Disclaimer

This manual is intended to provide good practice guidelines for the planning and design of public transport infrastructure only. Users of this manual should not rely solely upon the information contained in this manual and should undertake and/or obtain their own independent professional assessment of accessibility, engineering, construction, installation, ongoing maintenance and safety requirements when planning and designing public transport infrastructure.

In providing these guidelines, the TransLink Transit Authority in no way guarantees or warrants the accuracy or currency of any information contained in this manual. The TransLink Transit Authority disclaims all responsibility and liability (including, without limitation, liability for negligence) for any loss, damage, expense or costs arising out of or incidental to the use of any of the information contained in this manual.

The TransLink Transit Authority reserves the right to change, alter or amend any of the information contained in this manual without notice. Users must make their own independent enquiries to ensure they obtain up-to-date information prior to undertaking the planning or design of public transport infrastructure.

Contact

Phone: 13 12 30
Web: translink.com.au
Mail: TransLink
GPO Box 50
Brisbane Qld 4001
## Contents

### Abbreviations

iii

### Glossary

iv

### 1. Introduction

1.1 Public transport infrastructure planning and design ................. 2

1.1.1 Introduction ................................................................. 2

1.1.2 Principles of public transport planning and design ................. 4

1.1.3 Implementation process .................................................... 6

1.1.4 Asset management .......................................................... 6

1.1.5 TransLink planning policies ............................................. 6

1.1.6 Information resources ..................................................... 6

1.1.7 Document structure ...................................................... 8

### 2. Bus Stop Planning and Design

2.1 Principles of bus stop planning and design ............................... 10

2.1.1 Introduction ................................................................. 10

2.1.2 Principles of bus stop placement ....................................... 10

2.1.3 Key considerations when locating bus stops and infrastructure 12

2.2 Bus stop types .................................................................... 14

2.2.1 TransLink bus stop types ............................................... 14

2.2.2 Regular stop ............................................................... 14

2.2.3 Intermediate stop ........................................................... 15

2.2.4 Premium stop .............................................................. 16

2.2.5 Signature stop .............................................................. 16

2.3 Bus stop components ............................................................ 17

2.3.1 Component parts ........................................................... 17

2.3.2 Regular stop components ................................................. 19

2.3.3 Intermediate stop components ......................................... 24

2.3.4 Premium stop components .............................................. 29

2.3.5 Signature stop components ............................................. 35

### 3. Station Planning and Design

3.1 Principles of station planning and design .................................. 40

3.1.1 Introduction ................................................................. 40

3.1.2 What is a station? ......................................................... 40

3.1.3 Hierarchy of station facilities .......................................... 43

3.1.4 Asset management ....................................................... 44

3.2 Station environment ............................................................ 45

3.2.1 Locality guidance .......................................................... 45

3.2.2 Station operation .......................................................... 46

3.3 Station formation ............................................................... 53

3.3.1 Understanding station layouts ......................................... 53

3.3.2 Station layouts .............................................................. 53

3.4 Station design .................................................................... 63

3.4.1 Functional station design principles .................................. 63

3.4.2 Detailed design ............................................................. 70

3.4.3 Materials and furnishings ............................................... 72

### 4. Supporting Access Infrastructure

4.1 Principles of supporting access infrastructure design ............... 86

4.1.1 Introduction ................................................................. 86

4.1.2 TransLink policy and access hierarchy ............................... 87

4.1.3 Integration of supporting access infrastructure .................... 87

4.1.4 Demand analysis .......................................................... 91

