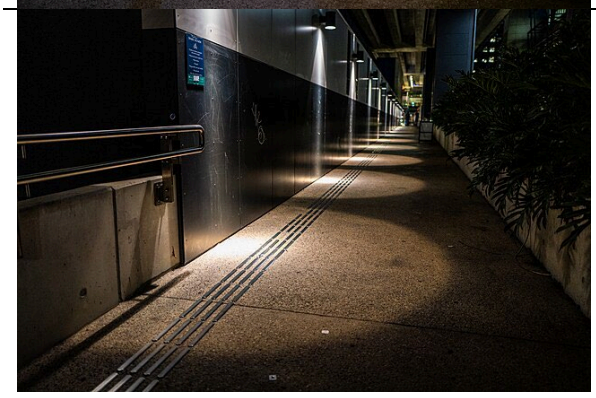


Figure 145
Lighting at RBWH bus station, Herston

Could be better: Non-uniform illumination at the station TGSI trail creates a ‘pooling’ effect.

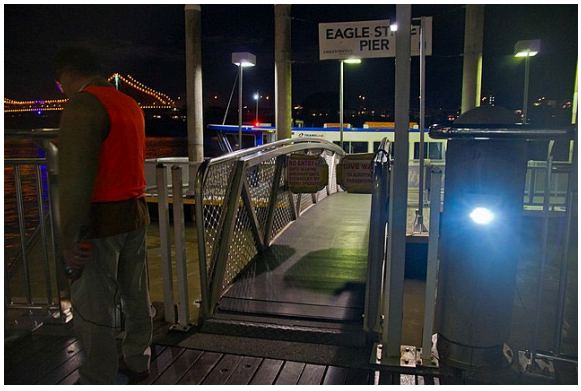
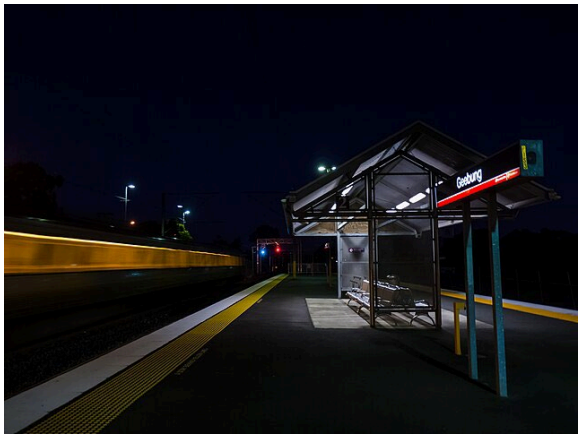


Figure 146
Lighting at Eagle Street Pier ferry terminal, Brisbane

Could be better: Strong glare from low mounted lamp at the ferry terminal gangway.



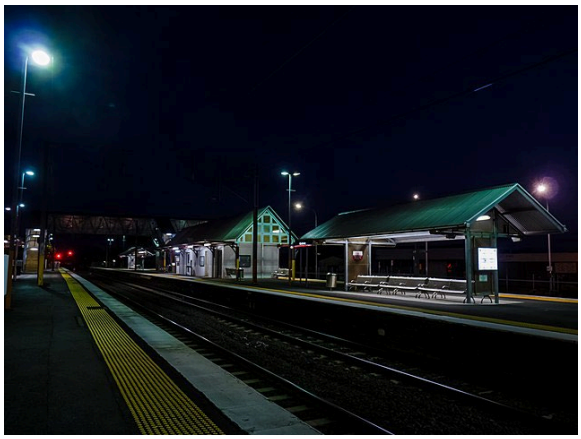


Figure 147
Lighting at Geebung rail station, Geebung

Could be better: Non-uniform illumination on all platforms impacts certain vision types and CPTED for all users.

12.2 Compliance requirements

This section summarises the legislative requirements for lighting public transport precincts.

12.2.1 Disability (Access to Premises — Buildings) Standards 2010

Lighting of public transport premises is covered in in Section H2.12 of the Premises Standards:

> **H2.12 Lighting**
>
> Any lighting provided must comply with minimum levels of maintenance illumination for various situations shown in the notes to clause 19.1 of AS 1428.2.

However, the illumination levels recommended in Clause 19.1 of AS 1428.2-1992 have proven impractical – and in some cases disadvantageous – for amenity lighting in public transport environments. More suitable guidance is available in other documents and should be considered as Performance Solutions.

12.2.2 Disability Standards for Accessible Public Transport 2002

Lighting for public transport premises and infrastructure is addressed in in Section 20.1 of DSAPT-2002:

20.1 Illumination levels — premises and infrastructure

Any lighting provided must comply with minimum levels of maintenance illumination for various situations shown in the notes to AS 1428.2 (1992) Clause 19.1, Illumination levels.

Premises except premises to which the Premises Standards apply

Infrastructure

As with Premises Standards, the illumination levels Clause 19.1 of AS 1428.2 -1992 are often unsuitable for amenity lighting. Alternative guidance should be considered as Equivalent Access Solutions. Additional insights are available in the DSAPT-2002 *Stage 2 Consultation Regulation Impact Statement*, which includes relevant commentary on lighting regimes.

12.3 Further guidance

This section summarises further guidance relating to lighting in public transport precincts.

12.3.1 Austroads

Austroads publishes several Guidelines relevant to lighting in public transport precincts, which is replicated in Queensland's RPDM:

- RPDM Volume 3 Part 4: *Intersections and Crossings - General*
- RPDM Volume 3 Part 6A: *Paths for Walking and Cycling*
- RPDM Volume 3 Part 6B: *Roadside Environment*

Where a pedestrian path runs alongside a carriageway, the road lighting should also support the path. Austroads Guidelines reference several Australian Standards. The most relevant current editions include:

- AS/NZS 1158.1.1-2022 *Lighting for Roads and Public Spaces: Vehicular Traffic (Category V) lighting: Performance and Design Requirements*
- AS/NZS 1158.1.2-2010 *Lighting for Roads and Public Spaces: Vehicular Traffic (Category V) lighting: Guide to Design, Installation, Operation and Maintenance*
- AS/NZS 1158.3.1-2020 *Lighting for Roads and Public Spaces: Pedestrian Area (Category P) Lighting: Performance and Design Requirements*, and
- AS/NZS 1158.4-2015 *Lighting for Roads and Public Spaces – Lighting of Pedestrian Crossings*.

12.3.2 Australian Standards

Public transport premises and infrastructure may include enclosed, unenclosed or mixed-

use zones.

- Enclosed zones are underground or fully covered, with little or no natural light. These include underground rail or bus stations, deep cuttings, behind high walls with associated roofing, or located within other premises.
- Unenclosed zones are exposed to surrounding areas and may produce nuisance light. Examples include bus stop shelters, ferry terminals, covered waiting areas, and open-air car parks.

Recommended standards:

- Enclosed zones:
  AS/NZS 1680.2.1-2008 *Interior and workplace lighting*, Part 2.1: *Specific applications — Circulation spaces and other general areas*
- Unenclosed zones:
  AS/NZS 1158.3.1-2020 *Lighting for Roads and Public Spaces: Pedestrian Area (Category P) Lighting: Performance and Design Requirements*
- All outdoor lighting:
  AS/NZS 4282-2019 *Control of the obtrusive effects of outdoor lighting*.

These Standards should be considered the baseline for Performance and Equivalent Access Solutions. However, lighting is a nuanced topic and is best addressed through co-design rather than relying solely on compliance.

> At present, illuminance (the measure of light falling on a surface, or Lux) is the only unit of measurement required to comply with the P Categories of the Australian Standards. Based on the results, it appears other metrics such as luminance (light bouncing off a surface and hitting the observer's eye) should be considered too. This will ensure the context of material finishes and surface intensity is taken into account for how the eye perceives space.

The value of co-designing a lighting regime cannot be overstated. Many lighting needs in public transport environments are not captured in formal standards but are clearly experienced by the public.

12.3.3 IPWEA SLSC Model Public Lighting Strategy; Street Lighting and Smart Controls (SLSC) Programme 2020

Institute of Public Works Engineering Australasia (IPWEA) is the peak body for public works professionals across Australia and New Zealand. With support from the SLSC Program Partners, IPWEA developed the Model Public Lighting Strategy. This foundational document sets minimum requirements for lighting assets and provides a framework for approving, installing and commissioning new lighting designs. The strategy aims are to be:

- Technically robust and current
- Compatible with AS/NZS standards, while addressing gaps
- Written in clear, accessible language
- Suitable for both large and small projects in urban and rural areas
- Customisable to meet local co-design needs, and
- Freely available to encourage uptake.

Lighting colour temperature is addressed in Section *2.4 Principles* of the strategy:

> **2.4 Principles**
>
> This strategy is based on the following overarching principles that the organisation has adopted:
>
> - For resident comfort and to minimise potential environmental harm, lighting with a colour temperature of 3000K will be the default in all residential roads, parks and pathways. Lighting with a colour temperature of 4000K will be used in commercial precincts for aesthetic reasons and on main roads where maximising road safety is the priority. The choice of colour temperature in civic and entertainment precincts will be location-specific depending on factors such as the dominant architecture of the precinct. Other colour temperatures may be used in specific circumstances (e.g. to address specific local environmental priorities).

12.3.4 Crime Prevention Through Environmental Design (CPTED)

The CPTED Guidelines recommends lighting that supports surveillance and minimises shadows or glares that may put people at risk. Relevant CPTED principles include:

> 1.11 Design lighting to support surveillance and minimise shadows or glare which might put people at risk (as discussed further in principle 7: Vulnerability and in Chapter Eight).
>
> 7.4 Ensure lighting supports surveillance without creating strong shadows that produce dark places or is so excessive that it interferes with vision or the appropriate amenity of neighbours.

Even well-designed infrastructure may be underused if it is perceived to be unsafe. The issue of overly bright lighting creating dark hiding places is highlighted in an Arup publication focused on perceptions of night safety for women:

> Despite what you might think, brighter lights don't make people feel safer. In fact, our research found a correlation between higher brightness levels of light and unsafe perceptions of space. Brighter lights can create high contrast areas and stark no-go zones that deter people's freedom of movement at night.

Arup also emphasises the importance of co-designing safe lighting regimes:

> Engage with the community and the users of your designs early. Our research has shown the value in amplifying marginalised voices throughout the design process. Getting community feedback within a safe and accessible forum will ensure your designs are accessible to the whole community.

12.4 Recommendations for inclusive lighting

Figure 148 Inclusive lighting design recommendations

Subject	Recommendations
General Principles	Effective lighting is critical for safe, comfortable, and accessible journeys, particularly for people with disability. Public transport precincts present unique challenges, including exposure to changing lighting conditions, integration with surrounding urban environment, and the need to accommodate vehicle and vessel operations. A layered lighting approach helps eliminate deep shadows and improves safety and usability for all passengers. Ensure uniform illumination across waiting areas, boarding points, and access paths.

Subject	Recommendations
	Use auto-levelling lighting in dynamic environments such as ferry terminals. Avoid glare and ensure gradual transitions between lighting zones.
Types of lighting	Task lighting: Focused lighting for specific activities such as reading signs, operating controls, or boarding. Recommended illumination levels: 150–300 lux (AS 1428.2-1992 Clause 19.1). Amenity lighting: General lighting for access paths, platforms, waiting areas, and car parks. Should comply with applicable standards and provide uniform illumination.
Uniformity of Illuminance	Gradual transitions between lighting regimes are essential to avoid temporary blindness or discomfort. Uniformity calculations: • U1: Ratio of minimum to average illumination (AS/NZS 1158.3.1-2020). • U2: Ratio of maximum to average illumination (AS/NZS 1680.1-2006).
Glare	Avoid reflective surfaces and direct light sources that cause discomfort or visual disability. Use low-sheen or matt finishes on walls, pavements, fixtures, and signs.
Lighting Temperature and Colour	Task lighting should have a colour temperature between 3000–3500 kelvins. Refer to CIE 227:2017 Technical Report for lighting recommendations for older people and those with visual impairments.
Compliance considerations	The Disability (Access to Premises – Buildings) Standards 2010 covers lighting for public transport premises in Section H2.12. Illumination levels in AS 1428.2-1992 Clause 19.1 are often impractical; alternative Performance Solutions are recommended. The DSAPT covers lighting for premises and infrastructure in Section 20.1. Equivalent Access Solutions are recommended for practical amenity lighting regimes.

13. Information and communication technologies

13.1 Overview

Information and Communication Technology (ICT) in public transport includes a wide range of systems and tools, such as fare gates, ticketing systems, smartphone apps, near field communication tags, digital information screens, help and assistance phones, passenger information displays, service-related public address system announcements and hearing augmentation systems. To ensure accessibility, ICT must meet the functional performance requirements outlined in Section 4.2 of AS EN 301 549.

13.1.1 Good audio-visual practice

Pre-recoded audio-visual content can reach a wide audience when presented in accessible formats. The *Web Content Accessibility Guidelines* (WCAG) 2.2 AAA should be followed for all audio-visual presentations – whether displayed on digital screens or published online. Examples of good practice include:

- The Commonwealth Department of Infrastructure, Transport, Regional Development, Communications and the Arts has a video incorporating audio, caption and Auslan explaining purpose of DSAPT-2002.
  - What are the Disability Standards for Accessible Public Transport 2002 (Transport Standards)?

  The United States Department of Agriculture Food Safety and Inspection Service has produced an excellent food hygiene video incorporating audio, captioning, and American Sign Language.
  - What is E. coli?

Service-related information can be difficult or impossible to understand if not presented in accessible formats. For example, an audio-only announcement about a platform change or service disruption will not reach Deaf people. Displaying the same announcement on a digital screen alongside the audio allows for Auslan interpretation and ensures broader accessibility.

13.1.2 Alternatives to passenger information text displays

Passenger information displays typically present service details in text format. This is effective for many passengers, including those who are not blind or have low vision, and who do not have a cognitive disability that affects literacy. However, people who are unable to read these displays – such as those who are blind, have low vision, or have cognitive disabilities – should be provided with equivalent access through alternative formats. These may include:

- audible announcements triggered by the passenger
- smartphone apps compatible with text-to-speech software, and
- call centre staff who can direct inform passengers of service details.

TransLink offers several alternative formats to support accessible information delivery.

Figure 149
Next service announcement initiator, Cultural Centre bus station

Good practice: Kinetic powered next service announcement initiator inserted within platform help phone.

Figure 150
PID, Cultural Centre bus station

Good practice: Passenger information displays (PID) with a Kinetic powered next service announcement initiator inserted within platform help phone.

Figure 151
Next service announcement, Chermside bus station

Good practice: Kinetic powered next service announcement initiator inserted within bus stop blade.

Figure 152
PIDs, Fortitude Valley rail station

Could be better: Passenger information displays without audio alternatives.

13.1.3 Communication devices

Platform or lift-based telephones allow passengers to seek emergency assistance or general help from staff. These devices are effective for people with functional speech and hearing. However, people who are Deaf, hard-of-hearing, or non-verbal, may face barriers unless the device includes such features as:

- hearing augmentation
- SMS messaging options, and
- visual indicators (e.g. coloured lights) to confirm that a call has been made and received by staff.

These features help build confidence of hard-of-hearing users that a request for assistance has been acknowledged.

Figure 153 Platform help phone, Yeronga rail station

Could be better: Platform help phone with SMS options but no hearing loop alternative for the help point.

Figure 154
Lift help phone, Yeronga rail station

Good practice: Lift help phone with both SMS options and hearing loop alternatives.

Figure 155
Platform help phone, Yeronga rail station

Could be better: Platform help phone with SMS options, but no hearing loop alternative for the help point.

Figure 156
Platform help phone, Cultural Centre bus station

Could be better: Platform help phone with hearing loop alternative but no SMS options.

13.1.4 Smartphone dependency

Smartphones are widely used. In 2019, Deloitte estimated that more than 90% of Australians owned a smartphone. As a result, service-related information available through smartphone apps has the potential to reach most passengers. Technologies such as Near Field Communication (NFC) tags and QR codes make it easier to access this information. However, not all passengers' own smartphones, and not all smartphone users are confident in using them. While most people in Australia and its visitors use smartphones, it remains essential for information providers to ensure information is compatible with a wide range of devices, and that content is available for people with diverse cognitive abilities. Alternative formats to receive service-related information must be available, in line with DSAPT-2002, Section *27.1 Access to information about transport services*.

Figure 157
NFC tags, Alice Street Brisbane

Good practice: NFC tag on a newer bus stop blade, which is useful for smartphone users. The reader also has a QR code option and is co-located with the stop number in braille and tactile text.

Figure 158
NFC Tags, Willcot Street Geebung

Could be better: NFC tags are easily retrofitted on exising bus stop J pole. This printed timetable is missing and the stop number could be in braille and tactile equivalent

13.2 Compliance requirements

This section summarises the legislative requirements for Information and Communication Technologies (ICT) in public transport precincts.

13.2.1 Disability Discrimination Act 1992

All ICTs intended for public use are subject to the DDA's Section 24: Goods, services and facilities. Which includes:

- software (e.g. websites, mobile and desktop applications)
- hardware (e.g. fares systems, ticketing machines, digital signs, information kiosks, help phones), and
- Any combination of hardware and software.

13.2.2 Disability (Access to Premises — Buildings) Standards 2010

The Premises Standards primarily address structural, sanitary and egress requirements, but they also include some provisions relevant to ICT:

- DP9: *Communication systems for people with hearing impairment*
- D3.7: *Hearing augmentation*
- H2.13: *Hearing augmentation*
- H2.14: *Emergency warning systems*, and
- H2.15: *Controls*

The Deemed-to-Satisfy Solutions in the Premises Standards set minimum compliance levels. Performance Solutions, developed through co-design, often result in more inclusive and effective outcomes.

13.2.3 Disability Standards for Accessible Public Transport 2002

The DSAPT-2002 requirements for accessible ICT are outdated, as many current technologies did not exist when the standard was published. However, the performance requirements call still be met using Equivalent Access Solutions based on modern technologies. Relevant DSAPT-2002 Parts include:

- Part 17: *Signs*
- Part 19: *Alarms*
- Part 21: *Controls*
- Part 24: *Gateways*
- Part 25: *Payment of fares*

- Part 26: *Hearing augmentation–listening systems*, and
- Part 27: *Information*

Figure 159
Fare gates, Roma Street rail station

Good practice: Fare validator and accessible fare gate.

Figure 160
PIDs, Fortitude valley rail station

Could be better: Visual displays, which only benefit sighted passengers.

Figure 161
Add Value Vending Machine, Roma Street rail station

Good practice: AVVMs have accessibility features for blind and low vision users.

13.3 Further guidance

This section summarises further guidance relating to ICT in public transport precincts.

13.3.1 Public Transport Infrastructure Manual

The PTIM includes references to ICT, although the Smart Ticketing initiative was introduced after its publication. Technical specifications from Smart Ticketing should also be considered. PTIM components related to electronic ticketing and information systems include:

Add Value Vending Machine (AVVM)

A self-serve electric ticketing fare machine consisting of a touch screen display, card reader and cash payment options, used to purchase paper tickets or perform a limited range of go card functions including displaying the card balance, transaction history, or adding value to the go card.

Stand Alone Card Interface Device (SACID)

An electronic device (usually placed at the entry/exit and key decision points of stations) used by passengers to validate a go card at the commencement and end of their trip so that their trip fare can be calculated.

Intelligent Transport Systems (ITS)

The general term for electronic infrastructure used at public transport stops and stations to assist customers and operators with the operation and function of the transport system. ITS can include but is not limited to, security cameras (CCTV), real-time-information, public address systems, and other public transport information.

PTIM clauses of relevance to ITS are in Chapter 2: *Planning and design*:

2.4.11 Intelligent Transport System (ITS)

2.4.12 Real-time information

13.3.2 Guidelines on application of the Premises Standards

The Premises Standards Guidelines assist with interpreting the Premises Standards.

Part numbers in the Guidelines match those in the Premises Standards, making cross-referencing straightforward.

13.3.3 Disability Standards for Accessible Public Transport Guidelines 2004 (No. 3)

The DSAPT support interpretation of the DSAPT-2002. While not legally binding, they provide information and commentary about the DSAPT's requirements and specifications. Part numbers in the Guidelines match those in the DSAPT-2002, making cross-referencing straightforward.

13.3.4 Australian Standards

To meet DDA requirements for ICT accessibility, various jurisdictions have adopted AS EN 301 549 *Accessibility requirements for ICT products and services*. The Commonwealth adopted this Standard in 2016 followed by South Australia and New South Wales. Some departmental projects have also voluntarily adopted it as a benchmark for accessibility.

The DSAPT-2002 references clauses from AS 1428.2-1992 *Design for access and mobility Part 2: Enhanced and additional requirements—Buildings and facilities* as prescriptive compliance targets, which remain lawful minimum requirements. However, many of these clauses have been overtaken by technological advancements and are no longer sufficient to meet contemporary accessibility expectations. Current standards for hearing assistance systems are:

- AS 1428.5-2021 *Design for access and mobility Part 5 Communication for people who are deaf or hearing impaired*

The current version of AS EN 301 549 published by Standards Australia is:

- AS EN 301 549-2020 *Accessibility requirements for ICT products and services*

AS EN 301 549-2020 is identical to EN 301 549:2019 V3.1.1, and is published by Standards Australia. Where dimensional specifications conflict between European AS EN 301 549 and Australian Standards such as the AS 1428 series, the Australian Standards should take precedence. AS EN 301 549-2020 cites WCAG 2.1 for online content. However, WCAG 2.2 includes additional success criteria for mobile applications and should be used instead. The latest edition—EN 301 549 V3.2.1-2021—is available from the European Telecommunications Standards Institute (ETSI) website.

13.3.5 European Standards

EN 301 549 defines accessibility requirements for ICT products and services is published by the ETSI. Past versions are:

- EN 301 549 V3.1.1 (2019-11) *Accessibility requirements for ICT products and services*

The preferred current version is:

- EN 301 549 V3.2.1 (2021-03) *Accessibility requirements for ICT products and services*

Microsoft has produced a series of explanatory videos on accessible ICT procurement and how EN 301 549 supports inclusive design:

- European Standard EN 301 549 explained

13.4 Recommendations for inclusive ICT

Figure 162 Inclusive ICT design recommendations

Subject	Recommendations
General principles	ICT includes fare gates, ticketing systems, smartphone apps, NFC tags, digital screens, help phones, passenger information displays, public address announcements, hearing augmentation systems, and more. Accessibility requirements are outlined in AS EN 301 549 Section 4.2. ICT systems should support a wide range of user needs, including people with disability. Provide both audio and visual options for service-related information (e.g. platform changes, disruptions). For example: • Help phones should offer both SMS and hearing loop options. • NFC tags and QR codes at bus stops and stations can improve smartphone accessibility.
Good audio-visual practices	Follow WCAG 2.2 AAA for audio-visual presentations on digital screens and platforms. Combine audio, captions, and sign language (e.g. Auslan) to maximise accessibility. Ensure service announcements (e.g. platform changes) are available in both audio and visual formats.
Alternatives to text displays	Provide equivalent services for passengers who cannot read text displays, including: • Audible announcements that passengers can trigger. • Smartphone apps that work with text-to-speech software and/or call centres who offer direct assistance.
Communication devices	Platform and lift help phones should include: • SMS messaging for Deaf or non-verbal users. • Hearing augmentation systems for people who are hard-of-hearing.
Smartphone dependency	While many passengers use smartphones, not everyone owns or is confident in using them. Make sure service-related information is also available through other methods, in line with DSAPT-2002 Section 27.1. NFC tags and QR codes can help simplify access to information for smartphone users.

Subject	Recommendations
Compliance considerations	ICT systems used by the public must meet the requirements of the *Disability Discrimination Act 1992* (DDA), Section 24 (Goods, services, and facilities). This applies to both hardware (e.g. fare gates, digital signs) and software (e.g. apps, websites). Relevant sections of the Disability (Access to Premises – Buildings) Standards 2010, include: • DP9: *Communication systems for people with hearing impairments* • D3.7: *Hearing augmentation*, and • H2.13–H2.15: *Emergency warning systems and controls*. Performance Solutions developed through co-design are often more inclusive than Deemed-to-Satisfy Solutions. DSAPT-2002 requirements for ICT are outdated. Use Equivalent Access Solutions with modern technologies. Relevant DSAPT Parts include: • Part 17: *Signs* • Part 19: *Alarms* • Part 26: *Hearing augmentation*, and • Part 27: *Information*.

14. Lifts

14.1 Overview

All lifts intended for public use are covered by Section *24 Goods, services and facilities* of the DDA. When procuring new lifts, features and facilities that go beyond minimum compliance should be considered. Lifts are one of many 'vertical transport' options, which also include stairs, ramps and escalators. A universally designed transport precinct will provide of vertical transport solutions that are effective, accessible and reliable for all users. While no single solution meets every need, co-locating different options makes navigation more intuitive and convenient. 'Through' lift cars are preferred by people who use mobility aids such as wheelchairs, mobility scooters or walking frames. These lifts allow passengers with mobility aids to enter and exit without turning 180°, which improves safety and ease of use. Lift cars and shafts with transparent walls support CPTED Guidelines by allowing people inside the lift to see out and those outside to see in, increasing safety.

Braille and tactile signs placed on lift landings or next to call buttons are important wayfinding cues for people with vision impairment. For example, a braille or tactile sign next to the lift call button that reads 'Lift to Platform 1' enables people who are blind or have low vision to confirm whether they are taking the correct lift. Standard help or emergency phones in lifts are not accessible for people who are Deaf and use Auslan, or for people who are non-verbal. Alternative communication methods should be provided

so these passengers can communicate from the lift car in an emergency. People with vision impairment generally prefer tactile call buttons over touch screens. Touch screens can be difficult to locate, and floor numbers are impossible to identify by touch. Audio alternatives can be built in to touch screens, however they are not always intuitively designed or easy to use. Lifts should also include back-up battery systems. In the event of a power failure, the battery should allow the lift to reach the nearest landing and its open its doors. That landing must connect to an accessible path so passengers can safely exit the premises or infrastructure.

Figure 163
'Through' Lift, King George Square bus station

Good practice: Through lifts are widely preferred as they do not require a 180° turn inside the lift.

Figure 164
Lift doors, Yeronga rail station

Good practice: Lift doors with contrasting strips help low vision passengers locate the lifts.

Figure 165
Signage, Roma Street bus station

Good practice: Braille and tactile wayfinding information on lift landings help with navigtion, particularly at decision points.

Figure 166
Lift signage, Cultural Centre bus station

Good practice: Braille and tactile wayfinding information on lift landings inform passengers if they are at the correct floor.

Figure 167
Lift signage, Fairfield rail station

Good practice: Braille and tactile signs on lift landing.

Figure 168
Lift signage, Yeronga rail station

Good practice: Braille and tactile signs in lift car.

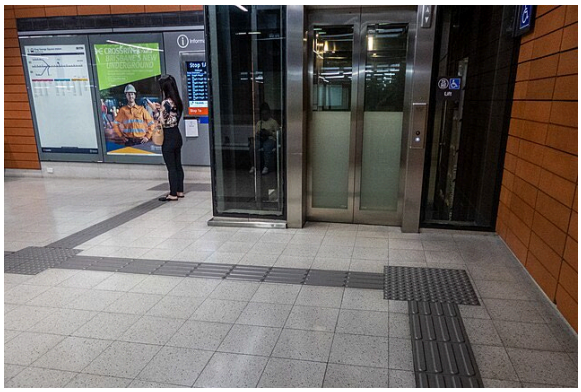


Figure 169
TGSIs, King George Square bus station

Good practice: TGSI trails make lifts easier for blind and low vision passengers to locate and navigate amenities.

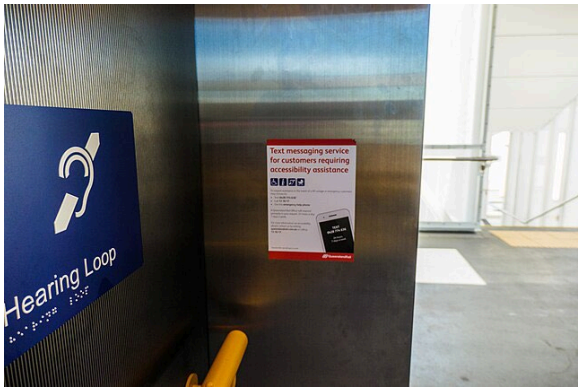


Figure 170
Signage, Yeronga rail station

Good practice: Hearing loops and SMS help phones allow people who are Deaf, hard-of-hearing or non-verbal to seek assistance.

Figure 171
Lift shaft, Herston bus station

Good practice: Transparent lift car and lift shaft walls allow easy surveillance from inside and outside the lift.

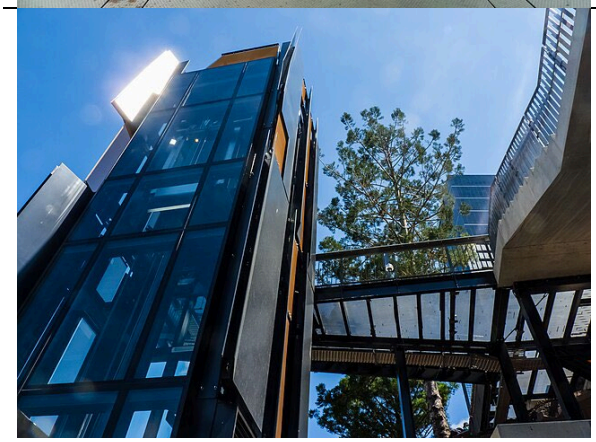


Figure 172
Lift car, North Quay fery terminal

Good practice: Transparent lift car and lift shaft walls allow easy surveillance from inside and outside the lift.

14.1.1 Lifts versus ramps

As noted earlier, lifts are one of many vertical transport solutions and are often preferred to long ramps. Historically, ramps were used in public transport precincts as an alternative to lifts because they were seen as cheaper and more reliable. Contemporary lifts, however, are now highly reliable, safer in emergencies, and better suited to the specific needs of transport precincts. Public transport precincts also differ from other parts of the build environment where vertical transport is required. For example, lifts in public transport precincts usually only connect two levels, such as platform level and overpass, unlike high rise buildings where lifts serve multiple floors. However, the vertical distance between the two floors will typically be greater, given the need to clear a rail or bus

corridor. In most parts of the built environment, the NCC part D4D12 restricts the maximum height of ramps to 3.6 m:

> **D4D12 Ramps**
>
> On an accessway—
>
> (a) series of connected ramps must not have a combined vertical rise of more than 3.6 m;

For Class 9b or 10 public transport buildings, the NCC provides a concession that allows ramps to exceed this 3.6m limit:

> **I2D3 Ramps**
>
> 1. A ramp forming part of an accessway must comply with clause 8 of AS 1428.2.
> 2. The requirements of D4D12 (a) do not apply to Class 9b or Class 10 public transport buildings.

This concession makes it possible to use ramps, instead of lifts, to cross rail or bus corridors. In practice, achieving compliance with AS 1428.2 for a 4 m vertical rise would require a ramp around 66m long. Moving between two train platforms would therefore mean walking up one of these ramps, and down another – more than 120 m in total. Few people would choose this overusing two lifts. Ramps do have advantages: they do not break down, require less maintenance, and may be cheaper to build. For these reasons, ramps were historically preferred at train stations. However, ramps take up much more space and often provide a poorer customer experience. As such, most new and upgraded stations are now replacing large ramps with lifts. The decision on the number of lifts per platform depends on the precinct context, passenger volumes and the impact of lift failure. This includes whether accessible routes are available nearby to cross the corridor within the surrounding precinct.

Figure 173
Access ramp, Morningside rail station, 2008

Could be better: Prior to upgrades, Morningside Station featured an extensive series of ramps to provide a step-free pathway across the corridor.

Figure 174
Lift and stairs during construction, Morningside station, 2024

Good practice: As part of QR's Station Accessibility Upgrade Program, Morningside Station was upgraded in 2024 to remove the ramps and provide lifts as the vertical transport solution.

14.2 Compliance requirements

This section summarises of the legislative requirements for lifts in public transport precincts.

14.2.1 Disability (Access to Premises — Buildings) Standards 2010

Lifts are covered in the Premises Standards under Part E3 *Lift installations* and Section H2.6 *Lifts*. In both, public lift facilities must comply with AS 1735.12. The requirements of Part E3 include:

EP3.4 Performance Requirement

When a passenger lift is provided in a building required to be accessible, it must be suitable for use by people with a disability.

E3.0 Deemed-to-Satisfy Provisions

Performance Requirement EP3.4 is satisfied by complying with:

(a) clause E3.6; and

(b) for public transport buildings, Part H2.

E3.6 Passenger lifts

In an accessible building, every passenger lift must:

(a) be one of the types identified in Table E3.6 (a), subject to the limitations on use specified in the table; and

(b) have accessible features in accordance with Table E3.6 (b); and

(c) not rely on a constant pressure device for its operation if the lift car is fully enclosed.

The Australian Standard AS 1735.12-1999 is now outdated and has been superseded. To achieve a contemporary and functional outcome, Performance Solutions should be developed using the current edition of the standard:

- AS 1735.12-2020 *Lifts, escalators and moving walks Part 12 Facilities for persons with disabilities (EN 81-702018, MOD)*

Because EN 81-702018 references European dimensional Standards (such as for handrails), any dimensional conflicts should be resolved in favour of AS 1428. The Australian Building Codes Board (ABCB) periodically updates the NCC, which includes the Premises Standards. The ABCB has released a Public Consultation Draft of NCC 2025 *(PCD 2025)* which proposes referencing the latest edition of AS 1735.12:

- AS 1735.12-2020 *Lifts, escalators and moving walks Part 12 Facilities for persons with disabilities (EN 81-702018, MOD)*

PCD 2025 - NCC Referenced documents lists this and other Australian Standards proposed for update in *Table 1 Potential changes to referenced documents for the next edition of the NCC*. As a means of futureproofing, the latest editions of Australian Standards should be used wherever practicable. Lifts are legitimate components of an accessway and are often the only viable accessible option where a significant level change must be addressed. Section H2.2 of the Premises Standards does not directly reference lifts; it applies to their placement along accessways in public transport premises.

H2.2 Accessways

(2) If an accessway branches into 2 or more parallel tracks:

(a) the ends of each track must be on the main pedestrian traffic routes; and

(b) the parallel tracks must have equal convenience and be located as close as practicable to the main pedestrian branch.

Lifts should always be co-located with stairs and escalators, for both convenience and compliance.

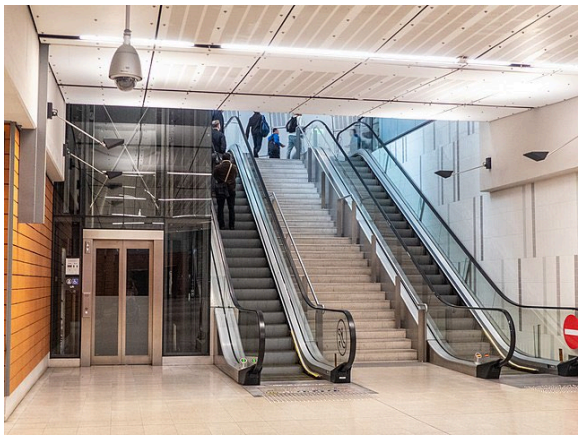


Figure 175
Vertical transport, King George Square bus station

Good practice: Lift, escalators and stairs are co-located at the Adelaide Street concourse, King George Square bus station.

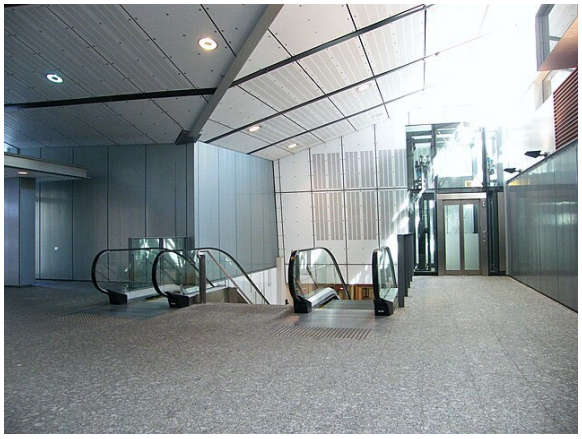


Figure 176
Vertical transport, King George Square bus station

Good practice: Lift, escalators and stairs are co-located at the Adelaide Street portal.

Figure 177
Vertical transport, Yeronga rail station

Good practice: Lift and stairs are co-located.

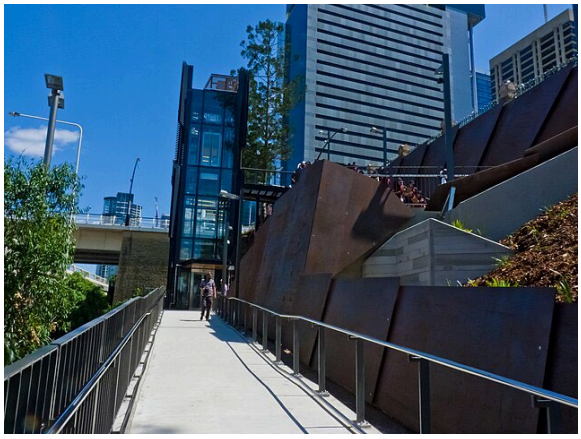


Figure 178
Vertical Transport, North Quay ferry terminal

Good practice: Lift and stairs are co-located.

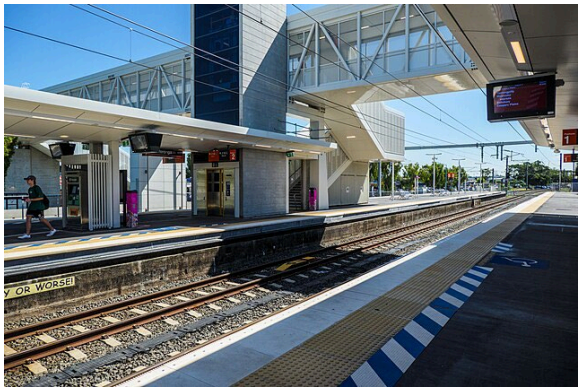


Figure 179
Vertical transport, Fairfield rail station

Good practice: Lift and stairs are co-located.

14.2.2 Disability Standards for Accessible Public Transport 2002

The DSAPT-2002 covers lifts under Part 13. The Australian Standard it references is now outdated and has since been superseded.

13.1 Compliance with Australian Standard — premises and infrastructure

Lift facilities must comply with AS 1735.12 (1999).

To achieve a contemporary and functional outcome, Equivalent Access solutions should be developed using the current edition of the standard:

- AS 1735.12-2020 *Lifts, escalators and moving walks Part 12 Facilities for persons with disabilities (EN 81-702018, MOD)*

Because EN 81-702018 references European dimensional Standards (such as those for handrails), any dimensional conflicts should be resolved in favour of AS 1428. Section 2.3 of the DSAPT-2002 includes the same access path requirements are Section H2.2 of the Premises Standards:

2.3 Path branching into 2 or more parallel tracks

If an access path branches into 2 or more parallel tracks:

(a) the ends of each track must be on the main pedestrian traffic routes; and

(b) the parallel tracks must have equal convenience and be located as close as practicable to the main pedestrian branch.

Lifts should always be co-located with stairs and escalators, for both convenience and compliance.

14.3 Further guidance

This section summarises further guidance relating to lifts in public transport precincts.

14.3.1 Public Transport Infrastructure Manual

The PTIM references AS 1735.12-1999, which has since been superseded by AS 1735.12-2020. The new Standard provides improved accessibility specifications and should therefore be used in preference. PTIM's Chapter 2 – Planning and design has considerations for lifts in public transport premises and infrastructure in the following sections and tables:

- 2.4.2.2 *Circulation within public transport infrastructure*
- 2.4.2.3 *Density of occupation*
- Table 2.5: *Customer outcomes*
- Table 2.6: *Stakeholder expectations and needs*
- *Integration with other modes*

Other PTIM chapters also include lift-related advice specific to each mode of transport.

14.3.2 The Whole Journey: A guide for thinking beyond compliance to create accessible public transport journeys

The Australian Government's *The Whole Journey* guide provides considerations for lifts in several sections:

- 3.1 Pre-journey planning
    - 3.1.1 Providing a richer set of information/data in journey planning tools
- 3.5 Interchange
    - 3.5.4 Vertical transportation
- 3.7 Supporting infrastructure
    - 3.7.7 Vertical transportation

14.3.3 Australian Standards

Standards Australia has adopted the European Standard EN 81-70:2018, with Australian appendices as the replacement for AS1735.12-1999.

- EN 81-70:2018 *Safety rules for the construction and installation of lifts - particular applications for passenger and goods passenger lift. Accessibility to lifts for persons including persons with disability*

This Standard, as modified for Australia, delivers improved accessibility outcomes for people with disability.

- AS 1735.12-2020 *Lifts, escalators and moving walks Part 12 Facilities for persons with disabilities (EN 81-702018, MOD)*

The European Standard EN 81-70:2018, which forms the basis of AS 1735.12-2020, has since been superseded by EN 81-70:2021+A12022 (MAIN):

- EN 81-70:2021+A1:2022(MAIN) *Safety rules for the construction and installation of lifts - Particular applications for passenger and goods passenger lift - Part 70: Accessibility to lifts for persons including persons with disability*

This 2022 edition may be adopted with Australian appendices, as was the 2018 edition. It also appears to have addressed several issues raised by the European Blind Union in relation to the 2018 version.

14.4 Recommendations for inclusive lifts

Figure 180 Inclusive lifts design recommendations

Subject	Recommendations
General principles	A universally designed precinct should offer a range of vertical transport options (e.g. lifts, ramps, stairs, and escalators) that are co-located for intuitive and convenient navigation. Through-lifts are preferred by mobility aid users as they remove the need for 180-degree turns inside the lift car. Transparent lift cars and shafts improve safety and align with Crime Prevention Through Environmental Design (CPTED) guidelines. Include Braille, tactile signage, and hearing augmentation systems to support accessibility.
Accessibility features	Braille and tactile signage: Place adjacent to lift call buttons and inside lift cars to support wayfinding. Hearing augmentation and SMS options: Enable Deaf, hard-of-hearing, or non-verbal passengers to communicate in emergencies. Tactile call buttons: Preferred over touch screens, which can be difficult for passengers with vision impairment to locate and use. Backup batteries: Ensure lifts can reach an appropriate landing and open doors during power failures.
Lifts vs ramps	Lifts are often preferred over lengthy ramps due to their smaller footprint requirements and better customer experience; particularly where large vertical changes exist (e.g. crossing rail or bus corridors). While ramps may be cheaper and more reliable, they require significantly more space and can result in an inferior user experience. Most new and upgraded stations are replacing ramps with lifts.
Compliance considerations	Disability (Access to Premises – Buildings) Standards 2010 specify that Lifts must comply with: • Part E3: *Lift installations*. • Section H2.6: *Lifts in public transport premises*. Refer to the latest edition of AS 1735.12-2020 for improved accessibility outcomes. Lifts should be co-located with stairs and escalators for convenience and compliance. The Disability Standards for Accessible Public Transport 2002 (DSAPT) cover lifts in Part 13. Use Equivalent Access solutions based on AS 1735.12-2020. DSAPT Section 2.3 aligns with Premises Standards Section H2.2 for lift placement along accessways.

15. Signs

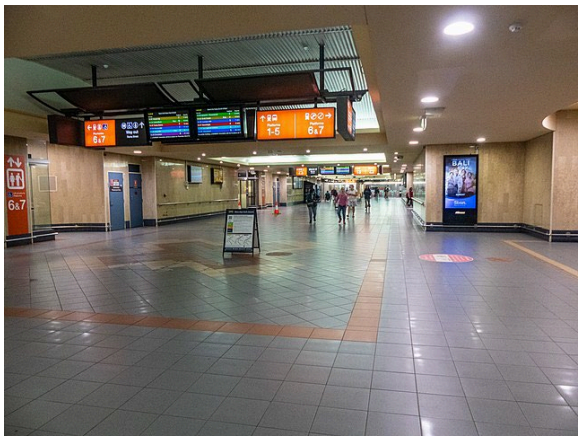
15.1 Overview

Signs that convey information to the public are subject to the DDA-1992. They must therefore communicate effectively with the widest possible range of people, depending on their location and purpose. The Cooperative Research Centre for Construction Innovation has published *Wayfinding Design Guidelines*, which include extensive guidance on signage.

15.1.1 Overhead signs

Overhead signs are designed to be highly visible at a distance and in crowded areas. Because they are out of reach, braille or tactile components are not suitable. Instead, overhead signs must be clear, easily visible, and use plain, comprehensible information. Symbols help people with low literacy levels or limited English vocabulary. For wayfinding, overhead signs should be positioned at or immediately before decision points to support intuitive navigation.

Figure 181
Overhead signs at Roma Street rail station



Good practice: Overhead signs have high contrast and are visible from a distance.

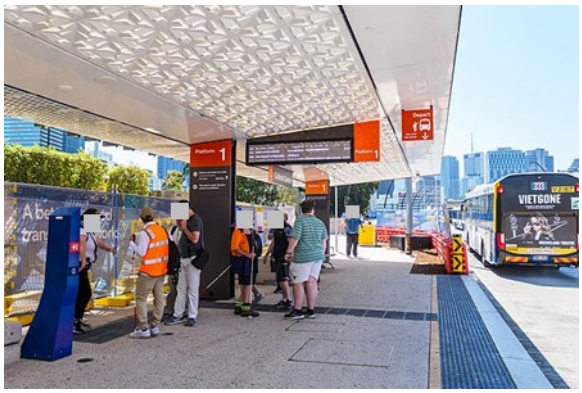
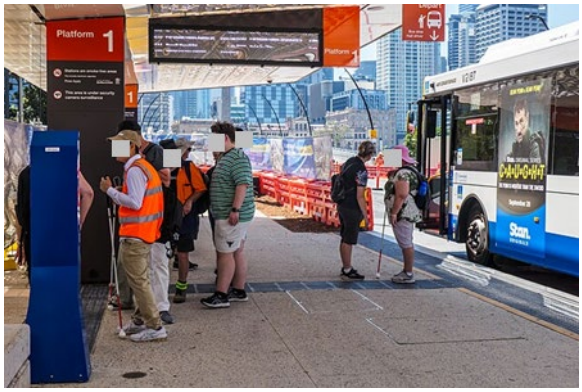


Figure 182
Overhead signs at Cultural Centre bus station



Good practice: Station features both static and digital signs to both provide real-time and wayfinding information.

15.1.2 Static signs

Static signs within reach range can direct people along access paths, identify facilities, or provide location information. These signs should include braille and tactile components and be positioned intuitively so that people who cannot see them can easily find them. Street signs should be co-located with pedestrian push-button assemblies at audio-tactile pedestrian crossings. People with vision impairment can then use the audible homing signal from the crossing control to identify the location of the sign. Static signs can be read visually, by touch, or through hearing. People who cannot see print or who have print disabilities can still access the information if the sign includes an audio-tactile feature. For example, bus stops can be identified by braille and tactile inserts on the pole or blade. Timetables and other information can also be accessed through Near Field Communication (NFC) tags, which allow smartphones to deliver the information in audio or text format.

Figure 183
Signage, Roma Street bus station lift

Good practice: Braille and tactile wayfinding signs.

Figure 184
Signage, Queen Street bus station lift

Good practice: Braille and tactile wayfinding signs at lift controls.

Figure 185
Lift controls, Yeronga rail station

Good practice: Braille and tactile signs identifying lift controls and facilities.

Figure 186
Signage, Yeronga rail station

Good practice: Braille and tactile sign identifying access path options.

Figure 187
Toilet signage, King George Square bus station

Good practice: Braile and tactile wayfinding sign for toilets.

Figure 188
Toilet signage, Yeronga rail station

Good practice: Braille and tactile sign identifying unisex toilet located beside toilet door.

Figure 189
Street signage, Adelaide Street, Brisbane

Good practice: Braille and tactile street sign co-located with audio-tactile pedestrian push button assembly.

15.1.3 Audio and smartphone alternatives

Overhead passenger information displays can include audio alternatives for passengers who are blind, have low vision or experience print disabilities. The information displayed visually can be narrated through overhead speakers. The consoles that trigger the narration service can be integrated into boarding point blades or located near help phones and must include braille and tactile signage. Text message and smartphone-based solutions are often supported by temporary signage, such as stickers or decals. Consider the durability of these temporary solutions against weather and vandalism. If signage is required for longer periods, a more permanent and protected solution should be used, ideally with a braille and tactile alternative.

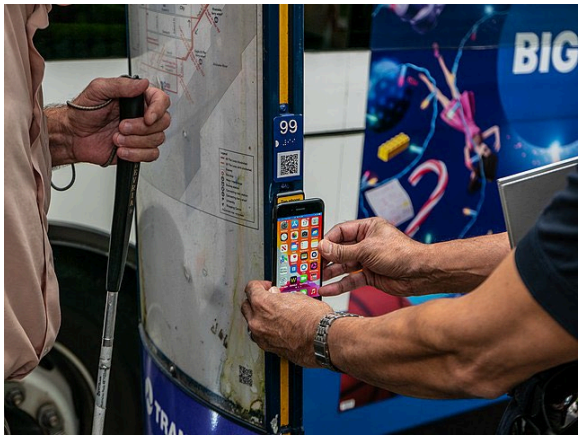


Figure 190
Bus stop signage, Alice Street

Good practice: Braille and tactile numbers identify a bus stop while a QR code and NFC tag give timetable information, Alice Street, Brisbane.

Figure 191
Toilet intercom, King George Square bus station

Good practice: Intercom allowing remote toilet door unlocking with braille and tactile sign.

Figure 192
Service signage, Chermside bus interchange

Good practice: Overhead next-service display and blade identifying boarding point.

Figure 193
Next service information, Chermside bus interchange

Good practice: Next service announcement with braille and tactie sign embedded in boarding point blade.

Some static signs also include a digital code that links users to online information via a smartphone app. For example, the NaviLens code has been trialled in Queensland and is currently undergoing trials in Victoria.

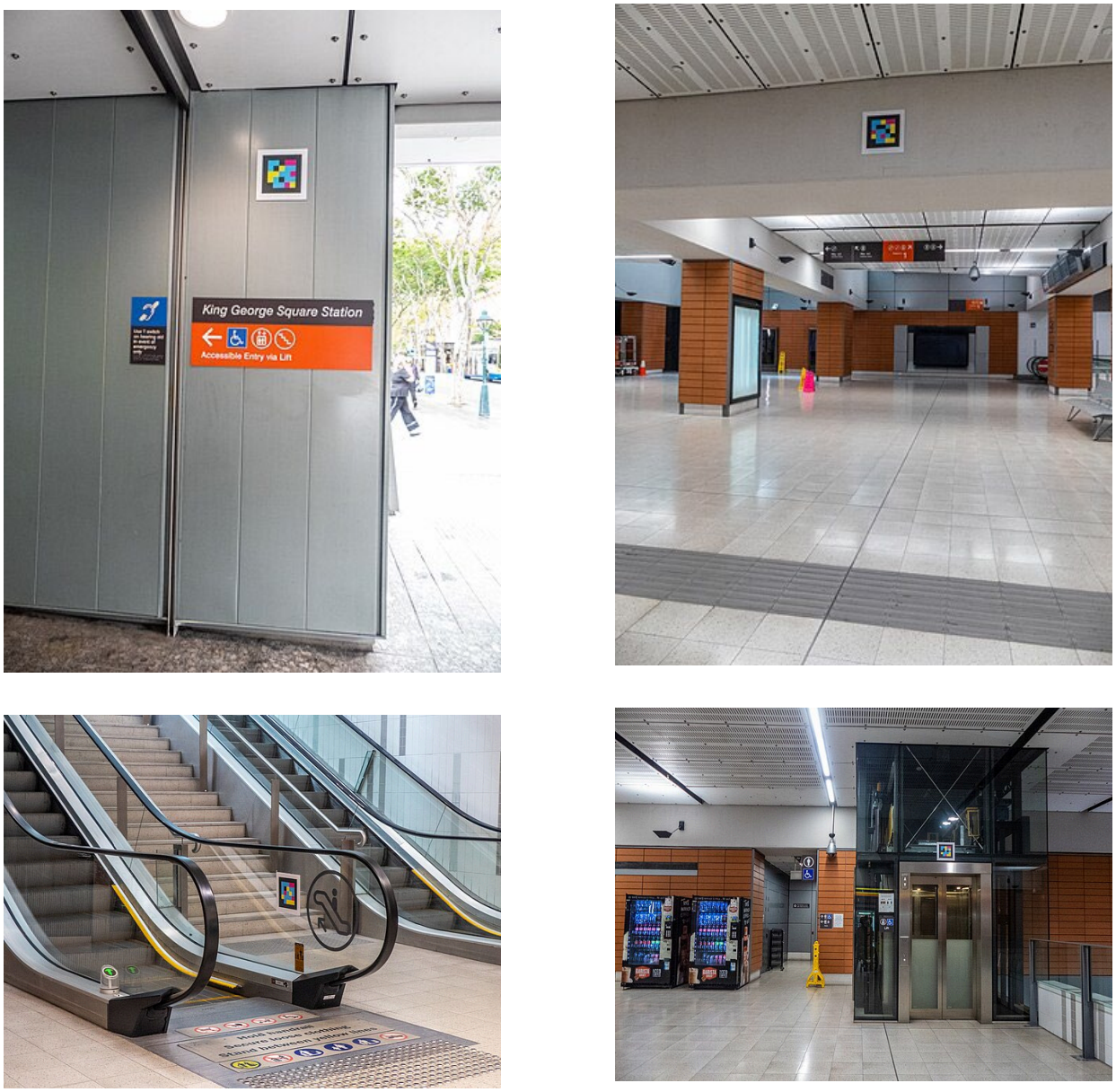


Figure 194
NaviLens codes, King George Square bus station

Good practice: NaviLens code used throughout the station including the entrance, concourse, escalators and lifts.

Digital signs have the potential to deliver information in multiple formats at once, including audio, text, visual display, hearing augmentation and Auslan. They also provide pre-recorded messages with specific, real-time information – such as platforms changes, service disruptions, or directions to alternate transport options.

15.1.4 Tactile signs

Braille and tactile signs that provide wayfinding guidance or identify facilities and transport infrastructure benefit the whole community. These signs are installed at accessible heights and in predictable, easy-to-locate positions. For example, street signs co-located with audio-tactile pedestrian push button helps blind and low vision pedestrians locate the sign through the sound of the crossing control. Tactile cues, such as raised maps, domed buttons on handrails, or textured surfaces, can also provide either explicit or subtle wayfinding support.

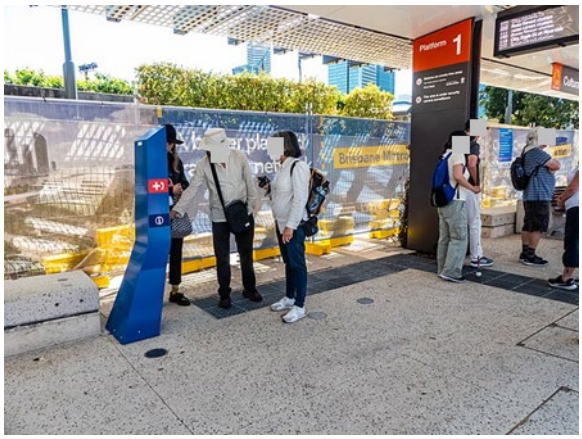


Figure 195
Braille and tactile signage on platform help phone, Cultural Centre bus station

Good practice: High contrast signage with braille and tactile equivalents provide functionality for blind and low vision passengers.

Figure 196
Signage, King George Square bus station

Good practice: Braille and tactile wayfinding sign with international symbol of access.

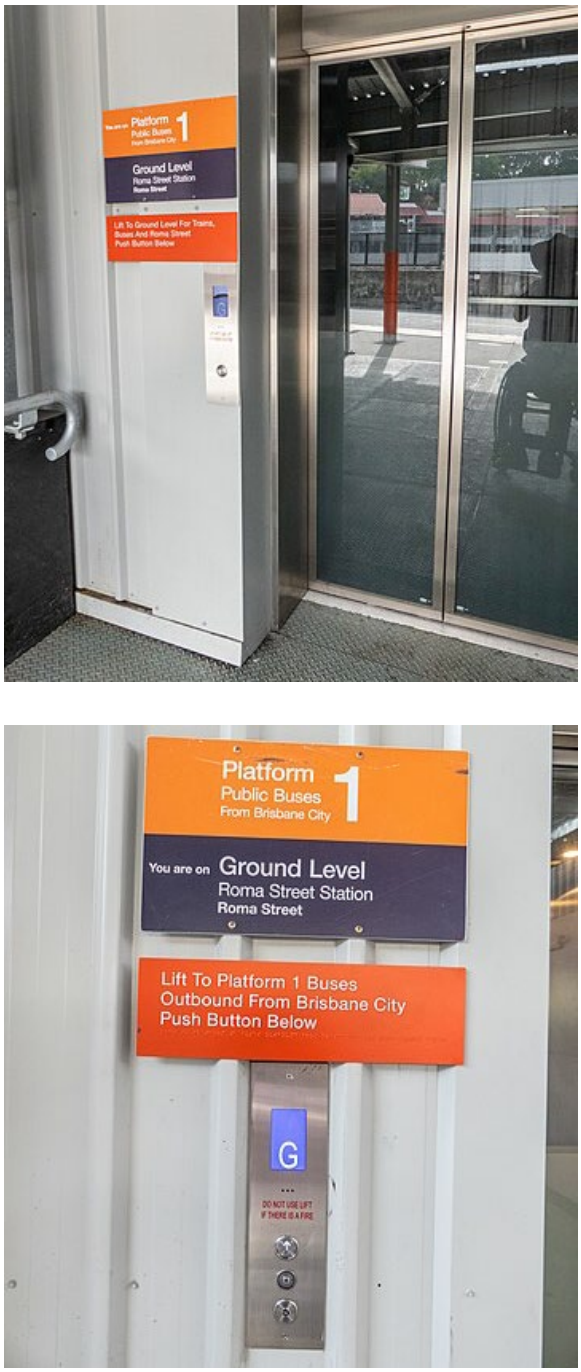


Figure 197
Braille and tactile wayfinding sign at lift, Roma Street bus station

Good practice: The left-hand image shows the lift controls on Level 1 – Bus Platform Level. The right-hand image shows the controls on Ground Level – Train Station Level. In both images, the bottom signs are the only ones with braille and tactile equivalents. This is because they seek to consolidate lift control and wayfinding information, to make it quicker and simpler to read for blind and low vision users. The lift controls also feature tactile cues on the buttons.

Figure 198
Boarding point sign, King George Square bus station

Good practice: Braille and tactile boarding point and audio information signs.

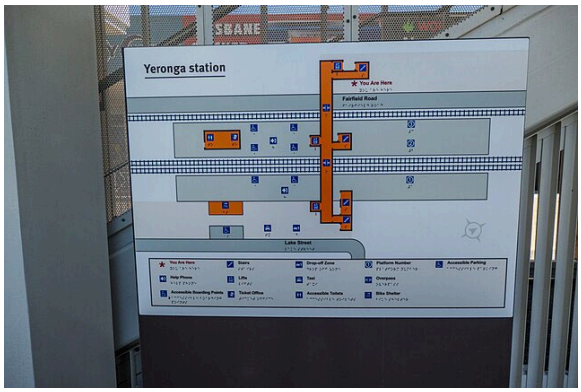


Figure 199
Braille and tactile wayfinding map, Yeronga rail station

Good practice: The signage indicates both the lift and stairs options, while being supplemented by tactile pictograms and the blue international symbol of access. The map feautres colour coding, pictograms, braille and tactile text, and the physical station layout. The north arrow also assists with orientation.

Figure 200
Street sign, George Street, Brisbane

Good practice: Braille and tactile street signage provides wayfinding information, in addition to the standard audio-tacile signal at the crossing.

15.2 Compliance requirements

This section summarises the legislative requirements for signs in public transport precincts.

15.2.1 Disability (Access to Premises — Buildings) Standards 2010

The Premises Standards include requirements for directional signs, signs identifying sanitary facilities and signs identifying hearing augmentation systems. These specifications appear in Parts D3, D4 and Part F3, with general requirements for signs in public transport premises in Section H2.10.