4.1.5 Supporting components ................................................ 92

4.1.6 Strategic design considerations ...................................... 93

4.1.7 Planning and approval processes ..................................... 95

4.2 Pedestrian infrastructure ...................................................... 96

4.2.1 Broad considerations ................................................... 96

4.2.2 Pedestrian demand analysis .......................................... 100

4.2.3 Supporting components ............................................... 101

4.2.4 Asset management ....................................................... 103

4.2.5 Design considerations .................................................. 103

4.3 Bicycle infrastructure ........................................................ 105

4.3.1 Broad considerations ................................................... 105

4.3.2 Bicycle demand analysis .............................................. 109

4.3.3 Supporting components ............................................... 110

4.3.4 Asset management ....................................................... 112

4.3.5 Design considerations .................................................. 112

4.4 Bus feeder infrastructure ..................................................... 115

4.4.1 Broad considerations ................................................... 115

4.4.2 Network considerations ............................................... 115

4.4.3 Design considerations .................................................. 116

4.5 Kiss ‘n’ ride infrastructure .................................................... 117

4.5.1 Broad considerations ................................................... 117

4.5.2 Kiss ‘n’ ride demand ..................................................... 121

4.5.3 Supporting components ............................................... 122

4.5.4 Asset management ....................................................... 123

4.5.5 Design considerations .................................................. 123
## Contents

4.6 Park ‘n’ ride infrastructure ............................................................ 125  
  4.6.1 Broad considerations ........................................................... 125  
  4.6.2 Park ‘n’ ride demand ............................................................ 133  
  4.6.3 Supporting components ...................................................... 133  
  4.6.4 Asset management .............................................................. 134  
  4.6.5 Design considerations ......................................................... 135  

5. Branding, Themeing and Signage ................................................ 139  
  5.1 Introduction ................................................................................. 140  
  5.2 Branding and theming .......................................................... 140  
      5.2.1 Branding on infrastructure ................................................... 140  
      5.2.2 Infrastructure theming ......................................................... 141  
  5.3 Signage ........................................................................................ 145  
      5.3.1 Principles of signage ........................................................... 145  
      5.3.2 Bus stop signage ................................................................. 146  
      5.3.3 Station signage .................................................................... 146  

6. Appendices .................................................................................... 153  
  Appendix A Information resources and references ....................... 154  
  Appendix B Technical notes ............................................................... 157  
  Appendix C Bus route infrastructure .................................................. 192
### Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATM</td>
<td>Automatic Teller Machine</td>
</tr>
<tr>
<td>AVVM</td>
<td>Add Value Vending Machine</td>
</tr>
<tr>
<td>BCA</td>
<td>Building Code of Australia</td>
</tr>
<tr>
<td>BCC</td>
<td>Brisbane City Council</td>
</tr>
<tr>
<td>BRT</td>
<td>Bus Rapid Transit</td>
</tr>
<tr>
<td>CCTV</td>
<td>Close Circuit Television</td>
</tr>
<tr>
<td>CPTED</td>
<td>Crime Prevention Through Environmental Design</td>
</tr>
<tr>
<td>DDA</td>
<td>Disability Discrimination Act 1992</td>
</tr>
<tr>
<td>DSAPT</td>
<td>Disability Standards for Accessible Public Transport 2002</td>
</tr>
<tr>
<td>HFP</td>
<td>High Frequency Priority</td>
</tr>
<tr>
<td>HOV</td>
<td>High Occupancy Vehicle</td>
</tr>
<tr>
<td>ITS</td>
<td>Intelligent Transport System</td>
</tr>
<tr>
<td>LOS</td>
<td>Level-of-Service</td>
</tr>
<tr>
<td>LRT</td>
<td>Light Rail Transit</td>
</tr>
<tr>
<td>NTS</td>
<td>Not to scale</td>
</tr>
<tr>
<td>PTIM</td>
<td>Public Transport Infrastructure Manual</td>
</tr>
<tr>
<td>SACID</td>
<td>Stand Alone Card Interface Device</td>
</tr>
<tr>
<td>SEQ</td>
<td>South East Queensland</td>
</tr>
<tr>
<td>TGSIs</td>
<td>Tactile Ground Surface Indicators</td>
</tr>
</tbody>
</table>
## Glossary