- D3.6 *Signage*
- Part D4 *Braille and tactile signs*
- Part F3 *Accessible adult change facilities*
    - F3.10 *Signage*
    - F3.11 *Operating instructions*
- H2.10 *Symbols and signs*

The Premises Standards reference AS 1428.1-2009 and AS 1428.1-2001 as primary sources. Both have been superseded by AS 1428.1-2021 *Design for access and mobility Part 1 General requirements for access — New building work*. The 2021 edition should be used as a starting point for achieving accessible outcomes through a Performance Solution. No specific technical reference is given for directional signs; however, AS 1428.4.2-2018 *Design for access and mobility Part 4.2: Means to assist the orientation of people with vision impairment - Wayfinding signs* is recommended as a useful source of guidance. Similarly, few references are provided for symbols on directional signs. ISO 7001-2007 *Graphical symbols — Public information symbols* is recommended.

The Australian Building Codes Board (ABCB) periodically updates the National Construction Code within which the Premises Standard is contained. The ABCB has released a draft *National Construction Code 2025* (NCC 2025) for consultation. A *Public Consultation Draft (PCD 2025)* proposes updating several referenced Australian Standards, including its latest edition:

- AS 1428.1-2021 *Design for access and mobility Part 1: General requirements for access—New building work*

PCD 2025 - NCC Referenced documents lists this and other proposed updates in *Table 1 Potential changes to referenced documents for the next edition of the NCC*. As a means of futureproofing, the latest edition of this Australian Standard should be used where possible.

15.2.2 Disability Standards for Accessible Public Transport 2002

The DSAPT-2002 includes requirements for signs and associated symbols in:

- Part 17 *Signs*
- Part 16 *Symbols*

The primary referenced Australian Standard in Part 17 *Signs* is AS 1428.1-2001: *Design for access and mobility Part 1: General requirements for access — New building work*. This Standard has been superseded by AS 1428.1-2021 *Design for access and mobility Part 1 General requirements for access — New building work*. The 2021 edition should be used as a starting point for achieving accessible outcomes through an Equivalent Access Solution. Section 16.2 *Compliance with AS 2899.1 (1986)* references a withdrawn Australian Standard. AS 2899.1 has been superseded by ISO 7001-2007.

- AS 2899.1-1986 *Public information symbol signs. Part 1: General information signs*
- ISO 7001-2007 *Graphical symbols — Public information symbols*

ISO 7001 can be applied as part of an Equivalent Access Solution. Although few technical references are provided for directional signs, AS 1428.4.2-2018 *Design for access and mobility Part 4.2: Means to assist the orientation of people with vision impairment - Wayfinding signs* is recommended as a useful source of guidance.

15.3 Further guidance

This section summarises additional resources and further guidance relating to signs in public transport precincts.

15.3.1 Public Transport Infrastructure Manual (PTIM)

The PTIM includes signage references throughout. Chapter 4 provides overall context and specifies various technical requirements.

- Chapter 4 – *Branding, theming and signage*

This chapter outlines the branding, theming and signage considerations required for public transport infrastructure within the TransLink network. It:

- sets out the preferred requirements for public transport infrastructure signage, wayfinding and branding
- details the requirements with relevant standards and regulations, and
- promotes consistency and best practice signage design and wayfinding across the TransLink network.

Bus Network Infrastructure Signage Manual

The *Bus Network Infrastructure Signage Manual* ensures the presentation and location of signage is accessible and consistent across the TransLink bus network. It seeks to align busway signage with the Premises Standards and DSAPT-2002.

15.3.2 Rail Station Signage Manual

The *Rail Station Signage Manual* ensures the presentation and location of signage is accessible and consistent across TransLink rail stations. It also aligns signage with the Premises Standards and DSAPT-2002.

15.3.3 Wayfinding and signage for people walking

Although not specific to public transport infrastructure, the department's Wayfinding and signage for people walking provides useful planning and explanatory information for pedestrian wayfinding.

15.3.4 Australian Standards

Various Australian Standards contain clauses that provide technical requirements for signs. Current standards include:

- AS 1428.1-2021 *Design for access and mobility Part 1 General requirements for access — New building work*
- AS 1428.2-1992 *Design for access and mobility Part 2: Enhanced and additional requirements — Buildings and facilities*
- AS 1428.4.2-2018 *Design for access and mobility Part 4.2: Means to assist the orientation of people with vision impairment - Wayfinding signs*, and
- AS 1428.5-2021 *Design for access and mobility Part 5: Communication for people who are deaf or hearing impaired*.

Superseded Australian Standards that are referenced in various Disability Standards or guidelines are:

- AS 1428.1-2009 *Design for access and mobility Part 1: General requirements for access — New building work*, and
- AS 1428.1-2001 *Design for access and mobility Part 1: General requirements for access — New building work*.

AS 1428.1-2021 should be given precedence over the superseded editions of AS 1428.1.

15.3.5 International Standards

As noted previously, Standards Australia has withdrawn AS 2899.1-1986 in favour of ISO 7001-2007.

- AS 2899.1-1986 *Public information symbol signs. Part 1: General information signs*, and
- ISO 7001-2007 *Graphical symbols — Public information symbols*.

ISO 7001 can be used as part of a Performance Solution or Equivalent Access Solutions.

15.3.6 Manual of uniform traffic control devices (MUTCD)

The MUTCD Part *11: Parking controls* specifies the signs and pavement markings used to indicate areas of a road where parking is available, restricted or prohibited, on either a part-time or full-time basis.

- AS 1742.11:2016 Manual of uniform traffic control devices Part 11: Parking controls

Queensland-specific amendments to AS 1742.11:2016 *Manual of uniform traffic control devices Part 11: Parking controls* are published by the department.

15.4 Recommendations for inclusive signs

Figure 201 Inclusive signs design recommendations

Subject	Recommendations
General principles	All public signs are subject to the DDA-1992 and must cater to the widest possible range of users. Signs should be designed for visibility, accessibility, and ease of comprehension, depending on their location and purpose. Wherever possible, visual signage and information should be supported by non-visual equivalents, such as braille and tactile alternatives, and audio announcements with hearing augmentation.
Key types of signs	**Overhead signs** • Designed for visibility at a distance and in crowded areas. • Do not require braille or tactile components as they are out of reach. • Use symbols to assist people with low literacy or limited English vocabulary. • Should be located at or just before decision points. **Static signs** • Located within reach and include braille and tactile components for accessibility. • Should be intuitively placed for people with vision impairments to easily locate.

Subject	Recommendations
	• Examples include wayfinding signs at lift landings, street signs co-located with audio-tactile pedestrian push button assemblies, toilet and facility identification signs. **Tactile signs** • Include braille and tactile components for wayfinding and facility identification. • Located at a height that makes them noticeable and accessible. • Examples include tactile maps, street signs, and platform help-phone signage.
Audio and smartphone alternatives	Overhead passenger information displays should include audio alternatives for blind or low-vision passengers. NFC tags and QR codes can provide timetable and service information via smartphones. Digital signs can deliver information in multiple formats (e.g. audio, text, visual, Auslan).
Compliance considerations	The Disability (Access to Premises – Buildings) Standards 2010 include the following relevant sections: • D3.6: *Signage* • Part D4: *Braille and tactile signs*, and • H2.10: *Symbols and signs*. Refer to AS 1428.1-2021 for updated requirements and use it as a starting point for Performance Solutions. AS 1428.4.2-2018 provides useful guidance on wayfinding signs for people with vision impairment. For symbols, refer to ISO 7001-2007 *Graphical symbols — Public information symbols*. The DSAPT include the following relevant parts: • Part 17: *Signs*, and • Part 16: *Symbols*. Use AS 1428.1-2021 and ISO 7001-2007 as part of Equivalent Access Solutions to meet DSAPT requirements.

16. Tactile Ground Surface Indicators

16.1 Overview

Tactile Ground Surface Indicators (TGSIs) in precincts are subject to the DDA. Within premises and public transport infrastructure, they are also subject to the Premises Standards and DSAPT-2002 respectively.

16.1.1 Types of TGSIs

There are two types of TGSIs:

- **Directional TGSIs** assist with navigation, particularly environments that lack other tactile directional cues. They feature longitudinal strips laid in the direction of travel.
- **Warning TGSIs** provide a tactile cue to indicate a potential hazard, such as change in level or direction, intersection, or obstruction. They feature circular truncated cones laid in a grid pattern.

TGSIs are highly beneficial for people with vision impairment, especially those who navigate with a long white cane. TGSIs can identify bus stop boarding points, warn of platform edges, lead to essential fixtures, and provide a reliable path across open spaces. They also serve as informal wayfinding aids for sighted users as they navigate through a precinct. TGSIs should be installed where there are limited tactile, navigational or wayfinding cues, and where hazards or changes in direction may not be easily anticipated. As TGSIs are designed to be simple to interpret and understand, they should be applied with due consideration.

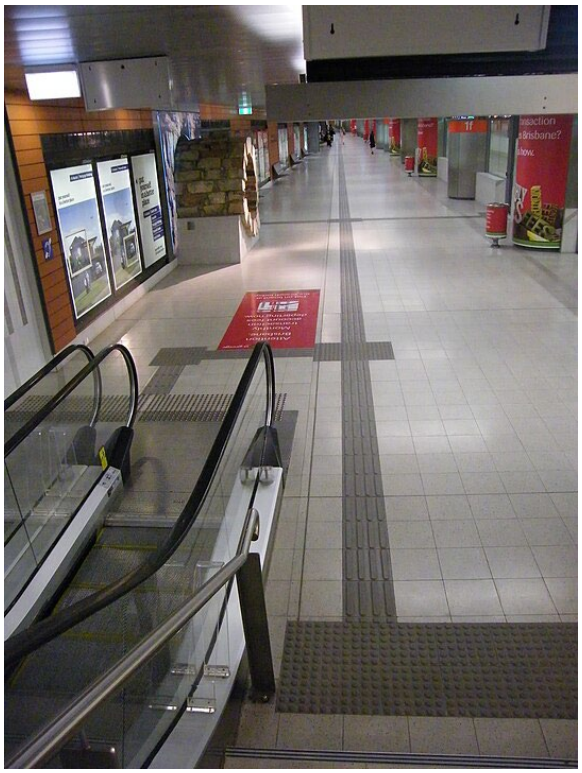


Figure 202
Directional TGSI, King George Square bus station

Good practice: Directional TGSI trail leading to boarding gates and help points, Platform 1.

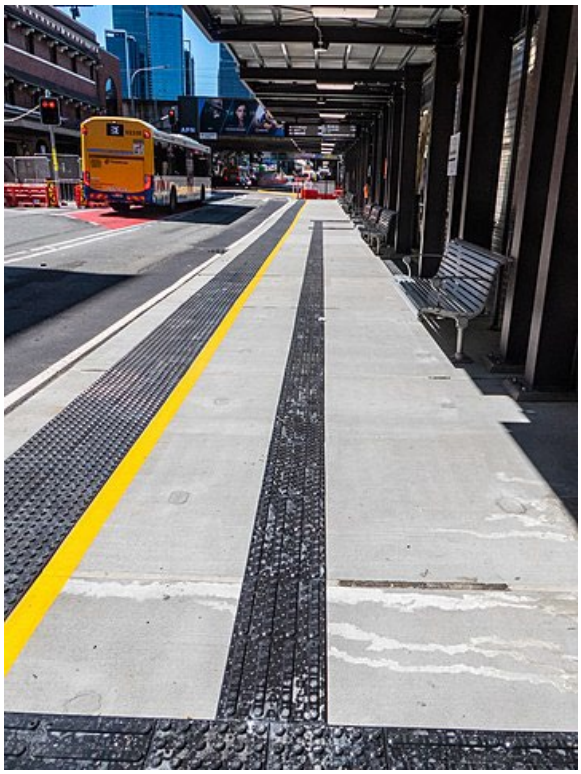


Figure 203
TGSIs, Cultural centre bus station

Good practice: Directional TGSI trail leading to exit gate and help point, Platform 3.

Figure 204
TGSIs at parking, Yeronga Rail Station

Good practice: Warning TGSIs separate accessible parking spaces from the footpath at the same grade.

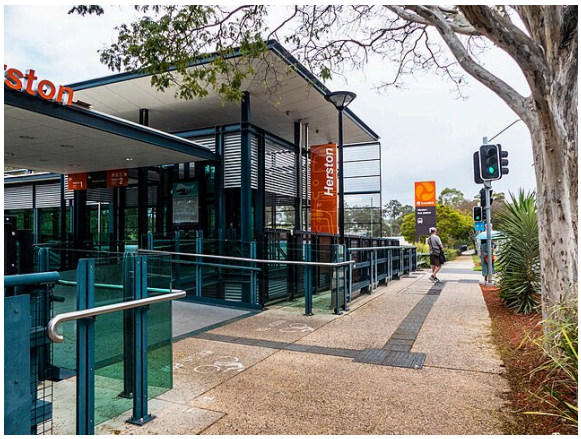


Figure 205
Directional TGSI, Herston Road

Good practice: TGSI trail connecting Herston bus station to signalised pedestrian crossing.

Figure 206
TGSI, King George Square bus station

Good practice: Directional TGSI trail leading to boarding gate and help point, Platform 1.

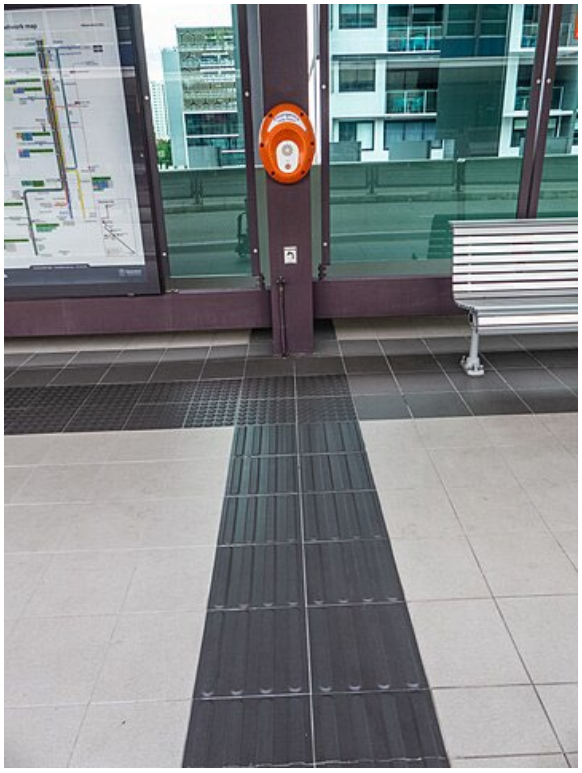


Figure 207
TGSI, Mater Hill bus station

Good practice: Directional TGSI trail leading to help point, Platform 1.

Figure 208
TGSI, Fairfield rail station

Good practice: Directional TGSI trail leading to help point, Platform 1.

Figure 209
TGSI, Cultural Centre bus station

Good practice: Directional TGSI trail leading to help point, Platform 1.

16.1.2 Incorrect application

Directional TGSIs should be kept at least 1000 mm from any obstacles, whether permanent or temporary. This is because people who use a long white cane often walk beside the TGSI trail rather than directly on it. In some cases, TGSIs are installed by people who are unfamiliar with their purpose and benefit, which can result in fixtures being placed on TGSIs that impede their function and safety. Careful consideration of TGSI and fixture placement is required to avoid creating collision hazards along TGSI trails. Where possible, TGSIs should also be located away from service pit lids to prevent trip hazards and reduce maintenance issues. Public awareness programs can also help reduce the likelihood of objects being placed temporarily on TGSIs.

Figure 210
TGSI, Mater Hill bus station

Could be better: Waste bin fixed to a directional TGSI trail.

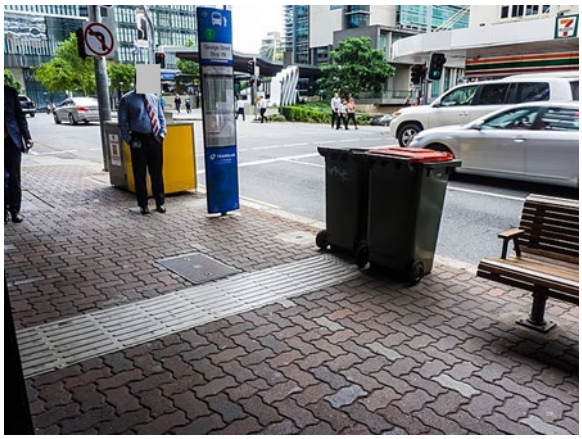


Figure 211
TGSI, George Street, Brisbane

Could be better: Waste bins placed on top of bus stop boarding point TGSIs.

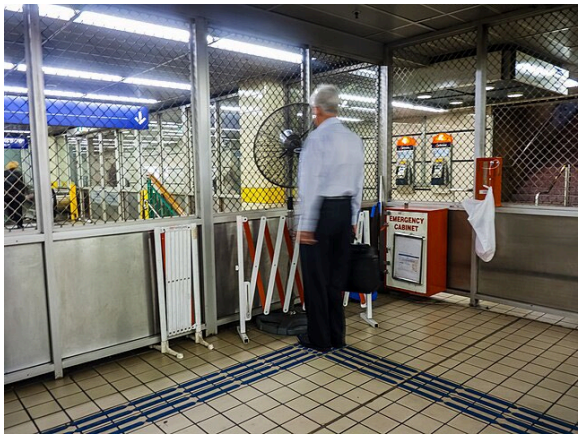


Figure 212
Town Hall rail station, Sydney

Could be better: Directional TGSI trail extremely close to an electric fan and temporary fencing.

Figure 213
Adelaide Street, Brisbane

Could be better: E-scooter parked on bus stop TGSIs.

Figure 214
Ballina, New South Wales

Could be better: Directional TGSIs leading directly into traffic signal post.

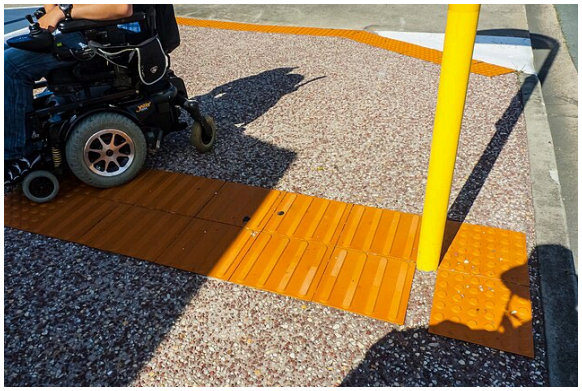


Figure 215
Rainbow Street, Sandgate

Could be better: Bus stop boarding point TGSIs incorrectly installed.

Planning and installation of TGSIs should thoughtfully considered and not overused. Complex layouts and multiple installations in public places can confuse people with vision impairment and create inconvenience for people with mobility impairments. TGSIs should be installed only where required by relevant standards and guidelines. Where directional TGSIs are to be installed, consultation before design will help achieve the most appropriate outcome for all stakeholders.

Figure 216
TGSI, Townsville

Could be better: Warning TGSIs covering the face of a kerb ramp.

Figure 217
TGSI Ballina, New South Wales

Could be better: Warning TGSIs covering the face of a kerb ramp.

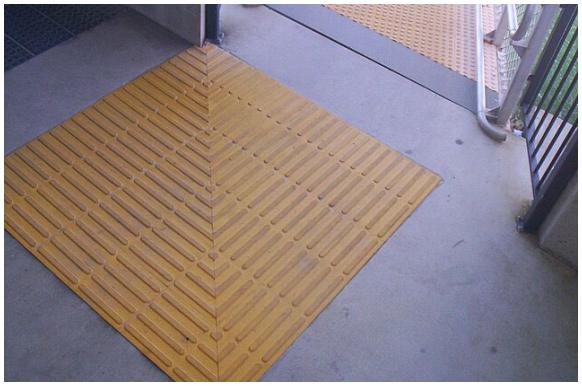


Figure 218
Nelly Bay ferry terminal, Magnetic Island

Could be better: Directional TGSIs inappropriately installed at gangway entrance.

Figure 219
TGSI, Nelly Bay ferry terminal, Magnetic Island

Could be better: Directional TGSIs inappropriately installed at entrance gate.

Figure 220
TGSI, 61 Mary Street, Brisbane

Could be better: Directional TGSIs inappropriately installed on a ramp.

Figure 221
TGSI, Chermside bus station

Could be better: Warning TGSIs covering the face of a kerb ramp

TGSIs should never be used to compensate for poor or unsafe design. Where possible, hazards should be removed rather than marked with warning TGSIs. Likewise, careful design that provides clear and unambiguous wayfinding cues may remove the need for directional TGSIs. Where directional TGSIs are required, such as in large open concourses or public squares, layouts are best co-designed with people with disability and qualified orientation and mobility specialists. Poorly located directional TGSIs can disadvantage some pedestrians with mobility impairments, so these users should be involved in the co-design process.

16.1.3 Luminance contrast

TGISs must have sufficient luminance contrast with the surrounding floor surface to ensure they are visible, particularly for people with low vision. The type and finish of TGSIs should therefore be considered when choosing flooring materials and finishes. Light TGSIs on dark flooring generally provide good contrast until they darken with use. Dark-coloured TGSIs on light flooring typically offer lower initial contrast and can further diminish in visibility as they wear and dirty over time. The required luminance contrast varies depending on the TGSI type and is specified in AS1428.4.1. The three styles of TGSI are below:

- **Integrated TGSIs:** a single tile that must have a luminance contrast of at least 30% with the base surface.
- **Discrete TGSIs:** individual elements that must have a luminance contrast of at least 45% with the base surface.
- **Composite discrete TGSIs:** two different materials for the inner and outer components, with a luminance contrast of at least 60% between the inner 25 mm of the marker and the base surface.

Figure 222
Integrated TGSI (Directional)

Could be better: A black integrated directional TGSI installed over red brick pavers. The TGSI has started to lift, creating a trip hazard.

Figure 223
Discrete TGSI (Warning)

Could be better: Black discrete warning TGSIs installed on light concrete aggregate. Two of the individual indicator buttons have deteriorated, impacting their detectability.

Figure 224
Composite discrete TGSI (Warning)

Could be better: Red and stainless-steel warning composite TGSI installed over dark grey pavers. A single marker is missing.

16.2 Compliance requirements

This section summarises the legislative requirements for TGSIs in public transport precincts.

16.2.1 Disability (Access to Premises — Buildings) Standards 2010

The Premises Standards outline where TGSIs are required within premises. Section H2.11 applies specifically to public transport premises, while Section D3.8 applies to all premises.

> **D3.8 Tactile indicators**
>
> (2) Tactile ground surface indicators required by subclause (1) must comply with sections 1 and 2 of AS/NZS 1428.4.1.
>
> **H2.11 Tactile Ground Surface Indicators**
>
> Tactile ground surface indicators must be installed in accordance with AS 1428.4 on an accessway and must indicate changes of direction in accordance with clause 18.1 of AS 1428.2.

The Australian Standards referenced as compliance requirements are:

- AS 1428.2-1992 *Design for access and mobility Part 2: Enhanced and additional requirements—Buildings and facilities*
- AS 1428.4-1992 *Design for access and mobility, Part 4: Tactile ground surface indicators for the orientation of people with vision impairment*
- AS/NZS 1428.4.1-2009 *Design for access and mobility Part 4.1 Means to assist the orientation of people with vision impairment—Tactile ground surface indicators*

AS 1428.4-1992 has been superseded by AS/NZS 1428.4.1-2009, which is itself under review. Performance Solutions developed through co-design with people with disability and qualified orientation and mobility specialists are recommended as the most effective approach to achieve functionality and compliance. While warning TGSIs are directly addressed in the Premises Standards, directional TGSIs are not. However, good design may require their inclusion within pedestrian environments. Although not a specific compliance requirement under the Premises Standards, directional TGSIs are an important wayfinding tool that should be considered. Where the DSAPT-2002 overlaps with premises Standards, for example at boarding points, directional TGSIs may be required. Directional TGSI layouts are best co-designed with people with disability and qualified orientation and mobility specialists.

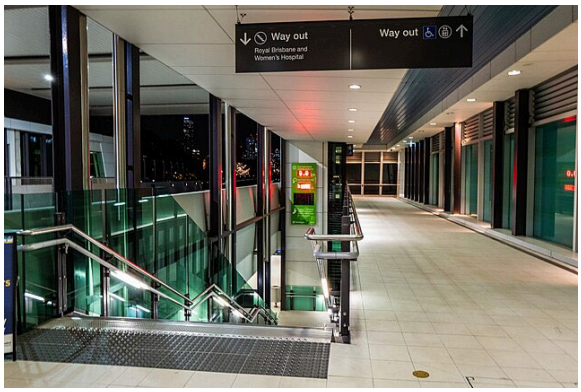


Figure 225
TGSI, Fairfield rail station

Good practice: Warning TGSIs at the top stair landing. The contrast strips also provide a visual indicator for each step.

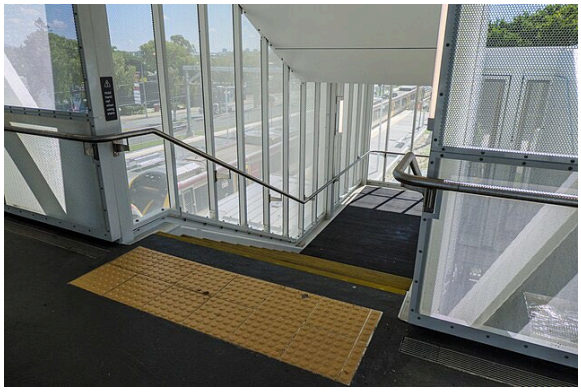


Figure 226
TGSI, RBWH bus station

Good practice: Warning TGSIs at the top stair landing.

Figure 227
TGSI, Yeronga rail station

Good practice: Warning TGSIs at the top and bottom stair landings.

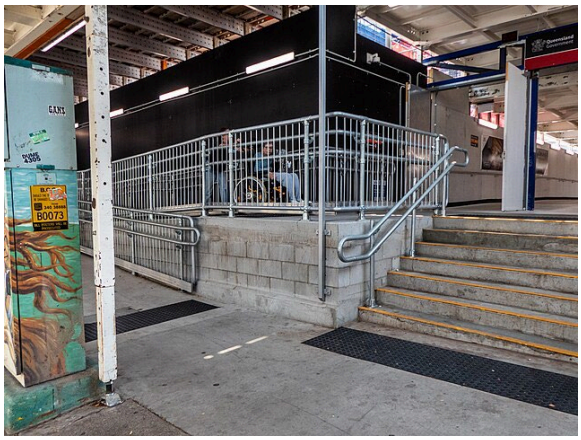


Figure 228
TGSI, Roma Street rail station

Good practice: Warning TGSIs at the bottom stair and ramp landings. Contrast strips on stair nosing are clearly visible.

16.2.2 Disability Standards for Accessible Public Transport 2002

TGSIs are addressed in *Part 18 Tactile ground surface indicators* of the DSAPT-2002, which contains five sections:

- 18.1 *Location*
- 18.2 *Style and dimensions*
- 18.3 *Instalment at accessible bus boarding points*
- 18.4 *Instalment at railway stations*
- 18.5 *Instalment at wharves*

DSAPT-2002 Section 18.1 and Section 18.2 aligns closely with the Premises Standards Section H2.11 *Tactile Ground Surface Indicators*. Both Disability Standards reference the same Australian Standards as the measure of compliance.

- AS 1428.2-1992 *Design for access and mobility Part 2: Enhanced and additional requirements—Buildings and facilities*
- AS 1428.4-1992 *Design for access and mobility, Part 4: Tactile ground surface indicators for the orientation of people with vision impairment*

AS 1428.4-1992 has been superseded by AS/NZS 1428.4.1-2009, which is itself under review. Equivalent Access Solutions developed through co-design with people with disability and qualified orientation and mobility specialists are recommended as the most effective approach to achieve functionality and compliance.

- AS/NZS 1428.4.1-2009 *Design for access and mobility Part 4.1 Means to assist the orientation of people with vision impairment—Tactile ground surface indicators*

Section 18.4 and Section 18.5 also reference AS 1428.4-1992. Section 18.3 includes a single performance requirement:

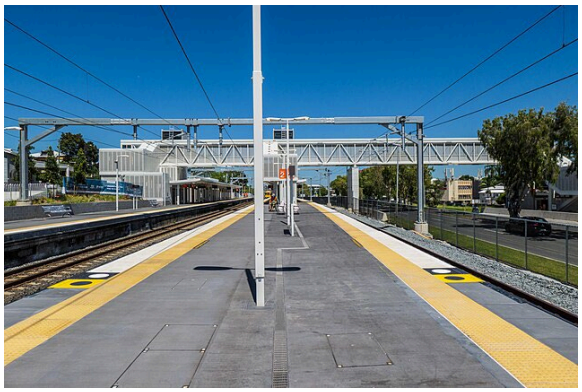
> **18.3 Instalment at accessible bus boarding points**
>
> Colour-contrasted tactile indicators must be installed at accessible boarding points at bus stops or in bus zones.

The Australian Human Rights Commission publishes guidelines to assist in interpreting Section 18.3.

Figure 229
TGSI, RBWH bus station

Good practice: Platform edge warning TGSIs and lead-to-stop directional TGSIs.

Figure 230
Platform TGSI, Yeronga rail station



Good practice: Platform edge warning TGSIs provide a visual and tactle warning.

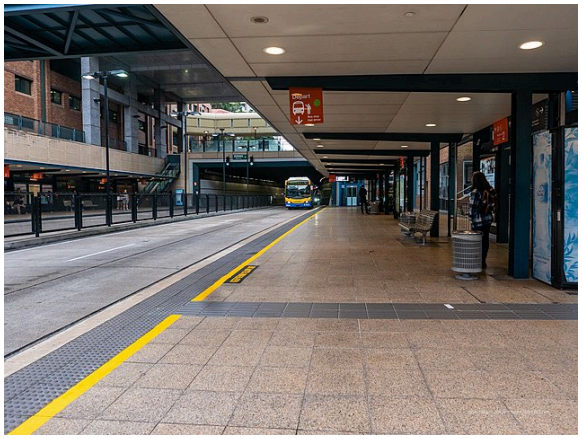


Figure 231
TGSI, Mater Hill bus station

Good practice: Platform edge warning TGSIs and lead-to-stop directional TGSIs.

Figure 232
Bus stop TGSIs, Murphy Road, Chermside

Good practice: Directional TGSI lead to the warning TGSI at the boarding point.

Figure 233
Bus stop TGSIs, Adelaide Street, Brisbane

Good practice: Directional TGSI lead to the warning TGSI at the boarding point.

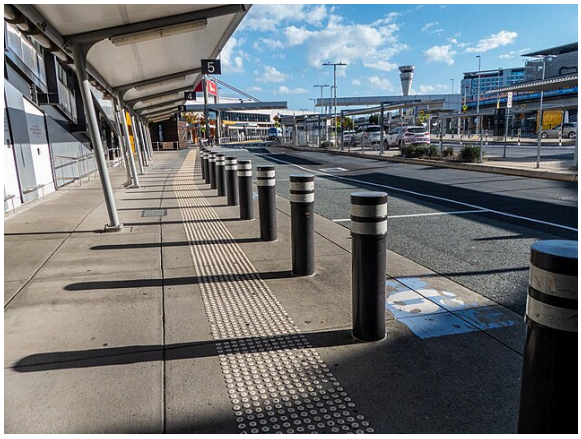


Figure 234
TGSI, Brisbane Domestic Terminal, Brisbane Airport

Good practice: Warning TGSIs at taxi loading zone.

Figure 235
TGSI, King George Square bus station, Brisbane

Good practice: Boarding gate warning TGSIs.

16.3 Further guidance

This section summarises further guidance relating to TGSI's in public transport precincts.

16.3.1 Public Transport Infrastructure Manual, November 2020

The PTIM provides detailed guidance on TGSI installation within public transport premises and infrastructure, including useful technical drawings. Chapters referencing TGSIs are:

- Chapter 5 – *Bus stop infrastructure*
  - Appendix 5A: *Example scenarios for the application of the transport standards*
  - Appendix 5-B *Layout and technical drawings*
- Chapter 6 – *Bus station infrastructure*
  - Appendix 6-A *Typical infrastructure design samples*
- Chapter 7 – *Taxi facilities*
- Chapter 9 – *Rail station infrastructure*, and
- Chapter 11 – *Light rail station infrastructure*.

TGSIs may still be required even if not referenced in a PTIM chapter. Any public transport premises may require TGSIs for wayfinding and public safety. This should be carefully considered during the planning stage of new projects and significant asset refurbishments. The PTIM references four Australian Standards as technical requirements:

- AS 1428.2-1992 *Design for access and mobility Part 2: Enhanced and additional requirements—Buildings and facilities*
- AS 1428.4-1992 *Design for access and mobility, Part 4: Tactile ground surface indicators for the orientation of people with vision impairment*
- AS/NZS 1428.4-2002 *Design for access and mobility Part 4 Tactile indicators*, and
- AS/NZS 1428.4.1-2009 *Design for access and mobility Part 4.1 Means to assist the orientation of people with vision impairment—Tactile ground surface indicators*.

AS 1428.4-1992 and AS/NZS 1428.4-2002 have been superseded by AS/NZS 1428.4.1-2009, which is itself under review. Performance Solutions or Equivalent Access Solutions developed through co-design with people with disability and qualified orientation and mobility specialists are recommended as the most effective approach to achieve functionality and compliance.

16.3.2 Transport and Main Roads Standard Drawings

The department issues Standard Drawings (SD)to assist with the installation of TGSIs at street crossings and kerb ramps:

- SD1446 - *Kerb Ramp - Ramped Kerb Crossing*
- SD1447 - *Median and Island Crossing - Ramped and Cut-Through Treatment for Pedestrian Facilities*
- KRG1 - *Kerb ramp - Guidelines for the installation of tactile ground surface indicators on ramped kerb crossings*
- KRG2 - *Kerb ramp - Application examples for the installation of tactile ground surface indicators on ramped kerb crossings*

16.3.3 Australian Human Rights Commission - accessible bus stops guidelines (December 2010)

The Australian Human Rights Commission has published a guideline to support compliance of bus stops with the DSAPT-2002. It includes example layouts of both warning and directional TGSIs at accessible bus boarding points and their surrounding areas.

16.3.4 Australian Standards

TGSIs are detailed in three Australian Standards:

- AS 1428.2-1992 *Design for access and mobility Part 2: Enhanced and additional requirements—Buildings and facilities*
- AS 1428.4-1992 *Design for access and mobility, Part 4: Tactile ground surface indicators for the orientation of people with vision impairment*, and
- AS/NZS 1428.4.1-2009 *Design for access and mobility Part 4.1 Means to assist the orientation of people with vision impairment—Tactile ground surface indicators* under review. Performance Solutions or Equivalent Access Solutions developed through co-design with people with disability and qualified orientation and mobility specialists are recommended as the most effective approach to achieve functionality and compliance.

16.3.5 Brisbane City Council

Brisbane City Council provides Brisbane Standard Drawings (BSDs) free to the public that describe how Council would prefer particular fixtures, fittings, access paths and infrastructure to be constructed. Among the BSDs are technical drawings for TGSI layouts in various circumstances.

The technical drawings below describe how directional TGSIs should be laid out:

- BSD-5217 - *Directional TGSI/wayfinding trails - permanent clearances - Sheet 1 of 2*, and
- BSD-5217 - *Directional TGSI/wayfinding trails - temporary diversions - Sheet 2 of 2*.

It is recommended to use TGSI colours that contrast effectively with common pavement types to maintain high luminance contrast:

- BSD-5218 - *Tactile ground surface indicator detail*.

Recommended TGSI layouts at street crossings, traffic islands and kerb ramps are detailed in:

- BSD-5231 - *Kerb ramp - plan view and notes - Sheet 1 of 2*
- BSD-5232 - *Island pedestrian access*
- BSD-5233 - *Typical kerb ramp and traffic signal pedestal location*, and
- BSD-5234 - *Pedestrian facilities at traffic island ramps and slots*.

Commercial driveway TGSIs are specified in:

- BSD-2021 - *Vehicle crossing driveway - other than single dwelling and rear allotment access - Details - Sheet 1 of 2*.

Details for bus stop TGSI are in the below:

- BSD-2103 - *Bus stop premium*

- BSD-2104 - *Intermediate bus stop - Sheet 1 of 3*
- BSD-2104 - *Intermediate bus stop - In centres - Sheet 2 of 3*
- BSD-2104 - *Intermediate bus stop - constrained site - Sheet 3 of 3*
- BSD-2105 - *Regular bus stop - without seat - Sheet 1 of 3*
- BSD-2105 - *Regular bus stop - with seat - Sheet 2 of 3*
- BSD-2105 - *Regular bus stop - in centres - Sheet 3 of 3*
- BSD-2107 - *oOh!media mini boulevard bus shelter*
- BSD-2108 - *oOh!media boulevard bus shelter*, and
- BSD-2109 - *TransLink standard bus shelter typical layout*.

16.4 Recommendations for inclusive TGSI

Figure 236 Inclusive TGSI design recommendations

Subject	Recommendations
General principles	Tactile Ground Surface Indicators (TGSIs) are subject to the DDA, the Premises Standards, and the DSAPT-2002. TGSIs assist people with vision impairments, particularly those using long white canes, by providing navigational cues and hazard warnings. TGSIs should be applied thoughtfully to avoid overuse, which can confuse users or create obstacles for people with mobility impairments. TGSI layouts should be co-designed with people with disability, and orientation and mobility specialists to ensure functionality and compliance.
Types of TGSIs	**Directional TGSIs:** • Longitudinal strips that assist with navigation in environments lacking tactile directional cues. • Used to guide users to boarding points, essential fixtures, or across open spaces. **Warning TGSIs:** • Circular truncated cones arranged in a grid to denote hazards, changes in level, or intersections. • Used at platform edges, stair landings, and boarding points.

Subject	Recommendations
Placement	TGSIs should not be used to compensate for poor design - hazards should be removed where possible. When positioning TGSIs, consider how the space will be used and the location of other fixtures (e.g. bins, e-scooters) that may impact function and safety. Directional TGSIs should be at least 1000 mm from obstacles to avoid collision hazards for cane users.
Luminance contrast	TGSIs must have sufficient visual / colour (luminance) contrast with adjacent surfaces to ensure visibility for low-vision users. Contrast requirements vary by TGSI type: • Integrated TGSIs: 30% contrast. • Discrete TGSIs: 45% contrast. • Composite Discrete TGSIs: 60% contrast between inner and outer components.
Compliance considerations	Disability (Access to Premises – Buildings) Standards 2010 relevant sections include: • H2.11: *Tactile Ground Surface Indicators for public transport premises*. • D3.8: *General TGSI requirements for all premises*. Referenced Australian Standards: • AS 1428.2-1992: *Enhanced requirements for buildings and facilities*. • AS/NZS 1428.4.1-2009: *Tactile indicators for vision impairment* (pending revision). Disability Standards for Accessible Public Transport 2002 (DSAPT) covers TGSIs in Part 18, which includes location, style, dimensions, and installation at bus boarding points, railway stations, and wharves.

17. Accessible Public Toilets

17.1 Overview

Well-designed and appropriately located accessible public toilets support independence, dignity, and comfort for all users. Unlike accessible parking spaces, unisex accessible toilets can be used by anyone. Increasing the number of high-quality accessible toilets across the network improves flexibility and choice for those who rely on them. The design of accessible toilets currently references a superseded Australian Standard, AS 1428.1-2001. While this remains the lawful minimum, it is inadequate when compared with later editions of AS 1428.1 and AS 1428.2-1992, particularly regarding floor area. Later editions of AS 1428.1 expand the internal circulation space by 300 mm in both length and width. The most current editions of AS 1428.1 should be used in preference to AS1428.1-2001.

Flushing controls located on the wall beside the pan are most easily reached by a person sitting on the pan. Where flushing controls are located behind the pan, they should be positioned on a clear section of wall rather than directly above the pan. At least two emergency call points should be installed in all accessible toilets – one on the wall beside the pan and within reach of a seated user, and one at floor level to assist a person who has fallen. A visual emergency alarm should also be installed in the toilet to alert Deaf and hard-of-hearing users of the need to evacuate. Power-assisted sliding doors with audio open and close cues are the most accessible option for people with mobility impairments, followed by power-assisted swing doors. Manual sliding or swing doors that must be pushed or pulled to open or close can be difficult for some wheelchair users. Swing doors with door closers can also be difficult or impossible for people with limited hand function or dexterity to open.

17.2 Compliance requirements

This section summarises the legislative requirements for accessible public toilets in public transport precincts.

17.2.1 Disability (Access to Premises — Buildings) Standards 2010

Accessible public toilets located within Class 9b public transport premises, or as free-standing Class 10 structures in public transport-related areas, must comply with Section H2.8 '*Unisex accessible toilet*' of the Premises Standards as a minimum, along with any additional requirements imposed by Part F2.

> **H2.8 Unisex accessible toilet**
>
> If toilets are provided, there must be at least one unisex accessible toilet without an airlock that complies with AS 1428.1 clause 10, sanitary facilities.

Accessible public toilets that are free standing Class 10 structures located in transport-related areas, such as highway rest stops, must also comply with Part F2 of the Premises Standards. AS 1428.1-2001 is the Deemed-to-Satisfy Solution referenced Australian Standard for Section H2.8, while AS 1428.1-2009 is the Deemed-to-Satisfy Solution reference in Section F2.4. Both have been superseded by AS 1428.1-2021, which introduces significant design improvements. AS 1428.2-1992 also includes additional fit-out requirements for accessible toilets that should also be incorporated. Where any contradiction occurs between these two standards, AS 1428.1-2021 should take precedence. Compliance with the Premises Standards using these newer, non-referenced standards can be easily achieved through a Performance Solution, ideally developed through a co-design process.

The Australian Building Codes Board (ABCB) periodically updates the *National Construction Code* (NCC), which incorporates the Premises Standard. The ABCB has released a draft *NCC 2025 Public Comment Draft (PCD 2025)* proposing updates to the referenced Australian Standards, including:

- AS 1428.1-2021 *Design for access and mobility Part 1: General requirements for access—New building work*

The document *PCD 2025 - NCC Referenced documents* lists this and other proposed updated in *Table 1 Potential changes to referenced documents for the next edition of the NCC*. As a means of futureproofing, the latest edition of these Australian Standards should be used.

17.2.2 Disability Standards for Accessible Public Transport 2002

Accessible public toilets are covered in Sections 15.1 and 15.2 of the DSAPT.

15.1 Unisex accessible toilet — premises and infrastructure

If toilets are provided, there must be at least one unisex accessible toilet without airlock that complies with AS1428.1 (2001) Clause 10, Sanitary facilities.

Premises except premises to which the Premises Standards apply

Infrastructure except airports that do not accept regular public transport services

15.2 Location of accessible toilets

Accessible toilets must be in the same location as other toilets.

Premises except premises to which the Premises Standards apply

Infrastructure except airports that do not accept regular public transport services

AS 1428.1-2001 has been superseded by AS 1428.1-2021, which includes significant design improvements. AS 1428.2-1992 also contains additional fit-out requirements to toilets that should be incorporated. Where any contradiction occurs between these two standards, AS 1428.1-2021 should take precedence. Compliance with the DSAPT-2002 using these newer, non-referenced Standards can be achieved through an Equivalent Access Solution, developed through a co-design process. The DSAPT-2002 does not include requirements for sanitary compartments suitable for people with ambulant disability, as these specifications were developed after its publication. Sanitary compartments suitable for a person with an ambulant disability should still be installed in DSAPT-2002 covered areas, as per the Premises Standards Section F2.4.

17.2.3 Australian Standards

Accessible public toilet design is governed by AS 1428.1 and AS 1428.2. The following older Standards are referenced in the Premises Standards' Deemed-to-Satisfy Solutions and DSAPT's Prescriptive solutions:

- AS 1428.1-2001 *Design for access and mobility Part 1: General requirements for access—New building work*
- AS 1428.1-2009 *Design for access and mobility Part 1: General requirements for access—New building work*

These earlier Standards no longer provide acceptable outcomes and should not be used. Instead, Performance Solutions and Equivalent Access solutions should be achieved and based on:

- AS 1428.1-2021 *Design for access and mobility Part 1: General requirements for access—New building work*
- AS 1428.2-1992 *Design for access and mobility Part 2: Enhanced and additional requirements—Buildings and facilities*

Where any contradiction occurs between these two standards, AS 1428.1-2021 should take precedence.

17.3 Recommendations for inclusive accessible toilets

Figure 237 Inclusive accessible toilet design recommendations

Subject	Recommendations
General principles	Accessible public toilets provide independence, dignity and amenity for all users, improving flexibility and choice for those who rely on them most. Unlike accessible parking spaces, unisex accessible toilets can be used by anyone. Later editions of AS 1428.1 (e.g. 2021) should be used in preference to the outdated AS 1428.1-2001, as they provide improved design features, including larger internal circulation spaces.
Key design considerations	Flushing controls should be reachable from the pan, ideally located on the adjacent wall. Emergency call points should be installed in at least two locations: • adjacent to and reachable from the pan, and • reachable by a person who has fallen to the floor. Power-assisted sliding doors are preferred for ease of use by people with mobility impairments.

Subject	Recommendations
Compliance considerations	Disability (Access to Premises – Buildings) Standards 2010 specify that accessible public toilets in Class 9b public transport premises or free-standing Class 10 structures must comply with: • Section H2.8: *Unisex accessible toilets*. • Part F2: *Additional requirements for free-standing structures*. Referenced Australian Standards: • AS 1428.1-2001 (H2.8) and AS 1428.1-2009 (F2.4), which are both outdated. • Use AS 1428.1-2021 and AS 1428.2-1992 for improved design outcomes via Performance Solutions. The *National Construction Code 2025* (NCC 2025) is currently under consultation and proposed updates to reference AS 1428.1-2021. Disability Standards for Accessible Public Transport 2002 (DSAPT) cover accessible public toilets in Sections 15.1 and 15.2. Use AS 1428.1-2021 and AS 1428.2-1992 for Equivalent Access Solutions. DSAPT-2002 does not address sanitary compartments for ambulant disabilities; these should be installed as per Premises Standards Section F2.4.

18. Accessible Adult Change Facilities

18.1 Overview

Accessible adult change facilities (AACF) provide safe and dignified toileting and changing options for people with high support needs or greater circulation space requirements. These facilities typically include a mobile or ceiling mounted hoist, a peninsular toilet pan, an adjustable height changing table, and washing facilities, among other features. The extra floor space allows carers or support workers to move safely and easily when providing assistance. AACFs are a recent and important addition to the Premises Standards. They have significantly improved access and participation in society for people who were previously limited by the lack of adequate public toilets. Providing AACFs as part of a suite of toileting and changing amenities for adults, children, parents and carers, supports inclusion for people of all ages and needs.

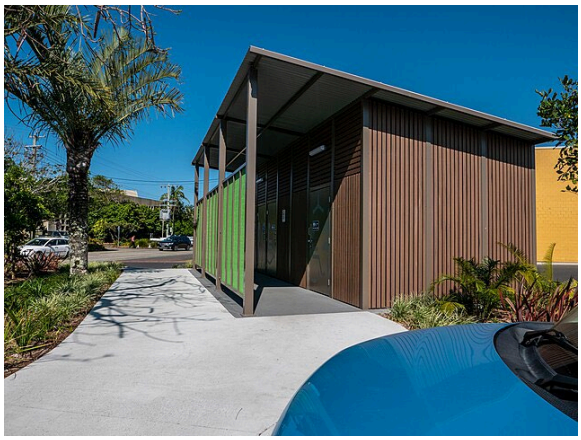
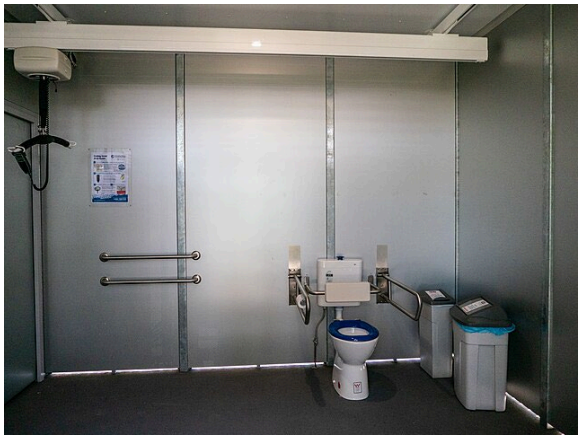


Figure 238
AACF exterior, Ballina, NSW

Good practice: AACF co-located with Tamar Street bus and taxi interchange.

Figure 239
AACF Interior, Ballina, NSW



Good practice: Interior of AACF features changing table, hoist, toilet pan and grabrails.

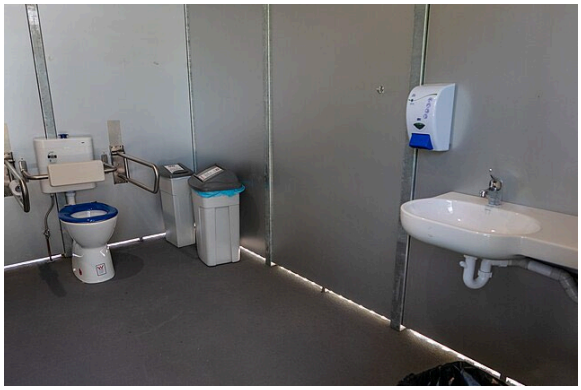


Figure 240
AACF Details, Ballina, NSW

Good practice: AACF interior amenities are located to be within functional reach and provides adequate circulation space.

Figure 241
AACF context, Ballina, NSW

Good practice: AACF is connected by an access path and located close to amenities and other attractors.

Figure 242
AACF exterior, Domestic Terminal, Brisbane Airport

Good practice: AACF with automatic doors, braille and tactile signage, located next to other amenities.

Figure 243
AACF Interior, Domestic Terminal, Brisbane Airport

Good practice: AACF interior amenities are located to be within functional reach and provides adequate circulation space

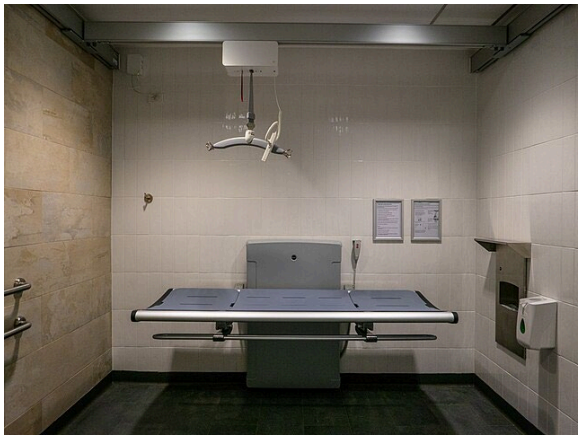


Figure 244
AACF changing table deployed, Domestic Terminal, Brisbane Airport

Good practice: The changing table is designed for adult weights and dimensions.

Figure 245
AACF details, Domestic Terminal, Brisbane Airport

Good practice: AACF interior features changing table, hoist, toilet pan and grabrails.

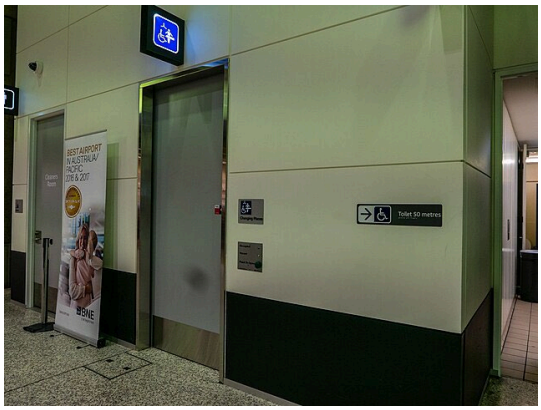


Figure 246
AACF context, Domestic Terminal, Brisbane Airport

Good practice: The AACF is clearly signed and conveniently located.

18.2 Compliance requirements

This section summarises the legislative requirements for AACFs in public transport precincts.

18.2.1 Disability (Access to Premises — Buildings) Standards 2010

Requirements and specifications for AACFs are set out Section F2.9 and Part F3 of the Premises Standards. While AACFs are only required at airports that accept regular public transport services, it is recommended that they be installed in all major public transport premises. Many rail and bus stations that provide public toilets have a far higher patronage than most regional airports, making them equally suitable locations for AACFs. Modality interchanges are another key opportunity for installation of AACFs. As a Universal Design principle, AACFs should be provided at these sites wherever practicable.

F2.9 Accessible adult change facilities

(1) Accessible adult change facilities required by subclause (2):

(a) must be constructed in accordance with Part F3; and

(b) cannot be combined with another sanitary compartment.

(2) One unisex accessible adult change facility must be provided in an accessible part of a:

(e) passenger use area of an airport terminal building within an airport that accepts domestic and/or international flights that are public transport services as defined in the Transport Standards.

18.2.2 Queensland Development Code, Non-mandatory, Part 1.10—Accessible Adult Change Facilities

The *Queensland Development Code*, Part 1.10—*Accessible Adult Change Facilities* provides enhanced specifications for AACFs. These enhancements are highly recommended and should be implemented in addition to the minimum requirements set out in the Premises Standards' Part F3.

18.3 Recommendations for inclusive AACF

Figure 247 Inclusive AACF design recommendations

Subject	Recommendations
General principles	Accessible Adult Change Facilities (AACFs) provide essential amenities for people with high support needs or those requiring additional circulation space, supporting their independence access public spaces and participate in public life. Co-locating AACFs with other amenities improves convenience and accessibility for all users.
Key design considerations	• Mobile or ceiling-mounted hoist capable of carrying an adult's weight. • Adjustable height changing table suitable for people of varying heights. • Peninsular toilets pan, allowing access from either side. • Washing facilities for bathing and cleaning. • Extra floor space for carers or support workers to move safely and comfortably.

Subject	Recommendations
Compliance considerations	The Disability (Access to Premises – Buildings) Standards 2010 specify AACFs in Section F2.9 and Part F3 of the Premises Standards. While AACFs are only mandatory at airports accepting regular public transport services, it is recommended they be installed at: • Major public transport premises (e.g. rail and bus stations with high patronage). • Modality interchanges. Queensland Development Code, Non-Mandatory Part 1.10: the Queensland Development Code's Part 1.10—Accessible Adult Change Facilities promotes enhanced specifications for AACFs. These enhancements are highly recommended and should be implemented in addition to the minimum requirements of the Premises Standards' Part F3.

19. Summary of recommendations

#	Element	Subject	Design consideration
4.1	Precincts	Adopt a precinct-wide approach	Ensure accessibility is considered for the entire precinct, not just for individual elements. Ensure transport nodes (e.g. stations, platforms) are accessible and integrated with surrounding precincts. Provide accessible information systems (e.g. hearing loops, Braille, Easy Read formats). Include assistance-animal toileting facilities with appropriate amenities.
4.2	Precincts	Human Rights focus	Design with the human rights of all users in mind, as per the *Convention on the Rights of Persons with Disabilities (CRPD)*. Apply Universal Design principles (CRPD Article 4.1(f)) and co-design features with stakeholders (CRPD Article 4.3). Use Universal Design to ensure precincts are inclusive for all users, including people with disability, parents with prams, and people carrying goods.

#	Element	Subject	Design consideration
4.3	Precincts	Compliance considerations	Ensure precincts meet obligations under the Disability Discrimination Act (DDA), Premises Standards, and Disability Standards for Accessible Public Transport (DSAPT).
4.4	Precincts	Street furniture and facilities	Provide strategically located seating, drinking fountains, and shelters. Include grassed areas with waste bins for assistance animal toileting. Avoid cluttering access paths, position street furniture on the kerbside or within designated zones. Ensure street furniture contrasts in colour and brightness (luminance) with its background for visibility.
4.5	Precincts	Shade and weather protection	Incorporate shade structures and weather protection to improve comfort and usability for all users.
4.6	Precincts	Assistance animal toileting	Provide accessible, well-maintained toileting areas for guide and assistance dogs, located close to transport hubs and key facilities.
4.7	Precincts	Neurodiversity	Design precincts to accommodate diverse sensory and cognitive needs (e.g. clear signage, quiet spaces, predictable layouts). Refer to standards such as PAS 6463-2022: *Design for the Mind – Neurodiversity and the Built Environment for practical guidance.*
4.7	Precincts	Temporary works	Provide alternative accessible routes during temporary obstructions. Ensure temporary kerb ramps and pathways are stable, clearly marked and safely graded. Liaise with local authorities to regulate placement of temporary items (e.g. signs, tables, barriers).

#	Element	Subject	Design consideration
4.8	Precincts	Crime Prevention Through Environmental Design (CPTED)	Apply CPTED principles to precinct design, including activation, surveillance, ownership, stakeholder management, legibility, territoriality, and vulnerability.
5.1	Access paths	General principles	Ensure access paths are safe, continuous, and connected, offering good levels of service for all users. Prioritise functional design over mere compliance with standards to ensure accessibility is practical and user-friendly. Provide on-demand transport or micro-mobility options for precincts with challenging topography or legacy infrastructure.
5.2	Access paths	Separated and shared paths	Where possible, clearly delineate paths for different users (e.g. pedestrians and cyclists) to improve safety and usability. Design offline landings and rest points beside paths for users to pause without obstructing others. Include seating and wheelchair space at rest points, with shade and weather protection where possible.
5.3	Access paths	Level of Service (LOS)	Evaluate LOS during peak pedestrian periods, considering all users, including those with mobility aids or micro-mobility devices. Ensure paths are wide enough to accommodate current and future demand.
5.4	Access paths	Level crossings	Where possible, provide grade-separated crossings (e.g. overpasses or underpasses) for safer and more accessible rail crossings. Ensure level crossings comply with the Queensland Level Crossing Safety Strategy while integrating with precinct design.

#	Element	Subject	Design consideration
5.5	Access paths	Compliance considerations	Precincts are considered premises under the DDA and must provide accessible paths to all facilities. Ensure continuous accessibility between transport nodes and external facilities, even if assets are managed by different authorities.
5.6	Access paths	Active transport	Prioritise walking and active transport (e.g. cycling, e-scooters) for precinct accessibility. Provide sufficient bicycle storage and e-scooter parking facilities at transport nodes, located clear of essential facilities.
6.1	Passenger loading zones	General principles	Provide accessible loading zones as close as practicable to key attractors. Ensure all vehicle spaces are accessible to passengers with disability and suitable for users with luggage, small children, or mobility challenges Refer to PTIM for guidance on "kiss ‘n’ ride" facilities, and accessibility features.
6.2	Passenger loading zones	Universal Design features	Apply Universal Design principles to maximise functionality and efficiency for all users. Ensure all vehicle spaces and associated infrastructure are accessible. Prioritise grade-level loading zones where practicable or install kerb ramps at all vehicle spaces. Provide extra length and width for accessible spaces where practicable.

#	Element	Subject	Design consideration
6.3	Passenger loading zones	Compliance considerations	Passenger loading zones are public facilities and must comply with Section 24 of the DDA. Ensure all spaces are accessible to maximise efficiency and minimise vehicle dwell time. Passenger loading zones used by taxis are classified as public transport infrastructure and therefore must meet DSAPT requirements for boarding points. Ensure compliance with DSAPT Section 8.1 (Boarding Points and Kerbs) and Section 3.1 (Manoeuvring Space).
7.1	Taxi zones	General principles	Provide accessible taxi zones as near as practicable to key attractors. Ensure all vehicle spaces are accessible to passengers with disability and suitable for users with luggage, small children, or mobility challenges. Ensure taxi zones are of sufficient length to accommodate Wheelchair Accessible Taxis (WATs) at all spaces, to avoid delays for passengers requiring accessible taxis. PTIM Chapter 7 recommends same-grade boarding points for taxi zones to improve accessibility.
7.2	Taxi zones	Universal Design features	Apply Universal Design principles to maximise functionality and efficiency for all users. Ensure all vehicle spaces and associated infrastructure are accessible. Prioritise grade-level loading zones where practicable or ensure kerb ramps are provided at all vehicle spaces. Provide extra length and width for accessible spaces where practicable.