<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add Value Vending Machine (AVVM)</td>
<td>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.</td>
</tr>
<tr>
<td>Branding</td>
<td>The TransLink logo, ellipse device and name style—and where applicable, the Queensland Government logo.</td>
</tr>
<tr>
<td>Bus Rapid Transit (BRT)</td>
<td>A form of mass transit which utilises buses operating at a higher capacity and frequency than conventional bus networks. BRT typically features a unique identity with segregated right-of-way measures such as dedicated road corridors (referred to as busways) or HOV lanes. BRT infrastructure such as stations and busway corridors can be at surface grade, elevated or below ground level. BRT is often characterised as offering the quality of metro rail systems with the flexibility of buses.</td>
</tr>
<tr>
<td>Bus feeder</td>
<td>Local or neighbourhood bus services which operate within lower urban density neighbourhood communities and provide transport connections for passengers wanting to interchange with more frequent line-haul services along designated HFP routes or corridors.</td>
</tr>
<tr>
<td>Bus lay-by (bus layover/holding zone)</td>
<td>Waiting location for vehicles (commonly at stations) to adjust time between services, driver change-over, or commence a new service route.</td>
</tr>
<tr>
<td>Bus stop</td>
<td>A collector point for pedestrians along a public transport route that allows for boarding and alighting. See chapter 2 Bus Stop Planning and Design.</td>
</tr>
<tr>
<td>Busway</td>
<td>A form of road corridor (see public transport corridor) infrastructure dedicated solely for public transport bus services. Busways can be either at-grade or grade-separated (i.e. elevated over the surrounding development).</td>
</tr>
<tr>
<td>Crime Prevention Through Environmental Design (CPTED)</td>
<td>An approach using multidisciplinary urban design principles to reduce the incidence and perception of crime in the built environment.</td>
</tr>
<tr>
<td>Facility</td>
<td>Any form of infrastructure used for a particular purpose for public transport (i.e. a whole station is considered to be a facility, and a bicycle cage or park ‘n’ ride is also defined as a facility).</td>
</tr>
<tr>
<td>Fruin Level-of-Service</td>
<td>Based on the literature by J. Fruin (1987) Pedestrian Planning and Design. Fruin defines the required level-of-service by outlining the quantified area needed for pedestrians to comfortably walk, queue, wait or travel through pedestrians spaces (such as station platforms, elevators, stairways, walkways and other public spaces).</td>
</tr>
<tr>
<td>Future-proofing</td>
<td>The specific provision made for the possible expansion of infrastructure and services due to potential or anticipated increase (or decrease) in future passenger demand.</td>
</tr>
<tr>
<td>Grade separation</td>
<td>The infrastructure provision for public transport corridors to offer the highest level of travel priority by operating exclusively (either vertically or horizontally) from other transport modes, in order to minimise disruption (i.e. busways, rail lines and stations typically feature grade-separated treatments so that they are not in conflict with private vehicle traffic).</td>
</tr>
<tr>
<td>High Frequency Priority (HFP)</td>
<td>The public transport service routes which run at the highest frequencies along the TransLink network (typically 15 minutes or better between services which is higher than local or regular routes). HFP routes typically operate along rail corridors and bus priority routes (such as busways and HOV lanes).</td>
</tr>
<tr>
<td>HOV Lane</td>
<td>A lane along a road corridor which is dedicated for use by high-occupancy vehicles such as buses or private cars with more than one occupant.</td>
</tr>
<tr>
<td>Independent stop</td>
<td>A type of bus stop which is designed for one or a particular set of pre-designated services. Independent stops are characterised by individually laid out platforms with designated stopping areas for buses. This is in contrast to a lead stop set up which features one stop along a platform which all buses pull up to if servicing the stop or station.</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>In this manual the term infrastructure is defined as 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 (i.e. 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).</td>
</tr>
<tr>
<td>Intelligent Transport System (ITS)</td>
<td>The general term for electronic infrastructure used at public transport stops, stations and on board vehicles to assist customers and operator 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.</td>
</tr>
<tr>
<td>Kiss ‘n’ ride</td>
<td>Vehicle drop-off or pick-up zone for passengers arriving from, or leaving for, a public transport service (also includes taxis).</td>
</tr>
<tr>
<td>Lead stop</td>
<td>A bus stop which is designed to have a single platform boarding point for passengers where bus vehicles platoon behind each other as opposed to independent designated stops for different services. Lead stop situations are typical for bus stops with a high frequency of services passing through and are designed to reduce dwell times.</td>
</tr>
<tr>
<td>Level-of-Service (LOS)</td>
<td>The measure of effectiveness for the quality of service on elements of transport infrastructure. The level-of-service in this manual predominately specifies the amount of space required for acceptable pedestrian waiting areas (see Fruin Level-of-Service). LOS can also refer to traffic volumes as a measure for road capacity.</td>
</tr>
<tr>
<td>Livery</td>
<td>The distinctive design and visual appearance of public transport vehicles. Livery has been specifically designed by TransLink so that vehicles are instantly recognisable as being part of the TransLink network.</td>
</tr>
<tr>
<td>Functional station design</td>