#	Element	Subject	Design consideration
7.3	Taxi zones	Compliance considerations	Taxi zones are public facilities and must comply with the DDA, including Sections 23 (Access to premises) and 24 (Goods, services, and facilities). Where the DSAPT does not specify requirements, the DDA applies by default. Taxi zones are classified as boarding points and must meet DSAPT Section 8.1 (Boarding Points and Kerbs) requirements. Ensure compliance with DSAPT Part 2 (Access Paths) and Section 3.1 (Manoeuvring Space). Use the DSAPT Guidelines to interpret DSAPT requirements, particularly Section 8.3 (Kerbs).
8.1	Accessible parking	General principles	Accessible parking provides a vital "first and last mile" connection for people with disability accessing public transport nodes. Only vehicles displaying Australian Accessible Parking Permits are eligible to use accessible parking spaces. Accessible parking spaces should be located as close as possible to accessible entrances or facilities.
8.2	Accessible parking	Location and type	Off-street parking is generally safer and more convenient than on-street parking. Where on-street parking is the only option, consider speed reductions and road safety treatments. Design accessible parking spaces and connecting access paths to meet or exceed the Premises Standards and DSAPT-2002 requirements.
8.3	Accessible parking	Promote correct use	Implement enforcement measures (e.g. cameras, staff monitoring) to prevent misuse of accessible parking spaces. Ensure accessible parking spaces are free from obstructions (e.g. abandoned vehicles, improperly parked cars, or temporary structures).

#	Element	Subject	Design consideration
8.4	Accessible parking	Compliance considerations	Disability (Access to Premises – Buildings) Standards 2010 covers off-street parking for public transport premises (Class 9b). Use AS 2890.6-2022 for updated requirements, including proximity to accessible entrances and ergonomic considerations.
9.1	Rail, bus and light rail stations	General principles	All public areas and facilities of rail, bus, and light rail stations must be accessible to passengers with disability, in line with Universal Design principles and anti-discrimination legislation. Ensure all spaces, features, and associated infrastructure are accessible to passengers with disability. Provide accessible information in multiple formats (e.g. for sensory, cognitive, and neurodivergent needs). Include grassed areas with waste bins for toileting assistance animals.
9.2	Rail, bus and light rail stations	Accessible boarding	Ensure platform-to-treadplate gaps meet DSAPT-2002 Section 8.2 limits for vertical and horizontal gaps. Provide boarding options at all points on the platform, not just designated assisted boarding points.

#	Element	Subject	Design consideration
9.3	Rail, bus and light rail stations	Compliance considerations	Stations are public places and must comply with the DDA, including Sections 23 (Access to premises) and 24 (Goods, services, and facilities). The DDA applies by default where the Premises Standards or DSAPT-2002 do not specify requirements. Disability (Access to Premises – Buildings) Standards 2010 covers structural elements of public transport premises (Class 9b or Class 10). Compliance can be achieved through Performance Solutions (preferred for innovative and superior outcomes) or Deemed-to-Satisfy Solutions. Use the latest editions of referenced Australian Standards for futureproofing. Disability Standards for Accessible Public Transport 2002 (DSAPT) covers non-structural elements and systems, such as boarding points, waiting areas, seating, fare systems, platform amenities, information displays, hearing loops, and tactile ground surface indicators (TGSIs). Waiting areas must provide priority seating and allocated spaces for mobility aids.
10.1	Ferry terminals	General principles	All public areas and facilities of ferry terminals must be accessible to passengers with disability, in line with Universal Design principles and anti-discrimination legislation. Accessible designs benefit a wide range of users, including those with luggage, small children, and elderly passengers. Avoid creating "disabling environments" where facility design imposes unnecessary barriers.

#	Element	Subject	Design consideration
10.2	Ferry terminals	Universal Design considerations	Minimise gangway gradients at low tide to assist all passengers. Provide accessible information in multiple formats (e.g. for sensory, cognitive, and neurodivergent needs). Ensure priority seating is clearly signed and includes features like armrests and backrests. Allocate spaces next to seating to allow mobility device users to sit with companions.
10.3	Ferry terminals	General principles	Gangplanks bridge the gap between the ferry deck and pontoon, accommodating two moving surfaces.
10.4	Ferry terminals	Gangplanks	Design requirements include: • Gentle convex profiles, handrails, and fall barriers. • Articulated designs for easy storage. • Use Equivalent Access Solutions developed through co-design to meet unique gangplank requirements.
10.5	Ferry terminals	Gangways	Gangways (ramps connected to pontoon wharves) must accommodate varying gradients due to tidal changes. Design considerations: • Calculate gradients using Lowest Astronomical Tide (LAT) as the datum point. • Include auto-levelling landings to ensure compliance across tidal ranges.
10.6	Ferry terminals	Pontoons	Pontoons must remain stable in dynamic environments (e.g. wind, waves, vessel wash). Raised sections can reduce gangway gradients at low tides. Refer to AS 3962-2020 Marina Design for pontoon stability recommendations.

#	Element	Subject	Design consideration
10.7	Ferry terminals	Compliance considerations	Ferry terminals are public places and must comply with the DDA, including Sections 23 (Access to premises) and 24 (Goods, services, and facilities). The DDA applies by default where the Premises Standards or DSAPT-2002 do not specify requirements. Disability (Access to Premises – Buildings) Standards 2010 covers structural elements of ferry terminals (Class 9b or Class 10 premises). Compliance can be achieved by Performance Solutions (preferred for innovative and superior outcomes) or Deemed-to-Satisfy Solutions. Use the latest editions of referenced Australian Standards for futureproofing. Disability Standards for Accessible Public Transport 2002 (DSAPT) covers non-structural elements and systems, such as boarding points, waiting areas, seating, fare systems, and platform amenities. Gangways and pontoons feature specific requirements for gradients and landings. Waiting areas must provide priority seating and allocated spaces for mobility aids.
11.1	Bus stops	General principles	Bus stops are the most common type of public transport infrastructure, with over 17,000 active bus stops in Queensland. Councils play a critical role in maintaining and upgrading bus stops to meet demand. Ensure bus stops connect to the local footpath network with hardstands, TGSIs, and shelters. Provide adequate manoeuvring areas for accessible boarding.

#	Element	Subject	Design consideration
11.2	Bus stops	Challenging locations	Bus stops on steep topography, narrow verges, or unformed kerbs present compliance challenges and safety risks for people using mobility aids. Solutions include using co-design processes to address challenging locations and ensure compliance as far as possible. Additional technical solutions include: • Adjusting slab crossfalls through excavation or retention work. • Raising and fencing boarding points where slopes fall away from the kerb. • Relocating stops to more favourable sites, co-designed through an Equivalent Access process.
11.3	Bus stops	Compliance considerations	Bus stops are regulated under DSAPT and fall into two categories: • Boarding points: Minimum stops with no seating. • Waiting areas: Stops with seating and additional amenities. Relevant DSAPT Parts include: • Part 2: *Access paths*. • Part 8: *Boarding*. • Part 18: *Tactile ground surface indicators* (TGSIs). • Part 27: *Information*. Access paths connecting bus stops to precincts are often regulated under the DDA, not DSAPT.

#	Element	Subject	Design consideration
11.4	Bus stops	Information accessibility	Service-related information (e.g. timetables, disruptions) is often inaccessible to passengers with vision impairments or other print access needs. Innovative solutions include: • NFC tags, QR codes, and e-paper digital bus stops with audio announcements. • Call centres for passengers without smartphones or app proficiency.
12.1	Lighting	General principles	Effective lighting is critical for safe, comfortable, and accessible journeys, particularly for people with disability. Public transport precincts present unique challenges, such as exposure to changing lighting conditions, integration with urban contexts, and accommodating vehicle operations. A layered lighting approach eliminates deep shadows and improves safety and usability for all passengers. Ensure uniform illumination across waiting areas, boarding points, and access paths. Use auto-levelling lighting for dynamic environments like ferry terminals. Avoid glare and ensure gradual transitions between lighting regimes.
12.2	Lighting	Types of lighting	Should conform to applicable standards and provide uniform illumination. Task lighting: focused lighting for specific tasks like reading signs, operating controls, or boarding. Recommended illumination levels: 150–300 lux (AS 1428.2-1992 Clause 19.1). Amenity lighting: general lighting for access paths, platforms, waiting areas, and car parks.

#	Element	Subject	Design consideration
12.3	Lighting	Uniformity of illuminance	Gradual transitions between lighting regimes are essential to avoid temporary blindness or discomfort. Uniformity calculations: • U1: Ratio of minimum to average illumination (AS/NZS 1158.3.1-2020). • U2: Ratio of maximum to average illumination (AS/NZS 1680.1-2006).
12.4	Lighting	Glare	Avoid reflective surfaces and direct light sources that cause discomfort or disable visual ability. Use low-sheen or matt finishes on walls, pavements, fixtures, and signs.
12.5	Lighting	Lighting temperature and colour	Task lighting should have a colour temperature of 3000–3500 kelvins. Refer to CIE 227:2017 Technical Report for lighting recommendations for older people and those with visual impairments.
12.6	Lighting	Compliance considerations	Disability (Access to Premises – Buildings) Standards 2010 covers lighting for public transport premises in Section H2.12. Illumination levels in AS 1428.2-1992 Clause 19.1 are often impractical; alternative Performance Solutions are recommended. Disability Standards for Accessible Public Transport 2002 (DSAPT) covers lighting for premises and infrastructure in Section 20.1. Equivalent Access Solutions are recommended for practical amenity lighting regimes.

#	Element	Subject	Design consideration
13.1	ICT	General principles	Information and Communication Technology (ICT) includes fare gates, ticketing systems, smartphone apps, NFC tags, digital screens, help phones, passenger information displays, public address announcements, hearing augmentation systems, and more. Accessibility requirements for ICT are outlined in AS EN 301 549 Section 4.2. ICT systems should cater to diverse user needs, ensuring accessibility for people with disability. Provide audio and visual alternatives for service-related information (such as platform changes, disruptions), for example: • Ensure help phones include both SMS and hearing loop options. • Use NFC tags and QR codes at bus stops and stations to enhance smartphone accessibility.
13.2	ICT	Good audio-visual practices	Follow WCAG 2.2 AAA for audio-visual presentations on digital screens and online platforms. Combine audio, captions, and sign language (e.g. Auslan) to maximise accessibility. Ensure service-related announcements (e.g. platform changes) are presented in both audio and visual formats.
13.3	ICT	Alternatives to text displays	Provide equivalent services for passengers unable to read text displays, such as: • Audible announcements triggered by passengers. • Smartphone apps compatible with text-to-speech software and/or call centres for direct assistance

#	Element	Subject	Design consideration
13.4	ICT	Communication devices	Platform and lift help phones should include: • SMS messaging for Deaf or non-verbal users. • Hearing augmentation systems for people who are hard-of-hearing.
13.5	ICT	Smartphone dependency	While smartphones are widely used, not all passengers own or are proficient in using them. Ensure service-related information is accessible by alternative means, as per DSAPT-2002 Section 27.1. Use NFC tags and QR codes to simplify access to information for smartphone users.

#	Element	Subject	Design consideration
13.6	ICT	Compliance considerations	ICT systems intended for public use must comply with *Disability Discrimination Act 1992* (DDA), Section 24 (Goods, services, and facilities). This includes both hardware (e.g. fare gates, digital signs) and software (e.g. apps, websites). Disability (Access to Premises – Buildings) Standards 2010, relevant sections include: • DP9: Communication systems for people with hearing impairments. • D3.7: Hearing augmentation. • H2.13–H2.15: Emergency warning systems and controls. Performance Solutions developed through co-design offer more inclusive outcomes than Deemed-to-Satisfy Solutions. Disability Standards for Accessible Public Transport 2002 (DSAPT) requirements for ICT are outdated; use Equivalent Access Solutions with modern technologies. Relevant DSAPT Parts include: • Part 17: Signs. • Part 19: Alarms. • Part 26: Hearing augmentation. • Part 27: Information.
14.1	Lifts	General principles	A universally designed precinct should offer a range of vertical transport options (e.g. lifts, ramps, stairs, escalators) that are co-located for intuitive navigation. Through lifts are preferred by mobility aid users as they remove the need for 180° turns inside the lift car. Transparent lift cars and shafts improve safety and align with CPTED guidelines. Include Braille, tactile signage, and hearing augmentation systems for accessibility.

#	Element	Subject	Design consideration
14.2	Lifts	Accessibility features	Braille and tactile signage: Place adjacent to lift call buttons and inside lift cars for wayfinding. Hearing augmentation and SMS options: Allow Deaf, hard-of-hearing, or non-verbal passengers to communicate in emergencies. Tactile call buttons: Preferred over touch screens, which can be difficult for vision-impaired users. Backup batteries: Ensure lifts can reach an appropriate landing and open doors during power failures.
14.3	Lifts	Lifts vs ramps	Lifts are often preferred over lengthy ramps due to reduced footprint requirements and improved customer experience, especially for large vertical changes (e.g. crossing rail or bus corridors). Ramps may be cheaper and more reliable but require significant space and can result in inferior user experiences. Most new and upgraded stations are replacing ramps with lifts.
14.4	Lifts	Compliance considerations	Disability (Access to Premises – Buildings) Standards 2010 states that Lifts must comply with: • Part E3: *Lift installations*. • Section H2.6: *Lifts in public transport premises*. Refer to the latest edition of AS 1735.12-2020 for superior accessibility outcomes. Lifts should be co-located with stairs and escalators for convenience and compliance. Disability Standards for Accessible Public Transport 2002 (DSAPT) are covered in Part 13 of DSAPT. Use Equivalent Access Solutions based on the latest AS 1735.12-2020. DSAPT Section 2.3 aligns with Premises Standards Section H2.2 for lift location along accessways.

#	Element	Subject	Design consideration
15.1	Signs	General principles	All public signs are subject to DDA-1992 and must cater to the broadest spectrum of users.
15.2	Signs	General principles	Signs should be designed for visibility, accessibility, and ease of comprehension, depending on their location and purpose.
15.3	Signs	General principles	Wherever possible, visual signage and information should be supported by non-visual equivalents, such as braille and tactile alternatives and audio announcements with hearing augmentation.

#	Element	Subject	Design consideration
15.4	Signs	Key types of signs	Overhead signs: • Designed for visibility at a distance and in crowded areas. • Do not require braille or tactile components as they are out of reach. • Use symbols to assist people with low literacy or limited English vocabulary. • Should be located at or just before decision points. Static signs: • Located within reach and include braille and tactile components for accessibility. • Should be intuitively placed for easy location by people with vision impairments. • Examples include wayfinding signs at lift landings, street signs co-located with audio-tactile pedestrian push button assemblies, toilet and facility identification signs. Tactile signs: • Include braille and tactile components for wayfinding and facility identification. • Located at a height that makes them noticeable and accessible. • Examples include tactile maps, street signs, and platform help phone signage.
15.5	Signs	Audio and smartphone alternatives	Overhead passenger information displays should have audio alternatives for blind or low-vision passengers. NFC tags and QR codes can provide timetable and service information via smartphones. Digital signs can deliver information in multiple formats (e.g. audio, text, visual, Auslan).

#	Element	Subject	Design consideration
15.6	Signs	Compliance considerations	Disability (Access to Premises – Buildings) Standards 2010 relevant sections include: • D3.6: Signage. • Part D4: Braille and tactile signs. • H2.10: Symbols and signs.
15.7	Signs	Compliance considerations	Refer to AS 1428.1-2021 for updated requirements and use it as a starting point for Performance Solutions. Use AS 1428.4.2-2018 for guidance on wayfinding signs for people with vision impairments. For symbols, refer to ISO 7001-2007: Graphical symbols — Public information symbols.
15.8	Signs	Compliance considerations	Disability Standards for Accessible Public Transport 2002 (DSAPT) relevant parts include: • Part 17: *Signs*. • Part 16: *Symbols*. Use AS 1428.1-2021 and ISO 7001-2007 as part of Equivalent Access Solutions to meet DSAPT requirements.
16.1	TGSI	General principles	Tactile Ground Surface Indicators (TGSIs) are subject to the DDA, Premises Standards, and DSAPT-2002. TGSIs assist people with vision impairments, particularly those using long white canes, by providing navigational cues and warnings of hazards. TGSIs should be applied thoughtfully to avoid overuse, which can confuse users or create obstacles for people with mobility impairments. TGSI layouts should be co-designed with people with disability and orientation and mobility specialists to ensure functionality and compliance.

#	Element	Subject	Design consideration
16.2	TGSI	Types of TGSIs	Directional TGSIs: • Longitudinal strips that assist with navigation in environments lacking tactile directional cues. • Used to guide users to boarding points, essential fixtures, or across open spaces. Warning TGSIs: • Circular truncated cones arranged in a grid to denote hazards, changes in level, or intersections. • Used at platform edges, stair landings, and boarding points.
16.3	TGSI	Placement	TGSIs should not be used to compensate for poor design - hazards should be removed where possible. When positioning TGSIs, consider how the space will be used and the location of other fixtures (e.g. bins, e-scooters) that may impact function and safety. Directional TGSIs should be at least 1000 mm from obstacles to avoid collision hazards for cane users.
16.4	TGSI	Luminance contrast	TGSIs must have sufficient luminance contrast with adjacent surfaces to ensure visibility for low-vision users. Contrast requirements vary by TGSI type: • Integrated TGSIs: 30% contrast. • Discrete TGSIs: 45% contrast. • Composite Discrete TGSIs: 60% contrast between inner and outer components.

#	Element	Subject	Design consideration
16.5	TGSI	Compliance considerations	Disability (Access to Premises – Buildings) Standards 2010 relevant sections include: • H2.11: Tactile Ground Surface Indicators for public transport premises. • D3.8: General TGSI requirements for all premises. Referenced Australian Standards: • AS 1428.2-1992: Enhanced requirements for buildings and facilities. • AS/NZS 1428.4.1-2009: Tactile indicators for vision impairment (pending revision). • Disability Standards for Accessible Public Transport 2002 (DSAPT) covers TGSIs in part 18, which includes location, style, dimensions, and installation at bus boarding points, railway stations, and wharves. Referenced Australian Standards: • AS/NZS 1428.4.1-2009: Tactile indicators for vision impairment.
17.1	Accessible toilets	General principles	Accessible public toilets provide independence, dignity and amenity for all users, improving flexibility and choice for those who rely on them most. Unlike accessible parking spaces, unisex accessible toilets can be used by anyone. Later editions of AS 1428.1 (e.g. 2021) should be used in preference to the outdated AS 1428.1-2001, as they offer improved design features, including larger internal circulation spaces.

#	Element	Subject	Design consideration
17.2	Accessible toilets	Key design considerations	Flushing controls should be reachable from the pan, ideally located on the adjacent wall. Emergency call points should be installed in at least two locations: • Adjacent to the pan. • Reachable by a person who has fallen to the floor. Power-assisted sliding doors are preferred for ease of use by people with mobility impairments and carers.
17.3	Accessible toilets	Compliance considerations	Disability (Access to Premises – Buildings) Standards 2010 specifies accessible public toilets in Class 9b public transport premises or free-standing Class 10 structures must comply with: • Section H2.8: Unisex accessible toilets. • Part F2: Additional requirements for free-standing structures. Referenced Australian Standards: • AS 1428.1-2001 (H2.8) and AS 1428.1-2009 (F2.4), which are both outdated. • Use AS 1428.1-2021 and AS 1428.2-1992 for improved design outcomes via Performance Solutions The National Construction Code 2025 (NCC 2025) is under consultation, proposing updates to reference AS 1428.1-2021. Disability Standards for Accessible Public Transport 2002 (DSAPT) covers accessible public toilets in Sections 15.1 and 15.2. Use AS 1428.1-2021 and AS 1428.2-1992 for Equivalent Access Solutions. DSAPT-2002 does not address sanitary compartments for ambulant disabilities; these should be installed as per Premises Standards Section F2.4.

#	Element	Subject	Design consideration
18.1	AACF	General principles	AACFs provide essential amenities for people with high support needs or those requiring generous circulation space to participate in society and access public spaces. Co-locating AACFs with other amenities ensures convenience and accessibility for all users.
18.2	AACF	Key design considerations	Mobile or ceiling-mounted hoist, capable of carrying an adult's weight. Adjustable height changing table, for use by people of varying heights. Peninsular toilets pan, allow access from both sides. Washing facilities for bathing and cleaning. Extra floor space for carers or support workers.
18.3	AACF	Compliance considerations	Disability (Access to Premises – Buildings) Standards 2010 specifies AACFs in Section F2.9 and Part F3 of the Premises Standards. While AACFs are only mandatory at airports accepting regular public transport services, it is recommended they be installed at: • Major public transport premises (e.g. rail and bus stations with high patronage). • Modality interchanges. Queensland Development Code, Non-Mandatory Part 1.10: the Queensland Development Code's Part 1.10—Accessible Adult Change Facilities promotes enhanced specifications for AACFs. These enhancements are highly recommended and should be implemented in addition to the minimum requirements of the Premises Standards' Part F3.

20. Ashwina's Journey

Below is a case-study documenting the hypothetical customer journey for Ashwina. Her story demonstrates the various touchpoints throughout her journey that can be improved through enhanced accessibility and inclusive practices. Where applicable, her story references the relevant design standards and legislation that support accessible and inclusive transport products, services, information, and infrastructure. While not exhaustive, Ashwina's story also outlines the interfaces between various asset types, and therefore asset owners, within transport precincts and throughout a customer's experience.

Figure 248 Ashwina's journey

Journey stage	Ashwina's Story	References
Pre-journey planning	Ashwina was working from home when she received an invitation to an urgent in-person meeting in the CBD. Not familiar with the venue, she used the TransLink Journey Planner to find pedestrian and vehicle routes to her destination. Seeing that the next bus would arrive at her bus stop in 10 minutes, she checked the MyTranslink app to confirm the bus's location in real-time. The app confirmed the bus was running on time, so she collected her notes and set out for the bus stop. Ashwina didn't realise the app's accessibility features, which meet the *Web Content Accessibility Guidelines*, would have permitted a person who is blind, has low vision or finds printed information difficult to access, to receive the same information verbally that she obtained visually. Ashwina simply found that the app was quick and easy to use.	***Web Content Accessibility Guidelines***
First mile	The walk to the bus stop was easy along a wide, tree-shaded concrete footpath set within the grassy verge. Ashwina often saw older people, people using wheeled mobility devices, and parents with prams using the recently constructed path. The local authority responsible for footpaths and bus stops was upgrading the network to improve accessibility, referencing Austroads *Guide to Road Design: Part 6A*. Previously, the grass verge without a paved footpath was a barrier to many pedestrians who had to rely on cars instead.	***Austroads Guide to Road Design: Part 6A***

Journey stage	Ashwina's Story	References
Catching the bus	Ashwina had often wondered why there was a strip of tactile paving cutting across the footpath at each bus stop – until she saw a person with vision impairment using a long white cane to locate the paving. Ashwina then understood that the tactile paving was a marker for people not able to see the bus stop. This paving was required under the DSAPT. Tapping her smartphone on a Near Field Communication (NFC) tag attached to the bus stop J pole, Ashwina was told that her bus was only two minutes away. The bus rounded a corner allowing her to hail it. The bus pulled in and Ashwina boarded, heading for the local railway station.	***Disability Standards for Accessible Public Transport 2002 (DSAPT)***
Arriving at her station	Exiting the bus, Ashwina walked to the station entrance, passing a bus shelter that featured two wheelchair spaces – often used by people transferring from train to bus. The local council maintained the footpath, while the bus shelter was designed to meet the DSAPT. The station car park had two accessible parking spaces, and the kiss 'n' ride drop off area was connected to the walkway by a kerb ramp, allowing access for people using wheelchairs and mobility scooters. This conformed to the department's *Public Transport Infrastructure Manual.*	***Public Transport Infrastructure Manual***
Transferring from bus to train	Ashwina's station was recently upgraded by Queensland Rail to meet both the Commonwealth's *Disability (Access to Premises — Buildings) Standards* (Premises Standards) and the DSAPT. The station now featured lifts and stairs connecting all platforms to the overbridge, as well as raised platforms for easy boarding, warning tactile paving along the platform edges, passenger information displays, and platform help phones. Many of station signs had braille and tactile letters for people who had vision impairments. The structural elements conformed to the Premises Standards while its infrastructure and technology elements met the DSAPT. Ashwina found the upgrade made the station easier and friendlier to use.	***Disability (Access to Premises — Buildings) Standards (Premises Standards) 2010*** ***&*** ***DSAPT***

Journey stage	Ashwina's Story	References
Wayfinding mid-journey	As the train pulled into the station, the public address system announced its arrival and destination. Ashwina was unaware that the same message was being broadcast over a hearing aid loop, making the announcement audible to people who had telecoils in their hearing aids. Stepping easily into the roadway, Ashwina found a seat and settled back for the ride to the CBD. Exiting from the train at a CBD station, Ashwina walked to the fare gates at the station entrance, following the clear and legible wayfinding signs. These signs were designed in accordance with *Translink's Signage Manual.* She was intrigued that travellers with luggage and parents with small children were passing in and out of the wide fare gates marked with the international symbol for accessibility. 'Seems that these gates are good for more people than just wheelchair users' she thought.	***Translink Rail and Bus Network Signage Manuals***
Last mile	Leaving the station, Ashwina found a designated e-scooter parking space and hired a scooter. The space had been agreed to between the local authority and the department. Riding along the well-made footpaths, she used the kerb ramps located at the signalised pedestrian crossings to safely transition from footpath to carriageway without dismounting. She noted many other people with wheeled devices and aids also using the kerb ramps, which were constructed to Australian Standards and Australian Human Rights Commission's *Advisory Note on streetscape, public outdoor areas, fixtures, fittings and furniture*. The Advisory Note was developed to allow an understanding of how the Objects of the Commonwealth's *Disability Discrimination Act* could be realised on streetscapes. When she arrived at her destination, Ashwina parked the e-scooter on the kerbside as per the instruction written on the e-scooter's footplate. She understood that improperly parked e-scooters were an obstruction and tripping hazard on busy footpaths, particularly for people who had vision impairments or who use mobility aids that require space. With the e-scooter parked safely out of the footpath's central access path, Ashwina went into the building for her meeting.	***Australian Human Rights Commission's Advisory Note on streetscape, public outdoor areas, fixtures, fittings and furniture***

21. Further reading

21.1 Convention on the Rights of Persons with Disabilities

The United Nations' Convention on the Rights of Persons with Disabilities (CRPD) defines the fundamental human rights of people with disability. Australia signed the CRPD on 30 March 2007, ratified the CRPD on July 17, 2008, and ratified the Optional Protocol on 30 July 2009. These ratifications are quite significant as stated on the Federal Attorney General's website:

> In Australia, the Convention on the Rights of Persons with Disabilities (CRPD) is incorporated through legislation, policy and programs at federal, and state and territory levels. Implementation of the CRPD is a whole of government responsibility; this means that agencies at federal, state and territory levels play a part in implementing the articles of the CRPD within their portfolios.

The principles and commitments in the CRPD should therefore guide designers and service providers in the design, upgrade and function of their assets and services. The CRPD preamble states that State parties have a common understanding of human rights in a disability context. It reads in part:

> The States Parties to the present Convention,
>
> (c) Reaffirming the universality, indivisibility, interdependence and interrelatedness of all human rights and fundamental freedoms and the need for persons with disabilities to be guaranteed their full enjoyment without discrimination,
>
> (e) Recognizing that disability is an evolving concept and that disability results from the interaction between persons with impairments and attitudinal and environmental barriers that hinders their full and effective participation in society on an equal basis with others,
>
> (v) Recognizing the importance of accessibility to the physical, social, economic and cultural environment, to health and education and to information and communication, in enabling persons with disabilities to fully enjoy all human rights and fundamental freedoms,

The CRPD in its Article 2 offers a succinct definition of Universal Design:

> "Universal design" means the design of products, environments, programmes and services to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design. "Universal design" shall not exclude assistive devices for particular groups of persons with disabilities where this is needed.

The General Obligations of Article 4 commit State parties to:

> (e) To take all appropriate measures to eliminate discrimination on the basis of disability by any person, organization or private enterprise.
>
> (f) To undertake or promote research and development of universally designed goods, services, equipment and facilities, as defined in article 2 of the present Convention, which should require the minimum possible adaptation and the least cost to meet the specific needs of a person with disabilities, to promote their availability and use, and to promote universal design in the development of standards and guidelines;

Article 9, Accessibility, lays out areas for State Party action to ensure the rights of people with disability. It states in part that:

> 1. To enable persons with disabilities to live independently and participate fully in all aspects of life, States Parties shall take appropriate measures to ensure to persons with disabilities access, on an equal basis with others, to the physical environment, to transportation, to information and communications, including information and communications technologies and systems, and to other facilities and services open or provided to the public, both in urban and in rural areas. These measures, which shall include the identification and elimination of obstacles and barriers to accessibility, shall apply to, inter alia:
>
> (a) Buildings, roads, transportation and other indoor and outdoor facilities, including schools, housing, medical facilities and workplaces;
>
> (b) Information, communications and other services, including electronic services and emergency services.

21.2 Disability Discrimination Act 1992

The *Disability Discrimination Act 1992* (DDA) is a Commonwealth Act that seeks 'to eliminate, as far as possible, discrimination against persons on the ground of disability'.

The DDA's Objects aim to ensure, equality, fairness, and community inclusivity for people with disability.

3 Objects

The objects of this Act are:

(a) to eliminate, as far as possible, discrimination against persons on the ground of disability in the areas of:

(i) work, accommodation, education, access to premises, clubs and sport; and

(ii) the provision of goods, facilities, services and land; and

(iii) existing laws; and

(iv) the administration of Commonwealth laws and programs; and

(b) to ensure, as far as practicable, that persons with disabilities have the same rights to equality before the law as the rest of the community; and

(c) to promote recognition and acceptance within the community of the principle that persons with disabilities have the same fundamental rights as the rest of the community.

The DDA has broad application to premises, services, and facilities. Few, if any, public places would not be regarded as ‘premises.

premises includes:

(a) a structure, building, aircraft, vehicle or vessel; and

(b) a place (whether enclosed or built on or not); and

(c) a part of premises (including premises of a kind referred to in paragraph (a) or (b)).

23 Access to premises

It is unlawful for a person to discriminate against another person on the ground of the other person's disability:

(a) by refusing to allow the other person access to, or the use of, any premises that the public or a section of the public is entitled or allowed to enter or use (whether for payment or not); or

(b) in the terms or conditions on which the first-mentioned person is prepared to allow the other person access to, or the use of, any such premises; or

(c) in relation to the provision of means of access to such premises; or

(d) by refusing to allow the other person the use of any facilities in such premises that the public or a section of the public is entitled or allowed to use (whether for payment or not); or

(e) in the terms or conditions on which the first-mentioned person is prepared to allow the other person the use of any such facilities; or

(f) by requiring the other person to leave such premises or cease to use such facilities.

The scope of 'goods, services, and facilities' in the DDA is equally broad.

services includes:

(a) services relating to banking, insurance, superannuation and the provision of grants, loans, credit or finance; or

(b) services relating to entertainment, recreation or refreshment; or

(c) services relating to transport or travel; or

(d) services relating to telecommunications; or

(e) services of the kind provided by the members of any profession or trade; or

(f) services of the kind provided by a government, a government authority or a local government body.

24 Goods, services and facilities

It is unlawful for a person who, whether for payment or not, provides goods or services, or makes facilities available, to discriminate against another person on the ground of the other person's disability:

(a) by refusing to provide the other person with those goods or services or to make those facilities available to the other person; or

(b) in the terms or conditions on which the first-mentioned person provides the other person with those goods or services or makes those facilities available to the other person; or

(c) in the manner in which the first-mentioned person provides the other person with those goods or services or makes those facilities available to the other person.

21.3 Disability Standards

The Attorney-General has formulated Disability Standards, under section 31(1) of the DDA, that aim to provide more detail on rights and responsibilities about equal access and opportunity for people with a disability. Section 32 makes it clear that contravention of a disability standard is unlawful.

31 Disability standards

(1) The Minister may, by legislative instrument, formulate standards, to be known as disability standards, in relation to any area in which it is unlawful under this Part for a person to discriminate against another person on the ground of a disability of the other person.

> **32 Unlawful to contravene disability standards**
>
> It is unlawful for a person to contravene a disability standard.

The Disability Standards relevant to public transport are:

- The *Disability (Access to Premises – Buildings) Standards 2010* (Premises Standards) that aim to provide people with disability with dignified and equitable access to buildings and provide certainty to industry that they are complying with the DDA.
- The *Disability Standards for Accessible Public Transport 2002* (DSAPT) that define rights of passengers who have disabilities and enable public transport operators and providers to remove discrimination from public transport services.

21.3.1 Disability (Access to Premises — Buildings) Standards 2010

The Premises Standards cover the structural elements of public areas in buildings and premises that have a Building Class. Fit-out and other non-structural elements of a public transport premises are captured by the DSAPT. Part H2 of the Premises Standards mirrors various Sections of the DSAPT-2002.

Public transport buildings and premises will fall into either Class 9b or Class 10.

> **2.1 Buildings to which Standards apply**
>
> (1) Subject to subsection (2), these Standards apply to the following:
>
> (a) a new building, to the extent that the building is:
>
> (iii) a Class 3, 5, 6, 7, 8, 9 or 10 building;
>
> (b) a new part, and any affected part, of a building, if the building is:
>
> (iii) a Class 3, 5, 6, 7, 8, 9 or 10 building;
>
> (c) an existing public transport building that is still in use on the target date mentioned in an item in the table in section 3.1.

Compliance with the Premises Standards may be achieved through a Performance Solution, a Deemed-to-Satisfy Solution or a combination of the two. Premises Standards' compliance is covered in Section 3.2 'Compliance with Access Code'. Performance Solutions are the preferred solution as they allow innovation and often produce outcomes superior to the minimalist Deemed-to-Satisfy Solutions. The National Construction Code 2022, which contains the Premises Standards, explains Deemed-to-Satisfy and Performance Solutions:

A2G3 Deemed-to-Satisfy Solution

Explanatory Information

A Deemed-to-Satisfy Solution is achieved by following all appropriate Deemed-to-Satisfy Provisions in the NCC. The Deemed-to-Satisfy Provisions are prescriptive (i.e. like a recipe book, they tell you how, what and in which location things must be done). They include materials, components, design factors, and construction methods that, if used, are deemed to meet the Performance Requirements, hence the term “Deemed-to-Satisfy”.

A2G2 Performance Solution

Explanatory Information

A Performance Solution must comply with all applicable Performance Requirements of the NCC. A Performance Solution provides a tailored solution to meet the intended objective of the Performance Requirements. A Performance Solution must comply with all relevant Performance Requirements and must be verified using one or a combination of the following Assessment Methods:

- Evidence of suitability.
- Verification Method.
- Expert Judgement.

Comparison with the Deemed-to-Satisfy Provisions.

The Australian Human Rights Commission has issued Guidelines that assist with understanding Performance Solutions. Sections A.9.1 and A.10 are useful:

A.9.1 Alternative approaches

A.10 Premises standards are minimum requirements – designing beyond the minimum is encouraged

21.3.2 Disability Standards for Accessible Public Transport 2002

The DSAPT-2002 covers public transport conveyances, public transport infrastructure and any public transport premises that do not have a building class. The DSAPT-2002 has sections that mirror Part H2 of the Premises Standards.

1.4 Application of Standards

(1) These Standards apply to the widest possible range of people with disabilities as defined by the *Disability Discrimination Act 1992*.

(2) These Standards apply to all operators and the conveyances they use to provide public transport services. They also apply to providers and supporting premises and infrastructure.

Compliance with the DSAPT-2002 may be achieved through an Equivalent Access Solution, a Prescriptive Solution or a combination of the two. DSAPT-2002 compliance is covered in Part 33 'Compliance'. The Australian Human Rights Commission provides guidance on how to implement Equivalent Access. Equivalent Access Solutions are encouraged as they allow innovation and usually exceed minimum compliance.

21.4 Guidelines for Disability Standards

Various guidelines have been published to assist in the implementation of Disability Standards.

21.4.1 Guidelines on application of the Premises Standards

The Australian Human Rights Commission has issued Guidelines on the application of the Premises Standards to assist in their implementation and how they apply to new and upgraded public buildings. The Premises Standards Guidelines have no legal standing but offer good practice advice and examples.

21.4.2 Disability Standards for Accessible Public Transport Guidelines 2004 (No. 3)

The DSAPT Guidelines 2004 assist in the interpretation of the DSAPT-2002. The DSAPT Guidelines 2004 have no legal standing but provide information and comment about the DSAPT-2002's requirements and specifications.

21.4.3 The Whole Journey: A guide for thinking beyond compliance to create accessible public transport journeys

In response to the second review of the DSAPT-2002 the Australian Government has developed *The Whole Journey* guide. The Guide seeks to encourage policy makers, planners, designers, builders, certifiers, and operators to think beyond compliance and the physical and governance boundaries of services and infrastructure and instead focus on the accessibility needs of people across their whole journey.

21.4.4 Guidelines: Equivalent Access under the Disability Standards for Accessible Public Transport 2002 (Cth)

These Guidelines have been developed by the Australian Human Rights Commission to provide clear and practical assistance to facilitate compliance with the DSAPT-2002 through Equivalent Access solutions.

Compliance with the DSAPT-2002 can be achieved by applying the specifications set out in the DSAPT-2002 or by using methods or equipment that deliver Equivalent Access. Use of Equivalent Access:

- Potentially offers operators and providers flexibility in the delivery of accessible public transport.
- Supports innovation by providing an opportunity to harness new technology to improve accessibility.
- Offers the potential for the delivery of public transport that exceeds minimum published accessibility standards.
- Encourages communication and collaboration between operators and providers, through required consultation with passengers with disability, organisations representing people with disability and other stakeholders, which may result in long-term access solutions developed through co-design rather than as a result of a complaint or litigation.

21.4.5 Guideline for promoting compliance of bus stops with the Disability Standards for Accessible Public Transport 2002

The Australian Human Rights Commission has produced Guidelines that assist owners and builders of bus stops to meet the requirements of DSAPT-2002:

1.2 This Guideline has been prepared by the Australian Human Rights Commission (the 'Commission') to assist bus infrastructure providers ('Providers'), to comply with the DSAPT. The recommendations in this Guideline are based on the requirements outlined in the DSAPT, including the technical 'deemed-to-satisfy' requirements of the Australian Standards which are referenced in the DSAPT. Providers can fulfil their responsibilities by meeting the 'deemed-to-satisfy' requirements or by providing what the DSAPT refers to as 'Equivalent access' by other means.

22. Acknowledgements

All photographs used in this document were taken by John Robert McPherson, are in the Creative Commons, and are downloaded from the Wikimedia Commons site.

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23. References

All URL addresses listed were correct on April 30, 2024.

1. United Nations. (n.d.). *Convention on the Rights of Persons with Disabilities (CRPD)*. Retrieved from https://social.desa.un.org/issues/disability/crpd/convention-on-the-rights-of-persons-with-disabilities-crpd
2. Australian Human Rights Commission. (n.d.). *United Nations Convention on the Rights of Persons with Disabilities (UNCRPD)*. Retrieved from https://humanrights.gov.au/our-work/disability-rights/united-nations-convention-rights-persons-disabilities-uncrpd
3. Australian Government. (2004). *Disability Discrimination Act 1992*. Retrieved from https://www.legislation.gov.au/C2004A04426/latest/text
4. Australian Government. (2020). *Disability Standards for Accessible Public Transport 2002 (updated 2020)*. Retrieved from https://www.legislation.gov.au/Details/F2020C00976
5. Australian Government. (2011). *Premises Standards 2010*. Retrieved from https://www.legislation.gov.au/Details/F2011C00213
6. Australian Building Codes Board. (n.d.). *National Construction Code (NCC) Navigator: Building classifications*. Retrieved from https://ncc.abcb.gov.au/ncc-navigator/building-classifications
7. Queensland Government. (n.d.). *Disability Services Act 1991*. Retrieved from https://www.legislation.qld.gov.au/view/html/inforce/current/act-1991-085
8. Queensland Government. (n.d.). *Human Rights Act 2019*. Retrieved from https://www.legislation.qld.gov.au/view/html/inforce/current/act-2019-005
9. Queensland Department of Transport and Main Roads. (n.d.). *Accessibility and inclusion strategy: Definitions*. Retrieved from https://www.tmr.qld.gov.au/about-us/our-organisation/accessibility-and-inclusion/accessibility-and-inclusion-strategy/introduction/definitions
10. Centre for Excellence in Universal Design. (n.d.). *Definition and overview of universal design*. Retrieved from https://universaldesign.ie/about-universal-design/definition-and-overview
11. United Nations. (n.d.). *Convention on the Rights of Persons with Disabilities (CRPD)*. Retrieved from https://social.desa.un.org/issues/disability/crpd/convention-on-the-rights-of-persons-with-disabilities-crpd
12. Australian Human Rights Commission. (n.d.). *United Nations Convention on the Rights of Persons with Disabilities (UNCRPD)*. Retrieved from https://humanrights.gov.au/our-work/disability-rights/united-nations-convention-rights-persons-disabilities-uncrpd

13. Australian Government. (n.d.). *Disability Gateway: Accessible Disability Services (ADS)*. Retrieved from https://www.disabilitygateway.gov.au/ads

14. Universal Design Australia. (n.d.). *Universal design resources*. Retrieved from https://universaldesignaustralia.net.au/

15. Universal Design Australia. (n.d.). *Practice guidelines for the built environment*. Retrieved from https://universaldesignaustralia.net.au/category/practice-guidelines-for-built-environment/

16. Universal Design Australia. (n.d.). *ICT guidelines for practice*. Retrieved from https://universaldesignaustralia.net.au/category/ud-and-ict/ict-guidelines-for-practice/

17. Universal Design Australia. (n.d.). *Transportation and universal design*. Retrieved from https://universaldesignaustralia.net.au/category/transportation/

18. University at Buffalo. (n.d.). *Goals of universal design*. Retrieved from https://www.buffalo.edu/access/help-and-support/topic3/GoalsofUniversalDesign.html

19. Universal Design Australia. (n.d.). *Universal design resources*. Retrieved from https://universaldesignaustralia.net.au/

20. Universal Design Australia. (n.d.). *Practice guidelines for the built environment*. Retrieved from https://universaldesignaustralia.net.au/category/practice-guidelines-for-built-environment/

21. Universal Design Australia. (n.d.). *ICT guidelines for practice*. Retrieved from https://universaldesignaustralia.net.au/category/ud-and-ict/ict-guidelines-for-practice/

22. Universal Design Australia. (n.d.). *Transportation and universal design*. Retrieved from https://universaldesignaustralia.net.au/category/transportation/

23. United Nations. (n.d.). *Convention on the Rights of Persons with Disabilities (CRPD)*. Retrieved from https://social.desa.un.org/issues/disability/crpd/convention-on-the-rights-of-persons-with-disabilities-crpd

24. Australian Human Rights Commission. (n.d.). *United Nations Convention on the Rights of Persons with Disabilities (UNCRPD)*. Retrieved from https://humanrights.gov.au/our-work/disability-rights/united-nations-convention-rights-persons-disabilities-uncrpd

25. Australian Government. (n.d.). *Disability Gateway: Accessible Disability Services (ADS)*. Retrieved from https://www.disabilitygateway.gov.au/ads

26. Queensland Government. (2018). *Final report of the Commission of Inquiry into the Queensland Rail train crewing practices*. Retrieved from https://www.traininquiryngr.qld.gov.au/assets/custom/docs/coi-final-report-2018.pdf

27. Queensland Government. (2018). *Government response to the final report of the Commission of Inquiry into the Queensland Rail train crewing practices*. Retrieved from https://www.traininquiryngr.qld.gov.au/assets/custom/docs/government-response-to-final-report.pdf

28. Universal Design Australia. (n.d.). *Co-design processes and design tools*. Retrieved from https://universaldesignaustralia.net.au/co-design-processes-and-design-tools/

29. Griffith University. (n.d.). *Co-design at Social Marketing Griffith*. Retrieved from https://www.griffith.edu.au/griffith-business-school/social-marketing-griffith/co-design

30. Victorian Government. (n.d.). *Co-design resources*. Retrieved from https://www.vic.gov.au/co-design

31. Inclusive Design Toolkit. (n.d.). *Transport overview*. Retrieved from https://www.inclusivedesigntoolkit.com/transport_overview/

32. Inclusive Design Toolkit. (n.d.). *General services overview*. Retrieved from https://www.inclusivedesigntoolkit.com/GS_overview/overview.html

33. Hopkins, J. (2023). *Co-design toolkit for accessible design*. Retrieved from https://cross-river-rail.s3.ap-southeast-2.amazonaws.com/wp-content/uploads/2023/12/21084522/231219-Hopkins-Co-Design-Toolkit-Accessible_v17.pdf

34. Australian Human Rights Commission. (n.d.). *Premises standards guideline (Version 2)*. Retrieved from https://humanrights.gov.au/sites/default/files/document/page/PremisesStandardsGuidelineV2.pdf

35. Australian Human Rights Commission. (n.d.). *Guidelines for equivalent access under the Disability Standards*. Retrieved from https://humanrights.gov.au/our-work/disability-rights/publications/guidelines-equivalent-access-under-disability-standards

36. Queensland Department of Transport and Main Roads. (n.d.). *Road planning and design manual (2nd edition, Supplementary Volume 3, Part 1)*. Retrieved from https://www.tmr.qld.gov.au/-/media/busind/techstdpubs/Road-planning-and-design/Road-Planning-and-Design-2nd-edition/RPDMSuppVol3Part1.pdf?la=en

37. United Nations. (n.d.). *Convention on the Rights of Persons with Disabilities (CRPD)*. Retrieved from https://social.desa.un.org/issues/disability/crpd/convention-on-the-rights-of-persons-with-disabilities-crpd

38. Australian Human Rights Commission. (n.d.). *United Nations Convention on the Rights of Persons with Disabilities (UNCRPD)*. Retrieved from https://humanrights.gov.au/our-work/disability-rights/united-nations-convention-rights-persons-disabilities-uncrpd

39. Australian Government. (n.d.). *Disability Gateway: Accessible Disability Services (ADS)*. Retrieved from https://www.disabilitygateway.gov.au/ads

40. Australian Government. (n.d.). *Disability Gateway: Accessible Disability Services (ADS)*. Retrieved from https://www.disabilitygateway.gov.au/ads

41. Universal Design Australia. (n.d.). *Universal design resources*. Retrieved from https://universaldesignaustralia.net.au/

42. Universal Design Australia. (n.d.). *Practice guidelines for the built environment*. Retrieved from https://universaldesignaustralia.net.au/category/practice-guidelines-for-built-environment/

43. Able Australia. (2020). *Deafblind orientation and mobility: Best practice principles*. Retrieved from https://ableaustralia.org.au/wp-content/uploads/2020/11/Deafblind-Orientation-and-Mobility-Best_Practice_Principles-Leaflet-Updated-20-11-2020.pdf

44. Queensland Department of Transport and Main Roads. (n.d.). *Best practice accessibility*. Retrieved from https://qdot.ent.sirsidynix.net.au/client/en_AU/ATR/search/detailnonmodal/ent:$002f$002fSD_ILS$002f0$002fSD_ILS:241577/ada?qu=best+practice+accessibility&d=ent%3A%2F%2FSD_ILS%2F0%2FSD_ILS%3A241577%7EILS%7E0&te=ILS

45. The Conversation. (2023). *E for equity: E-scooter and e-bike schemes can help people on low incomes and with disabilities*. Retrieved from https://theconversation.com/e-for-equity-e-scooter-and-e-bike-schemes-can-help-people-on-low-incomes-and-with-disabilities-224844

46. Australasian Transport Research Forum. (n.d.). *Who uses subsidised micromobility? A survey of Lime Access customers*. Retrieved from https://australasiantransportresearchforum.org.au/who-uses-subsidised-micromobility-a-survey-of-lime-access-customers/

47. International Transport Forum. (n.d.). *Safer micromobility*. Retrieved from https://www.itf-oecd.org/sites/default/files/docs/safer-micromobility_0.pdf

48. The Conversation. (2023). *E for equity: E-scooter and e-bike schemes can help people on low incomes and with disabilities*. Retrieved from https://theconversation.com/e-for-equity-e-scooter-and-e-bike-schemes-can-help-people-on-low-incomes-and-with-disabilities-224844

49. Journal of Cleaner Production. (2024). *Sustainability in micromobility*. Retrieved from: https://doi.org/10.1016/j.jcmr.2024.100016

50. Queensland Department of Transport and Main Roads. (n.d.). *E-mobility parking plan summary*. Retrieved from https://www.tmr.qld.gov.au/safety/road-safety/road-safety-strategy-and-action-plans/personal-mobility-device-plans/e-mobility-parking-plan-summary/emobility-parking-plan

51. Australian Disability Network. (2024). *What is neurodiversity?*. Retrieved from https://australiandisabilitynetwork.org.au/wp-content/uploads/2024/11/What-is-neurodiversity.pdf

52. British Standards Institution. (n.d.). *Design for the mind: Neurodiversity and the built environment guide*. Retrieved from https://knowledge.bsigroup.com/products/design-for-the-mind-neurodiversity-and-the-built-environment-guide?version=standard

53. British Standards Institution. (n.d.). *Design for the mind: Neurodiversity and the built environment guide*. Retrieved from https://knowledge.bsigroup.com/products/design-for-the-mind-neurodiversity-and-the-built-environment-guide?version=standard

54. Queensland Department of Transport and Main Roads. (n.d.). *Accessibility training module*. Retrieved from https://learn.accelerate.tmr.qld.gov.au/enrol/index.php?id=21644

55. Austroads. (n.d.). *Guide to temporary traffic management*. Retrieved from https://austroads.gov.au/publications/temporary-traffic-management/agttm-set

56. Queensland Police Service. (2021). *Crime prevention through environmental design: Guidelines for Queensland*. Retrieved from https://www.police.qld.gov.au/sites/default/files/2021-07/Crime%20Prevention%20Through%20Environmental%20Design%20-%20Guidelines%20for%20Queensland%202021%20v1.pdf

57. Queensland Department of Transport and Main Roads. (n.d.). *Movement and place framework*. Retrieved from https://www.tmr.qld.gov.au/community-and-environment/planning-for-the-future/movement-and-place

58. Australian Government. (n.d.). *Whole journey guide: Transport accessibility*. Retrieved from https://www.infrastructure.gov.au/infrastructure-transport-vehicles/transport-accessibility/whole-journey-guide

59. TransLink. (n.d.). *On-demand transport services*. Retrieved from https://translink.com.au/travel-with-us/on-demand

60. Austroads. (n.d.). *Guide to road design: Part 6A*. Retrieved from https://austroads.com.au/publications/road-design/agrd06a

61. Queensland Government. (n.d.). *Public transport infrastructure manual*. Retrieved from https://www.publications.qld.gov.au/dataset/public-transport-infrastructure-manual

62. Transport for London. (n.d.). *Pedestrian comfort guidance: Technical guide*. Retrieved from https://content.tfl.gov.uk/pedestrian-comfort-guidance-technical-guide.pdf

63. Transportation Research Board. (1971). *Highway research record: Lighting for safety*. Retrieved from https://onlinepubs.trb.org/Onlinepubs/hrr/1971/355/355-001.pdf

64. Queensland Department of Transport and Main Roads. (n.d.). *SEQ level crossing program*. Retrieved from https://www.tmr.qld.gov.au/about-us/corporate-information/publications/seq-level-crossing-program

65. Queensland Department of Transport and Main Roads. (n.d.). *Level crossing safety*. Retrieved from https://www.tmr.qld.gov.au/safety/rail-safety/level-crossing-safety

66. Queensland Department of Transport and Main Roads. (n.d.). *Beams Road Carseldine and Fitzgibbon rail level crossing*. Retrieved from https://www.tmr.qld.gov.au/projects/beams-road-carseldine-and-fitzgibbon-rail-level-crossing

67. Queensland Government. (n.d.). *Public transport infrastructure manual*. Retrieved from https://www.publications.qld.gov.au/dataset/public-transport-infrastructure-manual

68. Queensland Government. (n.d.). *Public transport infrastructure manual: Bus stop guidelines*. Retrieved from https://www.publications.qld.gov.au/dataset/public-transport-infrastructure-manual/resource/eb1d80a3-401b-43fd-915a-2f75b2bdb9f0

69. The Conversation. (2023). *E for equity: E-scooter and e-bike schemes can help people on low incomes and with disabilities*. Retrieved from https://theconversation.com/e-for-equity-e-scooter-and-e-bike-schemes-can-help-people-on-low-incomes-and-with-disabilities-224844

70. Journal of Cleaner Production. (2024). *Sustainability in micromobility*. https://doi.org/10.1016/j.jcmr.2024.100016

71. Australian Human Rights Commission. (2013). *Advisory note: Streetscape accessibility*. Retrieved from https://humanrights.gov.au/sites/default/files/2013_AdvisoryNoteStreetscape.pdf?_ga=2.55228843.1499524746.1692241127-1301878180.1599910656

72. Queensland Department of Transport and Main Roads. (n.d.). *Pedestrian and walking guidance and resources*. Retrieved from https://www.tmr.qld.gov.au/Travel-and-transport/Pedestrians-and-walking/Guidance-and-Resources/Pedestrian-and-Walking-Guidance-and-Resources

73. Universal Design Australia. (2021). *Universal design position statement*. Retrieved from https://universaldesignaustralia.net.au/wp-content/uploads/2021/09/Universal-Design-Position-Statement-Plain-Eng-Final-Sept-2021.pdf

74. Universal Design Australia. (n.d.). *7 principles of universal design*. Retrieved from https://universaldesignaustralia.net.au/7-principles-of-universal-design/

75. Australian Government. (2011). *Premises Standards 2010*. Retrieved from https://www.legislation.gov.au/Details/F2011C00213

76. Queensland Government. (n.d.). *Public transport infrastructure manual*. Retrieved from https://www.publications.qld.gov.au/dataset/public-transport-infrastructure-manual

77. Queensland Government. (n.d.). *Public transport infrastructure manual: Bus stop guidelines*. Retrieved from https://www.publications.qld.gov.au/dataset/public-transport-infrastructure-manual/resource/eb1d80a3-401b-43fd-915a-2f75b2bdb9f0

78. Standards Australia. (2020). *AS 2890.5: Parking facilities – On-street parking*. Retrieved from https://store.standards.org.au/product/as-2890-5-2020

79. Standards Australia. (2022). *AS 2890.6: Parking facilities – Off-street parking for people with disabilities*. Retrieved from https://store.standards.org.au/product/as-2890-6-2022

80. Standards Australia. (2016). *AS 1742.11: Manual of uniform traffic control devices – Parking controls*. Retrieved from https://store.standards.org.au/product/as-1742-11-2016

81. Queensland Department of Transport and Main Roads. (n.d.). *Manual of uniform traffic control devices*. Retrieved from https://www.tmr.qld.gov.au/business-industry/technical-standards-publications/manual-of-uniform-traffic-control-devices.aspx

82. Austroads. (n.d.). *Guide to traffic management: Part 7*. Retrieved from https://austroads.com.au/publications/traffic-management/agtm07

83. Austroads. (n.d.). *Guide to traffic management: Part 11*. Retrieved from https://austroads.com.au/publications/traffic-management/agtm11

84. Standards Australia. (2020). *AS 2890.5: Parking facilities – On-street parking*. Retrieved from https://store.standards.org.au/product/as-2890-5-2020

85. Standards Australia. (2022). *AS 2890.6: Parking facilities – Off-street parking for people with disabilities*. Retrieved from https://store.standards.org.au/product/as-2890-6-2022

86. Brisbane City Council. (2016). *Loading zone standard drawing*. Retrieved from https://docs.brisbane.qld.gov.au/standard-drawings/201609-bsd-3162_b_loading_zone.pdf

87. Brisbane City Council. (n.d.). *Brisbane parking taskforce*. Retrieved from https://www.brisbane.qld.gov.au/traffic-and-transport/parking-in-brisbane/brisbane-parking-taskforce

88. Brisbane City Council. (2015). *Parking taskforce recommendation report*. Retrieved from https://www.brisbane.qld.gov.au/sites/default/files/20152801_parking_taskforce_recommendation_report.pdf

89. Australian Government. (2005). *Disability Standards for Accessible Public Transport 2002: Supporting material*. Retrieved from https://www.legislation.gov.au/F2005B01059/asmade/text/supporting-material

90. Australian Government. (2005). *Disability Standards for Accessible Public Transport 2002: Supporting material*. Retrieved from https://www.legislation.gov.au/F2005B01059/asmade/text/supporting-material

91. Queensland Government. (n.d.). *Public transport infrastructure manual*. Retrieved from https://www.publications.qld.gov.au/dataset/public-transport-infrastructure-manual

92. Standards Australia. (2016). *AS 1742.11: Manual of uniform traffic control devices – Parking controls*. Retrieved from https://store.standards.org.au/product/as-1742-11-2016

93. Queensland Department of Transport and Main Roads. (n.d.). *Manual of uniform traffic control devices*. Retrieved from https://www.tmr.qld.gov.au/business-industry/technical-standards-publications/manual-of-uniform-traffic-control-devices.aspx

94. Austroads. (n.d.). *Guide to traffic management: Part 7*. Retrieved from https://austroads.com.au/publications/traffic-management/agtm07

95. Austroads. (n.d.). *Guide to traffic management: Part 11*. Retrieved from https://austroads.com.au/publications/traffic-management/agtm11

96. Standards Australia. (2020). *AS 2890.5: Parking facilities – On-street parking*. Retrieved from https://store.standards.org.au/product/as-2890-5-2020

97. Standards Australia. (2022). *AS 2890.6: Parking facilities – Off-street parking for people with disabilities*. Retrieved from https://store.standards.org.au/product/as-2890-6-2022

98. Queensland Government. (n.d.). *Disability parking permits*. Retrieved from https://www.qld.gov.au/disability/out-and-about/travel-transport/driving/parking-permits/disability-parking-permits

99. Standards Australia. (2022). *AS 2890.6: Parking facilities – Off-street parking for people with disabilities*. Retrieved from https://store.standards.org.au/product/as-2890-6-2022

100. Australian Building Codes Board. (n.d.). *Performance-based code development (PCD)*. Retrieved from https://www.abcb.gov.au/pcd

101. Standards Australia. (2022). *AS 2890.6: Parking facilities – Off-street parking for people with disabilities*. Retrieved from https://store.standards.org.au/product/as-2890-6-2022

102. Australian Building Codes Board. (n.d.). *Performance-based code development (PCD): 2025 NCC referenced documents*. Retrieved from https://www.abcb.gov.au/pcd/pcd-2025-ncc-referenced-documents

103. Standards Australia. (2004). *AS/NZS 2890.1: Parking facilities – Off-street car parking*. Retrieved from https://store.standards.org.au/product/as-nzs-2890-1-2004

104. Standards Australia. (1993). *AS 2890.5: Parking facilities – On-street parking*. Retrieved from https://store.standards.org.au/product/as-2890-5-1993

105. Standards Australia. (2009). *AS/NZS 2890.6: Parking facilities – Off-street parking for people with disabilities*. Retrieved from https://store.standards.org.au/product/as-nzs-2890-6-2009

106. Standards Australia. (2020). *AS 2890.5: Parking facilities – On-street parking*. Retrieved from https://store.standards.org.au/product/as-2890-5-2020

107. Standards Australia. (2022). *AS 2890.6: Parking facilities – Off-street parking for people with disabilities*. Retrieved from https://store.standards.org.au/product/as-2890-6-2022

108. Austroads. (n.d.). *Guide to traffic management: Part 11*. Retrieved from https://austroads.com.au/publications/traffic-management/agtm11

109. Standards Australia. (2020). *AS 2890.5: Parking facilities – On-street parking*. Retrieved from https://store.standards.org.au/product/as-2890-5-2020

110. Standards Australia. (2022). *AS 2890.6: Parking facilities – Off-street parking for people with disabilities*. Retrieved from https://store.standards.org.au/product/as-2890-6-2022

111. Standards Australia. (2004). *AS/NZS 2890.1: Parking facilities – Off-street car parking*. Retrieved from https://store.standards.org.au/product/as-nzs-2890-1-2004

112. Standards Australia. (2005). *AS/NZS 1158.3.1: Lighting for roads and public spaces – Pedestrian area lighting*. Retrieved from https://store.standards.org.au/product/as-nzs-1158-3-1-2005

113. Standards Australia. (2001). *AS 1428.1: Design for access and mobility – General requirements for access – New building work*. Retrieved from https://store.standards.org.au/product/as-1428-1-2001

114. Standards Australia. (1993). *AS 2890.5: Parking facilities – On-street parking*. Retrieved from https://store.standards.org.au/product/as-2890-5-1993