<td>Fundamental design objectives which define how a station should function and operate/perform (with emphasis on the spatial relationship between human to human and human to built environment interaction) to satisfy the requirements of the intended customer (i.e. the passenger) and the TransLink network.</td>
</tr>
<tr>
<td>Mode</td>
<td>The particular type of vehicle used on a transport service such as train, bus, and light rail (can also include the private car).</td>
</tr>
<tr>
<td>Modular infrastructure</td>
<td>Infrastructure which has been designed and assembled into a prefabricated kit of parts (e.g. shelters and seating) allowing for minimal construction, efficient maintenance, ease of modification and potential expansion (thus minimising level of disturbance to a site). Modular infrastructure also allows for uniformity in infrastructure design which ensures high legibility for passengers using the public transport system.</td>
</tr>
<tr>
<td>Park ‘n’ ride</td>
<td>Commuter car parking area at public transport stops and stations for accessing public transport services. Generally also accommodates kiss ‘n’ ride zones.</td>
</tr>
<tr>
<td>Public address system</td>
<td>An electronic communication device (generally located at stations) used for informing public transport patrons of public transport messages, warnings and other information.</td>
</tr>
<tr>
<td>Public transport corridor</td>
<td>A form of infrastructure such as a road (i.e. busway) or rail line which is dedicated solely or predominantly for public transport services.</td>
</tr>
<tr>
<td>Public transport service</td>
<td>A form of travel provided by high-occupancy vehicles (e.g. bus, train or ferry) along set paths of travel and at scheduled intervals during a day. A public transport service can be operated by governments or private organisations and provides equitable access to transport for the whole community as opposed to private transport which only provides transport to the individual or passengers given consent.</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>------</td>
<td>------------</td>
</tr>
<tr>
<td><strong>Rapid Transit</strong></td>
<td>A form of public transport which involves very high passenger demand resulting in high-quality infrastructure with very frequent services. A distinctive feature of rapid transit is the travel priority given through grade-separated treatments (such as busways or rail corridors).</td>
</tr>
<tr>
<td><strong>Real-time</strong></td>
<td>The ability to monitor and communicate, using global positioning technology, up-to-date information for expected performance of public transport services based on their distance away from a specific location.</td>
</tr>
<tr>
<td><strong>South East Queensland</strong></td>
<td>The geographical area which the TransLink Transit Authority is responsible for providing and operating public transport (see public transport network). The area is the most populated region of Queensland and is made up of Brisbane City Council, Gold Coast City Council, Ipswich City Council, Lockyer Valley Regional Council, Logan City Council, Moreton Bay Regional Council, Toowoomba Regional Council (part of), Redland Bay Regional Council, Scenic Rim Regional Council, Somerset Regional Council and Sunshine Coast Regional Council.</td>
</tr>
<tr>
<td><strong>Stand Alone Card Interface Device (SACID)</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Station</strong></td>
<td>A high quality public transport facility which acts as a central departure and/or destination point to accommodate high passenger volumes. Stations provide passengers with the key point of connection between a public transport service and a desired destination (or transfer point enroute to a destination). See chapter 3 Station Planning and Design for details.</td>
</tr>
<tr>
<td><strong>Station formation</strong></td>
<td>A key step in the planning and design process as defined in the PTIM as taking a generic station layout and configuring this to meet the specific function and site requirements.</td>
</tr>
<tr>
<td><strong>Supporting access infrastructure</strong></td>
<td>The infrastructure which provides the key connection between a TransLink stop or station and the immediate surrounding environment. In this manual, this includes pedestrian, bicycle, bus feeder, kiss ‘n’ ride and park ‘n’ ride infrastructure.</td>
</tr>
<tr>
<td><strong>Tactile Ground Surface Indicators (TGSIs)</strong></td>
<td>Raised ground surface texture treatments (usually paving) used by people with vision impairments to navigate their way in the built environment. TGSIs assist users by providing warning and directional information, and typically consist of square tiles with raised profiles laid in logical locations.</td>
</tr>
<tr>
<td><strong>Theming</strong></td>
<td>The specific design language created through the use of the TransLink infrastructure colour palette and structural design features and finishes.</td>
</tr>
<tr>
<td><strong>TransLink network</strong></td>
<td>The public transport operations provided and overseen by the TransLink Transit Authority. The network covers the geographical area of South East Queensland which includes the urbanised areas from Noosa in the north, Coolangatta in the south and west to Gatton. The network includes scheduled bus services operated by relevant local councils and provide operators, urban rail services operated by Queensland Rail, Brisbane City Council Ferry services and school bus services.</td>
</tr>
<tr>
<td><strong>TransLink Network Plan (TNP)</strong></td>
<td>Sets the 10 year strategic direction for the improvement of public transport infrastructure, services, ticketing and information across the TransLink network. The TNP identifies a long-term vision for the network and includes a detailed four-year program of actions for public transport improvements.</td>
</tr>
<tr>
<td><strong>Wayfinding</strong></td>
<td>Involves a range of navigation techniques to assist the independent and safe movement of people from one place to another.</td>
</tr>
</tbody>
</table>
CHAPTER