115. Standards Australia. (2009). *AS/NZS 2890.6: Parking facilities – Off-street parking for people with disabilities*. Retrieved from https://store.standards.org.au/product/as-nzs-2890-6-2009

116. Standards Australia. (2020). *AS/NZS 1158.3.1: Lighting for roads and public spaces – Pedestrian area lighting*. Retrieved from https://store.standards.org.au/product/as-nzs-1158-3-1-2020

117. Standards Australia. (2021). *AS 1428.1: Design for access and mobility – General requirements for access – New building work*. Retrieved from https://store.standards.org.au/product/as-1428-1-2021

118. Standards Australia. (2020). *AS 2890.5: Parking facilities – On-street parking*. Retrieved from https://store.standards.org.au/product/as-2890-5-2020

119. Standards Australia. (2022). *AS 2890.6: Parking facilities – Off-street parking for people with disabilities*. Retrieved from https://store.standards.org.au/product/as-2890-6-2022

120. Queensland Department of Transport and Main Roads. (n.d.). *Manual of uniform traffic control devices*. Retrieved from https://www.tmr.qld.gov.au/business-industry/technical-standards-publications/manual-of-uniform-traffic-control-devices.aspx

121. Austroads. (n.d.). *Guide to traffic management: Part 11*. Retrieved from https://austroads.com.au/publications/traffic-management/agtm11

122. Australian Government. (2020). *Disability Standards for Accessible Public Transport 2002 (updated 2020)*. Retrieved from https://www.legislation.gov.au/Details/F2020C00976

123. Australian Government. (2011). *Premises Standards 2010*. Retrieved from https://www.legislation.gov.au/Details/F2011C00213

124. Australian Government. (2005). *Disability Standards for Accessible Public Transport 2002: Supporting material*. Retrieved from https://www.legislation.gov.au/F2005B01059/asmade/text/supporting-material

125. Australian Government. (2020). *Disability Standards for Accessible Public Transport 2002 (updated 2020)*. Retrieved from https://www.legislation.gov.au/Details/F2020C00976

126. Standards Australia. (2001). *AS 1428.1: Design for access and mobility – General requirements for access – New building work*. Retrieved from https://store.standards.org.au/product/as-1428-1-2001

127. Standards Australia. (2017). *AS 1428.1: Design for access and mobility – General requirements for access – New building work (Amendment 2)*. Retrieved from https://store.standards.org.au/product/as-1428-1-2009-amd-2-2017

128. Standards Australia. (1999). *AS 1735.12: Lifts, escalators, and moving walks – Facilities for persons with disabilities*. Retrieved from https://store.standards.org.au/product/as-1735-12-1999

129. Standards Australia. (2009). *AS/NZS 2890.6: Parking facilities – Off-street parking for people with disabilities*. Retrieved from https://store.standards.org.au/product/as-nzs-2890-6-2009

130. Standards Australia. (2021). *AS 1428.1: Design for access and mobility – General requirements for access – New building work*. Retrieved from https://store.standards.org.au/product/as-1428-1-2021

131. Standards Australia. (2020). *AS 1735.12: Lifts, escalators, and moving walks – Facilities for persons with disabilities*. Retrieved from https://store.standards.org.au/product/as-1735-12-2020

132. Standards Australia. (2022). *AS 2890.6: Parking facilities – Off-street parking for people with disabilities*. Retrieved from https://store.standards.org.au/product/as-2890-6-2022

133. Australian Building Codes Board. (n.d.). *Performance-based code development (PCD)*. Retrieved from https://www.abcb.gov.au/pcd

134. Standards Australia. (2021). *AS 1428.1: Design for access and mobility – General requirements for access – New building work*. Retrieved from https://store.standards.org.au/product/as-1428-1-2021

135. Standards Australia. (2020). *AS 1735.12: Lifts, escalators, and moving walks – Facilities for persons with disabilities*. Retrieved from https://store.standards.org.au/product/as-1735-12-2020

136. Standards Australia. (2022). *AS 2890.6: Parking facilities – Off-street parking for people with disabilities*. Retrieved from https://store.standards.org.au/product/as-2890-6-2022

137. Australian Building Codes Board. (n.d.). *Performance-based code development (PCD): 2025 NCC referenced documents*. Retrieved from https://www.abcb.gov.au/pcd/pcd-2025-ncc-referenced-documents

138. Australian Human Rights Commission. (n.d.). *Guidelines on the application of premises standards*. Retrieved from https://humanrights.gov.au/our-work/disability-rights/guidelines-application-premises-standards

139. Queensland Government. (n.d.). *Rail network infrastructure signage manual*. Retrieved from https://www.publications.qld.gov.au/dataset/rail-network-infrastructure-signage-manual

140. Standards Australia. (2001). *AS 1428.1: Design for access and mobility – General requirements for access – New building work*. Retrieved from https://store.standards.org.au/product/as-1428-1-2001

141. Standards Australia. (1992). *AS 1428.4: Design for access and mobility – Tactile indicators*. Retrieved from https://store.standards.org.au/product/as-1428-4-1992

142. Standards Australia. (1999). *AS 1735.12: Lifts, escalators, and moving walks – Facilities for persons with disabilities*. Retrieved from https://store.standards.org.au/product/as-1735-12-1999

143. Standards Australia. (1986). *AS 2899.1: Public information symbol signs – General requirements*. Retrieved from https://store.standards.org.au/product/as-2899-1-1986

144. Standards Australia. (1998). *AS/NZS 3856.1: Hoists and ramps for people with disabilities – Vehicle-mounted*. Retrieved from https://store.standards.org.au/product/as-nzs-3856-1-1998

145. Standards Australia. (2021). *AS 1428.1: Design for access and mobility – General requirements for access – New building work*. Retrieved from https://store.standards.org.au/product/as-1428-1-2021

146. Standards Australia. (2009). *AS/NZS 1428.4.1: Design for access and mobility – Means to assist the orientation of people with vision impairment.* Retrieved from https://store.standards.org.au/product/as-nzs-1428-4-1-2009-amdt-2

147. Standards Australia. (2020). *AS 1735.12: Lifts, escalators, and moving walks – Facilities for persons with disabilities.* Retrieved from https://store.standards.org.au/product/as-1735-12-2020

148. International Organization for Standardization. (2007). *ISO 7001: Graphical symbols – Public information symbols*. Retrieved from https://store.standards.org.au/product/iso-7001-2007

149. Standards Australia. (2021). *AS 3856.1: Hoists and ramps for people with disabilities – Vehicle-mounted.* Retrieved from https://store.standards.org.au/product/as-3856-1-2021

150. Australian Government. (2005). *Disability Standards for Accessible Public Transport 2002: Supporting material.* Retrieved from https://www.legislation.gov.au/F2005B01059/asmade/text/supporting-material

151. Australian Government. (n.d.). *Whole journey guide: Transport accessibility*. Retrieved from https://www.infrastructure.gov.au/infrastructure-transport-vehicles/transport-accessibility/whole-journey-guide

152. Queensland Government. (n.d.). *Public transport infrastructure manual: Bus stop guidelines*. Retrieved from https://www.publications.qld.gov.au/dataset/public-transport-infrastructure-manual/resource/a962f82b-76a7-4f19-94f8-d9137b10ec6b

153. Queensland Government. (n.d.). *Public transport infrastructure manual: Bus stop guidelines*. Retrieved from https://www.publications.qld.gov.au/dataset/public-transport-infrastructure-manual/resource/da72d594-6518-4544-88cb-deeb9546ba5a

154. Queensland Government. (n.d.). *Public transport infrastructure manual: Bus stop guidelines*. Retrieved from https://www.publications.qld.gov.au/dataset/public-transport-infrastructure-manual/resource/9c8091e9-ca5e-4fb7-ab11-3a4b8f22fa77

155. Standards Australia. (2020). *AS/NZS 1158.3.1: Lighting for roads and public spaces – Pedestrian area lighting*. Retrieved from https://store.standards.org.au/product/as-nzs-1158-3-1-2020

156. Standards Australia. (2021). *AS 1428.1: Design for access and mobility – General requirements for access – New building work*. Retrieved from https://store.standards.org.au/product/as-1428-1-2021

157. Standards Australia. (2018). *AS 1428.4.2: Design for access and mobility – Means to assist the orientation of people with vision impairment*. Retrieved from https://store.standards.org.au/product/as-1428-4-2-2018

158. Standards Australia. (2021). *AS 1428.5: Design for access and mobility – Communication for people who are deaf or hard of hearing*. Retrieved from https://store.standards.org.au/product/as-1428-5-2021

159. Standards Australia. (2008). *AS/NZS 1680.2.1: Interior lighting – Specific applications – Circulation spaces and other general areas*. Retrieved from https://store.standards.org.au/product/as-nzs-1680-2-1-2008

160. Standards Australia. (2020). *AS 1735.12: Lifts, escalators, and moving walks – Facilities for persons with disabilities*. Retrieved from https://store.standards.org.au/product/as-1735-12-2020

161. Standards Australia. (2021). *AS/NZS 3856.1: Hoists and ramps for people with disabilities – Vehicle-mounted*. Retrieved from https://store.standards.org.au/product/as-3856-1-2021

162. Standards Australia. (2019). *AS/NZS 4282: Control of the obtrusive effects of outdoor lighting*. Retrieved from https://store.standards.org.au/product/as-nzs-4282-2019

163. Standards Australia. (2013). *AS 4663: Slip resistance measurement of existing pedestrian surfaces*. Retrieved from https://store.standards.org.au/product/as-4663-2013

164. Standards Australia. (2017). *AS 4586: Slip resistance classification of new pedestrian surface materials (Amendment 1)*. Retrieved from https://store.standards.org.au/product/as-4586-2013-amd-1-2017

165. Standards Australia. (2020). *AS EN 301 549: Accessibility requirements for ICT products and services*. Retrieved from https://store.standards.org.au/product/as-en-301-549-2020

166. Standards Australia. (2014). *SA HB 198: Guide to the specification and testing of slip resistance of pedestrian surfaces*. Retrieved from https://store.standards.org.au/product/sa-hb-198-2014

167. International Organization for Standardization. (2007). *ISO 7001: Graphical symbols – Public information symbols*. Retrieved from https://store.standards.org.au/product/iso-7001-2007

168. Institution of Civil Engineers. (2018). *Lighting for people with dementia*. Retrieved from https://www.icevirtuallibrary.com/doi/10.1680/jmaen.2018.12

169. Standards Australia. (2020). *AS 3962: Guidelines for the design of marinas*. Retrieved from https://store.standards.org.au/product/as-3962-2020

170. Institution of Civil Engineers. (2018). *Lighting for people with dementia*. Retrieved from https://www.icevirtuallibrary.com/doi/10.1680/jmaen.2018.12

171. Australian Government. (2020). *Disability Standards for Accessible Public Transport 2002 (updated 2020)*. Retrieved from https://www.legislation.gov.au/Details/F2020C00976

172. Australian Government. (2011). *Premises Standards 2010*. Retrieved from https://www.legislation.gov.au/Details/F2011C00213

173. Australian Government. (2005). *Disability Standards for Accessible Public Transport 2002: Supporting material*. Retrieved from https://www.legislation.gov.au/F2005B01059/asmade/text/supporting-material

174. Australian Government. (2020). *Disability Standards for Accessible Public Transport 2002 (updated 2020)*. Retrieved from https://www.legislation.gov.au/Details/F2020C00976

175. Standards Australia. (2001). *AS 1428.1: Design for access and mobility – General requirements for access – New building work*. Retrieved from https://store.standards.org.au/product/as-1428-1-2001

176. Standards Australia. (2017). *AS 1428.1: Design for access and mobility – General requirements for access – New building work (Amendment 2)*. Retrieved from https://store.standards.org.au/product/as-1428-1-2009-amd-2-2017

177. Standards Australia. (1999). *AS 1735.12: Lifts, escalators, and moving walks – Facilities for persons with disabilities*. Retrieved from https://store.standards.org.au/product/as-1735-12-1999

178. Standards Australia. (2009). *AS/NZS 2890.6: Parking facilities – Off-street parking for people with disabilities*. Retrieved from https://store.standards.org.au/product/as-nzs-2890-6-2009

179. Standards Australia. (2021). *AS 1428.1: Design for access and mobility – General requirements for access – New building work*. Retrieved from https://store.standards.org.au/product/as-1428-1-2021

180. Standards Australia. (2020). *AS 1735.12: Lifts, escalators, and moving walks – Facilities for persons with disabilities*. Retrieved from https://store.standards.org.au/product/as-1735-12-2020

181. Standards Australia. (2022). *AS 2890.6: Parking facilities – Off-street parking for people with disabilities*. Retrieved from https://store.standards.org.au/product/as-2890-6-2022

182. Australian Building Codes Board. (n.d.). *Performance-based code development (PCD)*. Retrieved from https://www.abcb.gov.au/pcd

183. Standards Australia. (2021). *AS 1428.1: Design for access and mobility – General requirements for access – New building work*. Retrieved from https://store.standards.org.au/product/as-1428-1-2021

184. Standards Australia. (2020). *AS 1735.12: Lifts, escalators, and moving walks – Facilities for persons with disabilities*. Retrieved from https://store.standards.org.au/product/as-1735-12-2020

185. Standards Australia. (2022). *AS 2890.6: Parking facilities – Off-street parking for people with disabilities*. Retrieved from https://store.standards.org.au/product/as-2890-6-2022

186. Australian Building Codes Board. (n.d.). *Performance-based code development (PCD): 2025 NCC referenced documents*. Retrieved from https://www.abcb.gov.au/pcd/pcd-2025-ncc-referenced-documents

187. Institution of Civil Engineers. (2018). *Lighting for people with dementia*. Retrieved from https://www.icevirtuallibrary.com/doi/10.1680/jmaen.2018.12

188. Queensland Government. (n.d.). *Rail network infrastructure signage manual*. Retrieved from https://www.publications.qld.gov.au/dataset/rail-network-infrastructure-signage-manual

189. Standards Australia. (2001). *AS 1428.1: Design for access and mobility – General requirements for access – New building work*. Retrieved from https://store.standards.org.au/product/as-1428-1-2001

190. Standards Australia. (1992). *AS 1428.4: Design for access and mobility – Tactile indicators*. Retrieved from https://store.standards.org.au/product/as-1428-4-1992

191. Standards Australia. (1999). *AS 1735.12: Lifts, escalators, and moving walks – Facilities for persons with disabilities*. Retrieved from https://store.standards.org.au/product/as-1735-12-1999

192. Standards Australia. (1986). *AS 2899.1: Public information symbol signs – General requirements*. Retrieved from https://store.standards.org.au/product/as-2899-1-1986

193. Standards Australia. (2021). *AS 1428.1: Design for access and mobility – General requirements for access – New building work*. Retrieved from https://store.standards.org.au/product/as-1428-1-2021

194. Standards Australia. (2009). *AS/NZS 1428.4.1: Design for access and mobility – Means to assist the orientation of people with vision impairment*. Retrieved from https://store.standards.org.au/product/as-nzs-1428-4-1-2009-amdt-2

195. Standards Australia. (2020). *AS 1735.12: Lifts, escalators, and moving walks – Facilities for persons with disabilities*. Retrieved from https://store.standards.org.au/product/as-1735-12-2020

196. International Organization for Standardization. (2007). *ISO 7001: Graphical symbols – Public information symbols*. Retrieved from https://store.standards.org.au/product/iso-7001-2007

197. Australian Maritime Safety Authority. (2018). *National standard for commercial vessels – Part C1*. Retrieved from https://www.amsa.gov.au/sites/default/files/2023-11/nscv-c1-july2018.pdf

198. Standards Australia. (1998). *AS/NZS 3856.1: Hoists and ramps for people with disabilities – Vehicle-mounted*. Retrieved from https://store.standards.org.au/product/as-nzs-3856-1-1998

199. Queensland Government. (n.d.). *Public transport infrastructure manual: Bus stop guidelines*. Retrieved from https://www.publications.qld.gov.au/dataset/public-transport-infrastructure-manual/resource/22cca5ef-32ca-497c-87bd-cc3ca099bfff

200. Australian Human Rights Commission. (n.d.). *Guidelines on the application of premises standards*. Retrieved from https://humanrights.gov.au/our-work/disability-rights/guidelines-application-premises-standards

201. Australian Government. (2005). *Disability Standards for Accessible Public Transport 2002: Supporting material*. Retrieved from https://www.legislation.gov.au/F2005B01059/asmade/text/supporting-material

202. Australian Government. (n.d.). *Whole journey guide: Transport accessibility*. Retrieved from https://www.infrastructure.gov.au/infrastructure-transport-vehicles/transport-accessibility/whole-journey-guide

203. Standards Australia. (2020). *AS/NZS 1158.3.1: Lighting for roads and public spaces – Pedestrian area lighting*. Retrieved from https://store.standards.org.au/product/as-nzs-1158-3-1-2020

204. Standards Australia. (2021). *AS 1428.1: Design for access and mobility – General requirements for access – New building work*. Retrieved from https://store.standards.org.au/product/as-1428-1-2021

205. Standards Australia. (2018). *AS 1428.4.2: Design for access and mobility – Means to assist the orientation of people with vision impairment*. Retrieved from https://store.standards.org.au/product/as-1428-4-2-2018

206. Standards Australia. (2021). *AS 1428.5: Design for access and mobility – Communication for people who are deaf or hard of hearing*. Retrieved from https://store.standards.org.au/product/as-1428-5-2021

207. Standards Australia. (2008). *AS/NZS 1680.2.1: Interior lighting – Specific applications – Circulation spaces and other general areas*. Retrieved from https://store.standards.org.au/product/as-nzs-1680-2-1-2008

208. Standards Australia. (2020). *AS 1735.12: Lifts, escalators, and moving walks – Facilities for persons with disabilities*. Retrieved from https://store.standards.org.au/product/as-1735-12-2020

209. Standards Australia. (2020). *AS 3962: Guidelines for the design of marinas*. Retrieved from https://store.standards.org.au/product/as-3962-2020

210. Standards Australia. (2019). *AS/NZS 4282: Control of the obtrusive effects of outdoor lighting*. Retrieved from https://store.standards.org.au/product/as-nzs-4282-2019

211. Standards Australia. (2017). *AS 4586: Slip resistance classification of new pedestrian surface materials (Amendment 1)*. Retrieved from https://store.standards.org.au/product/as-4586-2013-amd-1-2017

212. Standards Australia. (2013). *AS 4663: Slip resistance measurement of existing pedestrian surfaces*. Retrieved from https://store.standards.org.au/product/as-4663-2013

213. Standards Australia. (2020). *AS EN 301 549: Accessibility requirements for ICT products and services*. Retrieved from https://store.standards.org.au/product/as-en-301-549-2020

214. Standards Australia. (2014). *SA HB 198: Guide to the specification and testing of slip resistance of pedestrian surfaces*. Retrieved from https://store.standards.org.au/product/sa-hb-198-2014

215. International Organization for Standardization. (2007). *ISO 7001: Graphical symbols – Public information symbols*. Retrieved from https://store.standards.org.au/product/iso-7001-2007

216. Queensland Government. (2022). *Annual report 2022–2023: Community safety and public works*. Retrieved from https://www.publications.qld.gov.au/ckan-publications-

attachments-prod/resources/51f061db-e198-41b1-8101-660a134c3c41/cspw-29-2022-2023-annual-report_v2.pdf

217. Australian Human Rights Commission. (n.d.). *Accessible bus stops guidelines*. Retrieved from https://humanrights.gov.au/our-work/disability-rights/australian-human-rights-commission-accessible-bus-stops-guidelines

218. Australian Human Rights Commission. (n.d.). *Accessible bus stops guidelines*. Retrieved from https://humanrights.gov.au/our-work/disability-rights/australian-human-rights-commission-accessible-bus-stops-guidelines

219. TransLink. (n.d.). *Projects and initiatives*. Retrieved from https://translink.com.au/about-translink/projects-and-initiatives

220. Australian Government. (2005). *Disability Standards for Accessible Public Transport 2002: Supporting material*. Retrieved from https://www.legislation.gov.au/F2005B01059/asmade/text/supporting-material

221. Queensland Government. (n.d.). *Public transport infrastructure manual: Bus stop guidelines*. Retrieved from https://www.publications.qld.gov.au/dataset/public-transport-infrastructure-manual/resource/313a680e-66f6-412a-aa01-2095dca84872

222. Queensland Government. (n.d.). *Public transport infrastructure manual: Bus stop guidelines*. Retrieved from https://www.publications.qld.gov.au/dataset/public-transport-infrastructure-manual/resource/376e7d59-1b85-45a6-8b48-7c0379783326

223. Queensland Government. (n.d.). *Public transport infrastructure manual: Bus stop guidelines*. Retrieved from https://www.publications.qld.gov.au/dataset/public-transport-infrastructure-manual/resource/9aa2eda9-81ac-493e-9fe6-6acb2284d441

224. Queensland Government. (n.d.). *Public transport infrastructure manual: Bus stop guidelines*. Retrieved from https://www.publications.qld.gov.au/dataset/public-transport-infrastructure-manual/resource/065f2901-d563-479c-9059-729cb152adf1

225. Queensland Government. (2020). *Bus stop guidelines*. Retrieved from https://www.publications.qld.gov.au/ckan-publications-attachments-prod/resources/313a680e-66f6-412a-aa01-2095dca84872/ptim_05_bus-stop_jun2020.pdf

226. Standards Australia. (2016). *AS 1742.11: Manual of uniform traffic control devices – Parking controls*. Retrieved from https://store.standards.org.au/product/as-1742-11-2016

227. Queensland Department of Transport and Main Roads. (n.d.). *Manual of uniform traffic control devices*. Retrieved from https://www.tmr.qld.gov.au/business-industry/technical-standards-publications/manual-of-uniform-traffic-control-devices.aspx

228. Australian Human Rights Commission. (n.d.). *Accessible bus stops guidelines*. Retrieved from https://humanrights.gov.au/our-work/disability-rights/australian-human-rights-commission-accessible-bus-stops-guidelines

229. Brisbane City Council. (n.d.). *Premium bus stop standard drawing*. Retrieved from https://docs.brisbane.qld.gov.au/standard-drawings/v23-City-Plan/2000-series-Road-corridor/BSD-2103-F-Premium-bus-stop.pdf

230. Brisbane City Council. (n.d.). *Intermediate bus stops standard drawing (Sheet 1 of 3)*. Retrieved from https://docs.brisbane.qld.gov.au/standard-drawings/v23-City-Plan/2000-series-Road-corridor/BSD-2104-E-Intermediate-bus-stop-Sheet-1-of-3.pdf

231. Brisbane City Council. (n.d.). *Intermediate bus stops standard drawing (In centres – Sheet 2 of 3)*. Retrieved from https://docs.brisbane.qld.gov.au/standard-drawings/v23-City-Plan/2000-series-Road-corridor/BSD-2104-E-Intermediate-bus-stop-In-centres-Sheet-2-of-3.pdf

232. Brisbane City Council. (n.d.). *Intermediate bus stops standard drawing (Constrained site – Sheet 3 of 3)*. Retrieved from https://docs.brisbane.qld.gov.au/standard-drawings/v23-City-Plan/2000-series-Road-corridor/BSD-2104-E-Intermediate-bus-stop-Constrained-site-Sheet-3-of-3.pdf

233. Brisbane City Council. (n.d.). *Regular bus stop without seat (Sheet 1 of 3)*. Retrieved from https://docs.brisbane.qld.gov.au/standard-drawings/20191129_-_bsd-2105_c_regular-bus-stop_without-seat_sheet-1-of-3.pdf

234. Brisbane City Council. (n.d.). *Regular bus stop with seat (Sheet 2 of 3)*. Retrieved from https://docs.brisbane.qld.gov.au/standard-drawings/20191129_-_bsd-2105_b_regular-bus-stop_with-seat_sheet-2-of-3.pdf

235. Brisbane City Council. (n.d.). *Regular bus stop in centres (Sheet 3 of 3)*. Retrieved from https://docs.brisbane.qld.gov.au/standard-drawings/20191129_-_bsd-2105_c_regular-bus-stop_in-centres_sheet-3-of-3.pdf

236. Brisbane City Council. (n.d.). *Mini Boulevard bus shelter standard drawing*. Retrieved from https://docs.brisbane.qld.gov.au/standard-drawings/v23-City-Plan/2000-series-Road-corridor/BSD-2107-E-oOh-media-Mini-Boulevard-bus-shelter.pdf

237. Brisbane City Council. (n.d.). *Boulevard bus shelter standard drawing*. Retrieved from https://docs.brisbane.qld.gov.au/standard-drawings/v23-City-Plan/2000-series-Road-corridor/BSD-2108-E-oOh-media-Boulevard-bus-shelter.pdf

238. Brisbane City Council. (n.d.). *Suburban shelter without advertising panel (Typical layout)*. Retrieved from https://docs.brisbane.qld.gov.au/standard-drawings/v23-City-Plan/2000-series-Road-corridor/BSD-2109-E-standard-translink-suburban-shelter-without-advertising-panel-typical-layout-v2.pdf

239. Arup. (n.d.). *Perceptions of night-time safety for women and girls*. Retrieved from https://www.arup.com/projects/perceptions-of-night-time-safety-women-and-girls

240. Universal Design Australia. (n.d.). *Age and dementia-friendly spaces report*. Retrieved from https://universaldesignaustralia.net.au/wp-content/uploads/2016/09/Age-Dementia-friendly-spaces-MVCC-Report-final.pdf

241. Queensland Police Service. (2021). *Crime prevention through environmental design: Guidelines for Queensland*. Retrieved from https://www.police.qld.gov.au/sites/default/files/2021-07/Crime%20Prevention%20Through%20Environmental%20Design%20-%20Guidelines%20for%20Queensland%202021%20v1.pdf

242. Standards Australia. (2020). *AS/NZS 1158.3.1: Lighting for roads and public spaces – Pedestrian area lighting.* Retrieved from https://store.standards.org.au/product/as-nzs-1158-3-1-2020

243. Standards Australia. (2006). *AS/NZS 1680.1: Interior lighting – General principles and recommendations*. Retrieved from https://store.standards.org.au/product/as-nzs-1680-1-2006

244. ResearchGate. (n.d.). *Lighting for people with dementia*. Retrieved from https://www.researchgate.net/publication/239405940_Lighting_for_people_with_dementia

245. International Commission on Illumination (CIE). (n.d.). *Lighting for older people and people with visual impairment in buildings.* Retrieved from https://cie.co.at/publications/lighting-older-people-and-people-visual-impairment-buildings

246. Smart Lighting Solutions Council. (n.d.). *Model public lighting strategy.* Retrieved from https://www.slsc.org.au/slsc-publications/model-public-lighting-strategy

247. Australian Government. (2022). *Reforms to the Disability Standards for Accessible Public Transport 2002: Stage 2 consultation regulation impact statement*. Retrieved from https://www.infrastructure.gov.au/sites/default/files/documents/reforms-disability-standards-for-accessible-public-transport-2002-stage2-consultation-regulation-impact-statement-march2022.pdf

248. Austroads. (n.d.). *Guide to road design: Part 4 – Intersections and crossings – General*. Retrieved from https://austroads.com.au/publications/road-design/agrd04

249. Austroads. (n.d.). *Guide to road design: Part 6A – Pedestrian and cyclist paths.* Retrieved from https://austroads.com.au/publications/road-design/agrd06a

250. Austroads. (n.d.). *Guide to road design: Part 6B – Roadside environment*. Retrieved from https://austroads.com.au/publications/road-design/agrd06b

251. Standards Australia. (2022). *AS/NZS 1158.1.1: Lighting for roads and public spaces – Vehicular traffic (Category V) lighting – Performance and design requirements*. Retrieved from https://store.standards.org.au/product/as-nzs-1158-1-1-2022

252. Standards Australia. (2010). *AS/NZS 1158.1.2: Lighting for roads and public spaces – Vehicular traffic (Category V) lighting – Guide to design, installation, operation, and maintenance*. Retrieved from https://store.standards.org.au/product/as-nzs-1158-1-2-2010

253. Standards Australia. (2020). *AS/NZS 1158.3.1: Lighting for roads and public spaces – Pedestrian area lighting*. Retrieved from https://store.standards.org.au/product/as-nzs-1158-3-1-2020

254. Standards Australia. (2015). *AS/NZS 1158.4: Lighting for roads and public spaces – Lighting of pedestrian crossings*. Retrieved from https://store.standards.org.au/product/as-nzs-1158-4-2015

255. Standards Australia. (2008). *AS/NZS 1680.2.1: Interior lighting – Specific applications – Circulation spaces and other general areas*. Retrieved from https://store.standards.org.au/product/as-nzs-1680-2-1-2008

256. Standards Australia. (2020). *AS/NZS 1158.3.1: Lighting for roads and public spaces – Pedestrian area lighting*. Retrieved from https://store.standards.org.au/product/as-nzs-1158-3-1-2020

257. Standards Australia. (2019). *AS/NZS 4282: Control of the obtrusive effects of outdoor lighting*. Retrieved from https://store.standards.org.au/product/as-nzs-4282-2019

258. Institute of Public Works Engineering Australasia. (n.d.). *IPWEA home page*. Retrieved from https://www.ipwea.org/home

259. Smart Lighting Solutions Council. (n.d.). *Model public lighting strategy*. Retrieved from https://www.slsc.org.au/slsc-publications/model-public-lighting-strategy

260. Queensland Police Service. (2021). *Crime prevention through environmental design: Guidelines for Queensland*. Retrieved from https://www.police.qld.gov.au/sites/default/files/2021-07/Crime%20Prevention%20Through%20Environmental%20Design%20-%20Guidelines%20for%20Queensland%202021%20v1.pdf

261. Arup. (n.d.). *Perceptions of night-time safety for women and girls*. Retrieved from https://www.arup.com/projects/perceptions-of-night-time-safety-women-and-girls

262. World Wide Web Consortium. (2021). *Web Content Accessibility Guidelines (WCAG) 2.2*. Retrieved from https://www.w3.org/TR/WCAG22/

263. Vimeo. (n.d.). *Video: Accessibility in urban design*. Retrieved from https://vimeo.com/486997302

264. Wikimedia Commons. (n.d.). *(ASL) – What is E. coli?* Retrieved from https://commons.wikimedia.org/wiki/File:(ASL)_-_What_is_E._coli.webm

265. TransLink. (n.d.). *Real-time journey planning*. Retrieved from https://translink.com.au/plan-your-journey/real-time

266. Deloitte. (n.d.). *Mobile nation: The economic impact of mobile technology*. Retrieved from https://www.deloitte.com/au/en/services/economics/perspectives/mobile-nation.html

267. TransLink. (n.d.). *Near-field communication (NFC) for transport*. Retrieved from https://translink.com.au/plan-your-journey/nfc

268. Queensland Government. (n.d.). *Public transport infrastructure manual*. Retrieved from https://www.publications.qld.gov.au/dataset/public-transport-infrastructure-manual

269. TransLink. (n.d.). *Smart ticketing projects and initiatives*. Retrieved from https://translink.com.au/about-translink/projects-and-initiatives/smart-ticketing

270. Australian Human Rights Commission. (n.d.). *Guidelines on the application of premises standards*. Retrieved from https://humanrights.gov.au/our-work/disability-rights/guidelines-application-premises-standards

271. Australian Government. (2005). *Disability Standards for Accessible Public Transport 2002: Supporting material*. Retrieved from https://www.legislation.gov.au/F2005B01059/asmade/text/supporting-material

272. Australian Government. (2016). *Access technology made easier*. Retrieved from https://www.financeminister.gov.au/media-release/2016/08/22/access-technology-made-easier

273. South Australian Government. (n.d.). *Accessibility in building, buying, and supply*. Retrieved from https://www.accessibility.sa.gov.au/introduction/build,-buy-and-supply

274. New South Wales Government. (n.d.). *Accessibility and inclusivity toolkit: Your responsibilities*. Retrieved from https://www.digital.nsw.gov.au/delivery/accessibility-and-inclusivity-toolkit/your-responsibilities

275. Standards Australia. (1992). *AS 1428.2: Design for access and mobility – Enhanced and additional requirements for buildings and facilities*. Retrieved from https://store.standards.org.au/product/as-1428-2-1992

276. Standards Australia. (2021). *AS 1428.5: Design for access and mobility – Communication for people who are deaf or hard of hearing*. Retrieved from https://store.standards.org.au/product/as-1428-5-2021

277. Standards Australia. (2020). *AS EN 301 549: Accessibility requirements for ICT products and services*. Retrieved from https://store.standards.org.au/product/as-en-301-549-2020

278. European Telecommunications Standards Institute. (2020). *Accessibility requirements for ICT products and services (Version 3.1.1)*. Retrieved from https://www.etsi.org/deliver/etsi_en/301500_301599/301549/03.01.01_60/en_301549v030101p.pdf

279. World Wide Web Consortium. (2018). *Web Content Accessibility Guidelines (WCAG) 2.1*. Retrieved from https://www.w3.org/TR/WCAG21/

280. World Wide Web Consortium. (2021). *Web Content Accessibility Guidelines (WCAG) 2.2*. Retrieved from https://www.w3.org/TR/WCAG22/

281. European Telecommunications Standards Institute. (2020). *EN 301 549 V3: The harmonized European standard for ICT accessibility*. Retrieved from https://www.etsi.org/human-factors-accessibility/en-301-549-v3-the-harmonized-european-standard-for-ict-accessibility

282. European Telecommunications Standards Institute. (2020). *EN 301 549 V3: The harmonized European standard for ICT accessibility*. Retrieved from https://www.etsi.org/human-factors-accessibility/en-301-549-v3-the-harmonized-european-standard-for-ict-accessibility

283. European Telecommunications Standards Institute. (2020). *Accessibility requirements for ICT products and services (Version 3.1.1)*. Retrieved from https://www.etsi.org/deliver/etsi_en/301500_301599/301549/03.01.01_60/en_301549v030101p.pdf

284. European Telecommunications Standards Institute. (2020). *Accessibility requirements for ICT products and services (Version 3.2.1)*. Retrieved from https://www.etsi.org/deliver/etsi_en/301500_301599/301549/03.02.01_60/en_301549v030201p.pdf

285. YouTube. (n.d.). *Video: Accessibility in urban design*. Retrieved from https://www.youtube.com/watch?v=J-BEi2yyuFw&list=PLfCFZkKjngqrnEaIymHKvsym025w0cOF3

286. Queensland Police Service. (2021). *Crime prevention through environmental design: Guidelines for Queensland*. Retrieved from https://www.police.qld.gov.au/sites/default/files/2021-07/Crime%20Prevention%20Through%20Environmental%20Design%20-%20Guidelines%20for%20Queensland%202021%20v1.pdf

287. Google Maps. (n.d.). *Morningside location overview*. Retrieved from https://www.google.com/maps/place/Morningside/@-27.4705081,153.0692571,3a,75y,180.01h,93.24t/data=!3m8!1e1!3m6!1sBNUssCZ23fWIdhLKQTsh4g!2e0!5s20200901T000000!6shttps:%2F%2Fstreetviewpixels-pa.googleapis.com%2Fv1%2Fthumbnail%3Fcb_client%3Dmaps_sv.tactile%26w%3D900%26h%3D600%26pitch%3D-3.2358506752912604%26panoid%3DBNUssCZ23fWIdhLKQTsh4g%26yaw%3D180.01054198905166!7i16384!8i8192!4m6!3m5!1s0x6b91597db7452149:0x1d02a35bea33b410!8m2!3d-27.4709221!4d153.0695935!16zL20vMDVjOHZf?authuser=0&entry=ttu&g_ep=EgoyMDI1MDcwOS4wIKXMDSoASAFQAw%3D%3D

288. Standards Australia. (2020). *AS 1735.12: Lifts, escalators, and moving walks – Facilities for persons with disabilities*. Retrieved from https://store.standards.org.au/product/as-1735-12-2020

289. Australian Building Codes Board. (n.d.). *Performance-based code development (PCD)*. Retrieved from https://www.abcb.gov.au/pcd

290. Standards Australia. (2020). *AS 1735.12: Lifts, escalators, and moving walks – Facilities for persons with disabilities*. Retrieved from https://store.standards.org.au/product/as-1735-12-2020

291. Australian Building Codes Board. (n.d.). *Performance-based code development (PCD): 2025 NCC referenced documents*. Retrieved from https://www.abcb.gov.au/pcd/pcd-2025-ncc-referenced-documents

292. Standards Australia. (2020). *AS 1735.12: Lifts, escalators, and moving walks – Facilities for persons with disabilities*. Retrieved from https://store.standards.org.au/product/as-1735-12-2020

293. Queensland Government. (n.d.). *Public transport infrastructure manual: Bus stop guidelines*. Retrieved from https://www.publications.qld.gov.au/dataset/public-transport-infrastructure-manual/resource/eb1d80a3-401b-43fd-915a-2f75b2bdb9f0

294. Australian Government. (n.d.). *Whole journey guide: Transport accessibility*. Retrieved from https://www.infrastructure.gov.au/infrastructure-transport-vehicles/transport-accessibility/whole-journey-guide

295. European Committee for Standardization. (2018). *EN 81-70: Accessibility to lifts for persons including persons with disability*. Retrieved from https://standards.iteh.ai/catalog/standards/cen/381543ef-a906-4b09-8d18-fdfb4216ccb8/en-81-70-2018

296. Standards Australia. (2020). *AS 1735.12: Lifts, escalators, and moving walks – Facilities for persons with disabilities*. Retrieved from https://store.standards.org.au/product/as-1735-12-2020

297. European Committee for Standardization. (2022). *EN 81-70: Accessibility to lifts for persons including persons with disability (Amendment 1)*. Retrieved from https://standards.iteh.ai/catalog/standards/cen/d545a2e8-e577-4b63-97ac-b73fb24920ca/en-81-70-2021a1-2022

298. European Blind Union. (2019). *Accessibility of lifts*. Retrieved from https://www.euroblind.org/sites/default/files/documents/2019-02-28_ebu_accessibility_of_lifts.pdf

299. Queensland University of Technology. (n.d.). *Accessible transport research report*. Retrieved from https://eprints.qut.edu.au/216038/1/27556.pdf

300. TransLink. (n.d.). *Near-field communication (NFC) for transport*. Retrieved from https://translink.com.au/plan-your-journey/nfc

301. NaviLens. (n.d.). *NaviLens: Smart signage for accessibility*. Retrieved from https://www.navilens.com/en/

302. Victorian Government. (2023). *New technology to boost tram accessibility*. Retrieved from https://www.premier.vic.gov.au/sites/default/files/2023-08/230814-New-Technology-To-Boost-Tram-Accessibility.pdf

303. Standards Australia. (2021). *AS 1428.1: Design for access and mobility – General requirements for access – New building work*. Retrieved from https://store.standards.org.au/product/as-1428-1-2021

304. Standards Australia. (2018). *AS 1428.4.2: Design for access and mobility – Means to assist the orientation of people with vision impairment*. Retrieved from https://store.standards.org.au/product/as-1428-4-2-2018

305. International Organization for Standardization. (2007). *ISO 7001: Graphical symbols – Public information symbols*. Retrieved from https://store.standards.org.au/product/iso-7001-2007

306. Australian Building Codes Board. (n.d.). *Performance-based code development (PCD)*. Retrieved from https://www.abcb.gov.au/pcd

307. Standards Australia. (2021). *AS 1428.1: Design for access and mobility – General requirements for access – New building work*. Retrieved from https://store.standards.org.au/product/as-1428-1-2021

308. Australian Building Codes Board. (n.d.). *Performance-based code development (PCD): 2025 NCC referenced documents*. Retrieved from https://www.abcb.gov.au/pcd/pcd-2025-ncc-referenced-documents

309. Standards Australia. (2001). *AS 1428.1: Design for access and mobility – General requirements for access – New building work*. Retrieved from https://store.standards.org.au/product/as-1428-1-2001

310. Standards Australia. (2021). *AS 1428.1: Design for access and mobility – General requirements for access – New building work*. Retrieved from https://store.standards.org.au/product/as-1428-1-2021

311. Standards Australia. (1986). *AS 2899.1: Public information symbol signs – General requirements*. Retrieved from https://store.standards.org.au/product/as-2899-1-1986

312. International Organization for Standardization. (2007). *ISO 7001: Graphical symbols – Public information symbols*. Retrieved from https://store.standards.org.au/product/iso-7001-2007

313. Standards Australia. (2018). *AS 1428.4.2: Design for access and mobility – Means to assist the orientation of people with vision impairment*. Retrieved from https://store.standards.org.au/product/as-1428-4-2-2018

314. Queensland Government. (2016). *Branding, theming, and signage guidelines*. Retrieved from https://www.publications.qld.gov.au/dataset/495a8be2-9658-4965-90c8-de0506b0c886/resource/94af2a46-4482-497d-86d2-02ed68c16954/download/ptim_04_branding-theming-and-signage_mar16.pdf

315. Queensland Government. (n.d.). *Bus network infrastructure signage manual*. Retrieved from https://www.publications.qld.gov.au/dataset/bus-network-infrastructure-signage-manual

316. Queensland Government. (n.d.). *Rail network infrastructure signage manual*. Retrieved from https://www.publications.qld.gov.au/dataset/rail-network-infrastructure-signage-manual

317. Queensland Department of Transport and Main Roads. (n.d.). *Wayfinding and signage for people walking*. Retrieved from https://www.tmr.qld.gov.au/-/media/busind/techstdpubs/Cycling/Guideline-Wayfinding-and-signage-for-people-walking.pdf?la=en

318. Standards Australia. (2021). *AS 1428.1: Design for access and mobility – General requirements for access – New building work*. Retrieved from https://store.standards.org.au/product/as-1428-1-2021

319. Standards Australia. (1992). *AS 1428.2: Design for access and mobility – Enhanced and additional requirements for buildings and facilities*. Retrieved from https://store.standards.org.au/product/as-1428-2-1992

320. Standards Australia. (2018). *AS 1428.4.2: Design for access and mobility – Means to assist the orientation of people with vision impairment*. Retrieved from https://store.standards.org.au/product/as-1428-4-2-2018

321. Standards Australia. (2021). *AS 1428.5: Design for access and mobility – Communication for people who are deaf or hard of hearing*. Retrieved from https://store.standards.org.au/product/as-1428-5-2021

322. Standards Australia. (2017). *AS 1428.1: Design for access and mobility – General requirements for access – New building work (Amendment 2)*. Retrieved from https://store.standards.org.au/product/as-1428-1-2009-amd-2-2017

323. Standards Australia. (2001). *AS 1428.1: Design for access and mobility – General requirements for access – New building work*. Retrieved from https://store.standards.org.au/product/as-1428-1-2001

324. Standards Australia. (1986). *AS 2899.1: Public information symbol signs – General requirements*. Retrieved from https://store.standards.org.au/product/as-2899-1-1986

325. International Organization for Standardization. (2007). *ISO 7001: Graphical symbols – Public information symbols*. Retrieved from https://store.standards.org.au/product/iso-7001-2007

326. Standards Australia. (2016). *AS 1742.11: Manual of uniform traffic control devices – Parking controls*. Retrieved from https://store.standards.org.au/product/as-1742-11-2016

327. Queensland Department of Transport and Main Roads. (n.d.). *Manual of uniform traffic control devices*. Retrieved from https://www.tmr.qld.gov.au/business-industry/technical-standards-publications/manual-of-uniform-traffic-control-devices.aspx

328. Standards Australia. (1992). *AS 1428.2: Design for access and mobility – Enhanced and additional requirements for buildings and facilities*. Retrieved from https://store.standards.org.au/product/as-1428-2-1992

329. Standards Australia. (1992). *AS 1428.4: Design for access and mobility – Tactile indicators*. Retrieved from https://store.standards.org.au/product/as-1428-4-1992

330. Standards Australia. (2009). *AS/NZS 1428.4.1: Design for access and mobility – Means to assist the orientation of people with vision impairment*. Retrieved from https://store.standards.org.au/product/as-nzs-1428-4-1-2009-amdt-2

331. Standards Australia. (1992). *AS 1428.2: Design for access and mobility – Enhanced and additional requirements for buildings and facilities*. Retrieved from https://store.standards.org.au/product/as-1428-2-1992

332. Standards Australia. (1992). *AS 1428.4: Design for access and mobility – Tactile indicators*. Retrieved from https://store.standards.org.au/product/as-1428-4-1992

333. Standards Australia. (2009). *AS/NZS 1428.4.1: Design for access and mobility – Means to assist the orientation of people with vision impairment*. Retrieved from https://store.standards.org.au/product/as-nzs-1428-4-1-2009-amdt-2

334. Queensland Government. (n.d.). *Public transport infrastructure manual: Bus stop guidelines*. Retrieved from https://www.publications.qld.gov.au/dataset/public-transport-infrastructure-manual/resource/313a680e-66f6-412a-aa01-2095dca84872

335. Queensland Government. (n.d.). *Public transport infrastructure manual: Bus stop guidelines*. Retrieved from https://www.publications.qld.gov.au/dataset/public-transport-infrastructure-manual/resource/376e7d59-1b85-45a6-8b48-7c0379783326?inner_span=True

336. Queensland Government. (n.d.). *Public transport infrastructure manual: Bus stop guidelines*. Retrieved from https://www.publications.qld.gov.au/dataset/public-transport-infrastructure-manual/resource/065f2901-d563-479c-9059-729cb152adf1

337. Queensland Government. (n.d.). *Public transport infrastructure manual: Bus stop guidelines*. Retrieved from https://www.publications.qld.gov.au/dataset/public-transport-infrastructure-manual/resource/a962f82b-76a7-4f19-94f8-d9137b10ec6b

338. Queensland Government. (n.d.). *Public transport infrastructure manual: Bus stop guidelines*. Retrieved from https://www.publications.qld.gov.au/dataset/public-transport-infrastructure-manual/resource/14ef3213-28d6-4e9b-91fe-811590618de6

339. Queensland Government. (n.d.). *Public transport infrastructure manual: Bus stop guidelines*. Retrieved from https://www.publications.qld.gov.au/dataset/public-transport-infrastructure-manual/resource/1689d354-12e2-4695-ac90-e3666cac9584

340. Queensland Government. (n.d.). *Public transport infrastructure manual: Bus stop guidelines*. Retrieved from https://www.publications.qld.gov.au/dataset/public-transport-infrastructure-manual/resource/da72d594-6518-4544-88cb-deeb9546ba5a

341. Queensland Government. (n.d.). *Public transport infrastructure manual: Bus stop guidelines*. Retrieved from https://www.publications.qld.gov.au/dataset/public-transport-infrastructure-manual/resource/9c8091e9-ca5e-4fb7-ab11-3a4b8f22fa77

342. Standards Australia. (1992). *AS 1428.2: Design for access and mobility – Enhanced and additional requirements for buildings and facilities*. Retrieved from https://store.standards.org.au/product/as-1428-2-1992

343. Standards Australia. (1992). *AS 1428.4: Design for access and mobility – Tactile indicators*. Retrieved from https://store.standards.org.au/product/as-1428-4-1992

344. Standards Australia. (2002). *AS/NZS 1428.4: Design for access and mobility – Means to assist the orientation of people with vision impairment*. Retrieved from https://store.standards.org.au/product/as-nzs-1428-4-2002

345. Standards Australia. (2009). *AS/NZS 1428.4.1: Design for access and mobility – Means to assist the orientation of people with vision impairment*. Retrieved from https://store.standards.org.au/product/as-nzs-1428-4-1-2009-amdt-2

346. Queensland Department of Transport and Main Roads. (n.d.). *Standard drawing: Roadworks, drainage, culverts, and geotechnical (SD1446)*. Retrieved from https://www.tmr.qld.gov.au/_/media/busind/techstdpubs/specifications-and-drawings/standard-drawings-roads/roadworks-drainage-culverts-and-geotechnical/sd1446.pdf?sc_lang=en&hash=95ADDE55760B58CCD2D774C881BA67E6

347. Queensland Department of Transport and Main Roads. (n.d.). *Standard drawing: Roadworks, drainage, culverts, and geotechnical (SD1447)*. Retrieved from https://www.tmr.qld.gov.au/_/media/busind/techstdpubs/specifications-and-drawings/standard-drawings-roads/roadworks-drainage-culverts-and-geotechnical/sd1447.pdf?sc_lang=en&hash=24F3B6A1A12977961157BD1720632D03

348. Queensland Department of Transport and Main Roads. (n.d.). *Standard drawing: Roadworks, drainage, culverts, and geotechnical (KRG1)*. Retrieved from https://www.tmr.qld.gov.au/_/media/busind/techstdpubs/specifications-and-drawings/standard-drawings-roads/roadworks-drainage-culverts-and-geotechnical/krg1.pdf?sc_lang=en&hash=964ECE81AC2B289DF6C03A8463B78F52

349. Queensland Department of Transport and Main Roads. (n.d.). *Standard drawing: Roadworks, drainage, culverts, and geotechnical (KRG2)*. Retrieved from https://www.tmr.qld.gov.au/_/media/busind/techstdpubs/specifications-and-drawings/standard-drawings-roads/roadworks-drainage-culverts-and-geotechnical/krg2.pdf?sc_lang=en&hash=76806E37F44013F7A8A1E9ED0EBE13F5

350. Australian Human Rights Commission. (n.d.). *Accessible bus stops guidelines*. Retrieved from https://humanrights.gov.au/our-work/disability-rights/australian-human-rights-commission-accessible-bus-stops-guidelines

351. Standards Australia. (1992). *AS 1428.2: Design for access and mobility – Enhanced and additional requirements for buildings and facilities*. Retrieved from https://store.standards.org.au/product/as-1428-2-1992

352. Standards Australia. (1992). *AS 1428.4: Design for access and mobility – Tactile indicators*. Retrieved from https://store.standards.org.au/product/as-1428-4-1992

353. Standards Australia. (2009). *AS/NZS 1428.4.1: Design for access and mobility – Means to assist the orientation of people with vision impairment*. Retrieved from https://store.standards.org.au/product/as-nzs-1428-4-1-2009-amdt-2

354. Brisbane City Council. (n.d.). *Directional TGSI wayfinding trails – Permanent clearances (Sheet 1 of 2)*. Retrieved from https://docs.brisbane.qld.gov.au/standard-drawings/bsd-5217_b_directional_tgsi_wayfinding_trails_-*premanent_clearences*-_sheet_1_of_2.pdf

355. Brisbane City Council. (n.d.). *Directional TGSI wayfinding trails – Temporary diversions (Sheet 2 of 2)*. Retrieved from https://docs.brisbane.qld.gov.au/standard-drawings/bsd-5217_b_directional_tgsi_wayfinding_trails_-*temporary_diversions*-_sheet_2_of_2.pdf

356. Brisbane City Council. (n.d.). *Tactile ground surface indicator detail*. Retrieved from https://docs.brisbane.qld.gov.au/standard-drawings/20190726_-_bsd-5218_b_tactile-ground-surface-indicator-detail.pdf

357. Brisbane City Council. (n.d.). *Kerb ramp plan views and notes (Sheet 1 of 2)*. Retrieved from https://docs.brisbane.qld.gov.au/standard-drawings/Minor-Amendment-N/5000/230602_bsd-5231_e_kerb-ramp_plan-views-and-notes_sheet-1-of-2.pdf

358. Brisbane City Council. (n.d.). *Island pedestrian access*. Retrieved from https://docs.brisbane.qld.gov.au/standard-drawings/v23-City-Plan/5000-series-Pedestrian-and-cyclist-facilities/BSD-5232-C-Island-pedestrin-access.pdf

359. Brisbane City Council. (n.d.). *Typical kerb ramp and traffic signal pedestal location*. Retrieved from https://docs.brisbane.qld.gov.au/standard-drawings/v23-City-Plan/5000-series-Pedestrian-and-cyclist-facilities/BSD-5233-C-Typical-kerb-ramp-and-traffic-signal-pedestal-location.pdf

360. Brisbane City Council. (n.d.). *Pedestrian facilities at traffic islands, ramps, and slots*. Retrieved from https://docs.brisbane.qld.gov.au/standard-drawings/20191129_-_bsd-5234_b_pedestrian-facilities-at-traffic-islands-ramps-and-slots.pdf

361. Brisbane City Council. (n.d.). *Vehicle crossing (driveway) details (Sheet 1 of 2)*. Retrieved from https://docs.brisbane.qld.gov.au/standard-drawings/Minor-Amendment-N/2000/230602_bsd-2021_f_vehicle-crossing-(driveway)_other-than-single-dwelling-and-rear-allotment-access_details_sheet-1-of-2.pdf

362. Brisbane City Council. (n.d.). *Premium bus stops standard drawing*. Retrieved from https://docs.brisbane.qld.gov.au/standard-drawings/v23-City-Plan/2000-series-Road-corridor/BSD-2103-F-Premium-bus-stop.pdf

363. Brisbane City Council. (n.d.). *Intermediate bus stops standard drawing (Sheet 1 of 3)*. Retrieved from https://docs.brisbane.qld.gov.au/standard-drawings/v23-City-Plan/2000-series-Road-corridor/BSD-2104-E-Intermediate-bus-stop-Sheet-1-of-3.pdf

364. Brisbane City Council. (n.d.). *Intermediate bus stops standard drawing (In centres – Sheet 2 of 3)*. Retrieved from https://docs.brisbane.qld.gov.au/standard-drawings/v23-

City-Plan/2000-series-Road-corridor/BSD-2104-E-Intermediate-bus-stop-In-centres-Sheet-2-of-3.pdf

365. Brisbane City Council. (n.d.). *Intermediate bus stops standard drawing (Constrained site – Sheet 3 of 3)*. Retrieved from https://docs.brisbane.qld.gov.au/standard-drawings/v23-City-Plan/2000-series-Road-corridor/BSD-2104-E-Intermediate-bus-stop-Constrained-site-Sheet-3-of-3.pdf

366. Brisbane City Council. (n.d.). *Regular bus stop without seat (Sheet 1 of 3)*. Retrieved from https://docs.brisbane.qld.gov.au/standard-drawings/20191129_-_bsd-2105_c_regular-bus-stop_without-seat_sheet-1-of-3.pdf

367. Brisbane City Council. (n.d.). *Regular bus stop with seat (Sheet 2 of 3)*. Retrieved from https://docs.brisbane.qld.gov.au/standard-drawings/20191129_-_bsd-2105_b_regular-bus-stop_with-seat_sheet-2-of-3.pdf

368. Brisbane City Council. (n.d.). *Regular bus stop in centres (Sheet 3 of 3)*. Retrieved from https://docs.brisbane.qld.gov.au/standard-drawings/20191129_-_bsd-2105_c_regular-bus-stop_in-centres_sheet-3-of-3.pdf

369. Brisbane City Council. (n.d.). *Mini Boulevard bus shelter standard drawing*. Retrieved from https://docs.brisbane.qld.gov.au/standard-drawings/v23-City-Plan/2000-series-Road-corridor/BSD-2107-E-oOh-media-Mini-Boulevard-bus-shelter.pdf

370. Brisbane City Council. (n.d.). *Boulevard bus shelter standard drawing*. Retrieved from https://docs.brisbane.qld.gov.au/standard-drawings/v23-City-Plan/2000-series-Road-corridor/BSD-2108-E-oOh-media-Boulevard-bus-shelter.pdf

371. Brisbane City Council. (n.d.). *Suburban shelter without advertising panel (Typical layout)*. Retrieved from https://docs.brisbane.qld.gov.au/standard-drawings/v23-City-Plan/2000-series-Road-corridor/BSD-2109-E-standard-translink-suburban-shelter-without-advertising-panel-typical-layout-v2.pdf

372. Australian Building Codes Board. (n.d.). *Performance-based code development (PCD)*. Retrieved from https://www.abcb.gov.au/pcd

373. Standards Australia. (2021). *AS 1428.1: Design for access and mobility – General requirements for access – New building work*. Retrieved from https://store.standards.org.au/product/as-1428-1-2021

374. Australian Building Codes Board. (n.d.). *Performance-based code development (PCD): 2025 NCC referenced documents*. Retrieved from https://www.abcb.gov.au/pcd/pcd-2025-ncc-referenced-documents

375. Standards Australia. (2001). *AS 1428.1: Design for access and mobility – General requirements for access – New building work*. Retrieved from https://store.standards.org.au/product/as-1428-1-2001

376. Standards Australia. (2017). *AS 1428.1: Design for access and mobility – General requirements for access – New building work (Amendment 2)*. Retrieved from https://store.standards.org.au/product/as-1428-1-2009-amd-2-2017

377. Standards Australia. (2021). *AS 1428.1: Design for access and mobility – General requirements for access – New building work*. Retrieved from https://store.standards.org.au/product/as-1428-1-2021

378. Standards Australia. (1992). *AS 1428.2: Design for access and mobility – Enhanced and additional requirements for buildings and facilities*. Retrieved from https://store.standards.org.au/product/as-1428-2-1992

379. Queensland Government. (n.d.). *Accessible adult change facilities*. Retrieved from https://www.epw.qld.gov.au/__data/assets/pdf_file/0016/13264/nmp-1-10-accessible-adult-change.pdf

380. United Nations. (n.d.). *Convention on the Rights of Persons with Disabilities (CRPD)*. Retrieved from https://social.desa.un.org/issues/disability/crpd/convention-on-the-rights-of-persons-with-disabilities-crpd

381. Australian Human Rights Commission. (n.d.). *United Nations Convention on the Rights of Persons with Disabilities (UNCRPD)*. Retrieved from https://humanrights.gov.au/our-work/disability-rights/united-nations-convention-rights-persons-disabilities-uncrpd

382. Australian Government. (n.d.). *International participation in disability issues*. Retrieved from https://www.dss.gov.au/our-responsibilities/disability-and-carers/program-services/government-international/international-participation-in-disability-issues#:~:text=UN%20Convention%20on%20the%20Rights%20of%20Persons%20with%20Disabilities&text=On%2030%20March%202007%2C%20Australia,CRPD%20and%20the%20Optional%20Protocol

383. Australian Government. (n.d.). *Implementation of Article 33 of the CRPD*. Retrieved from https://www.ag.gov.au/rights-and-protections/publications/australian-government-implementation-article-33-crpd

384. Australian Government. (2004). *Disability Discrimination Act 1992*. Retrieved from https://www.legislation.gov.au/C2004A04426/latest/text

385. Australian Government. (2020). *Disability Standards for Accessible Public Transport 2002 (updated 2020)*. Retrieved from https://www.legislation.gov.au/Details/F2020C00976

386. Australian Government. (2011). *Premises Standards 2010*. Retrieved from https://www.legislation.gov.au/Details/F2011C00213

387. Australian Building Codes Board. (2022). *National Construction Code (NCC) 2022: Compliance requirements*. Retrieved from https://ncc.abcb.gov.au/editions/ncc-2022/adopted/volume-one/a-governing-requirements/part-a2-compliance-ncc

388. Australian Human Rights Commission. (n.d.). *Guidelines on the application of premises standards*. Retrieved from https://humanrights.gov.au/our-work/disability-rights/guidelines-application-premises-standards

389. Australian Human Rights Commission. (n.d.). *Guidelines for equivalent access under the Disability Standards*. Retrieved from https://humanrights.gov.au/our-work/disability-rights/publications/guidelines-equivalent-access-under-disability-standards

390. Australian Human Rights Commission. (n.d.). *Guidelines on the application of premises standards*. Retrieved from https://humanrights.gov.au/our-work/disability-rights/guidelines-application-premises-standards

391. Australian Government. (2005). *Disability Standards for Accessible Public Transport 2002: Supporting material*. Retrieved from https://www.legislation.gov.au/F2005B01059/asmade/text/supporting-material

392. Australian Government. (n.d.). *Whole journey guide: Transport accessibility*. Retrieved from https://www.infrastructure.gov.au/infrastructure-transport-vehicles/transport-accessibility/whole-journey-guide

393. Australian Human Rights Commission. (n.d.). *Guidelines for equivalent access under the Disability Standards*. Retrieved from https://humanrights.gov.au/our-work/disability-rights/publications/guidelines-equivalent-access-under-disability-standards

394. Australian Human Rights Commission. (n.d.). *Accessible bus stops guidelines*. Retrieved from https://humanrights.gov.au/our-work/disability-rights/australian-human-rights-commission-accessible-bus-stops-guidelines

395. Wikimedia Commons. (n.d.). *Main page*. Retrieved from https://commons.wikimedia.org/wiki/Main_Page

396. Wikimedia Commons. (n.d.). *User: John Robert McPherson*. Retrieved from https://commons.wikimedia.org/wiki/User:John_Robert_McPherson