Introduction
1.1 Public transport infrastructure planning and design

1.1.1 Introduction

Public transport infrastructure plays a vital role in the operation and function of an efficient, convenient and safe public transport system. Appropriate infrastructure forms an important part of the customer experience and helps to make public transport a competitive, viable alternative to private vehicle travel. The TransLink Transit Authority’s Public Transport Infrastructure Manual (PTIM) provides guidelines for the planning and design of public transport infrastructure to support passenger movement and safety.

1.1.1.1 Background

The TransLink Transit Authority has a vision to making travel easy. In order to achieve this, high-quality infrastructure needs to be matched with efficient and reliable services. Therefore, the planning and delivery of quality infrastructure is a key element of the public transport system in South East Queensland.

The TransLink Network Plan sets the long term strategy and identifies the importance for public transport to be safe, secure and accessible by all.

The TransLink Transit Authority Strategic Plan 2011–2015 aims to ‘create a seamless and consistent customer experience’ across the TransLink network and, to also ‘manage the network’ by providing additional network capacity to meet projected demand.

Key policies of the South East Queensland Regional Plan 2009–2031 are to “develop a high-quality and frequent public and active transport network linked to regional activity centres and other significant trip generators” (Policy 12.2.1) and to “support walking, cycling and public transport use with new infrastructure, improved services and information” (Policy 12.2.2).

In the regional transport plan Connecting SEQ 2031: An Integrated Regional Transport Plan for South East Queensland, the Department of Transport and Main Roads identifies the need for transport infrastructure to support more sustainable travel in the region.

1.1.1.2 Aims

The PTIM aims to inform and guide the planning and design of public transport infrastructure within the TransLink network. Importantly, the PTIM seeks to encourage the use of best practice guidelines by all relevant stakeholders involved in the planning and design of public transport infrastructure in South East Queensland. The guiding principles presented in the PTIM aim to ensure that public transport infrastructure is designed with a consistent approach to provide high-quality customer access, convenience, safety and comfort.
1.1.1.3 Objectives

The objectives of the PTIM are to:

- inform infrastructure design by providing a clear and consistent set of principles and guidelines, for all relevant public transport infrastructure within the TransLink network
- outline the preferred requirements of infrastructure design to comply with all relevant standards and regulations
- encourage collaboration between key stakeholders and delivery partners to harness collective knowledge to provide high-quality public transport infrastructure outcomes
- ensure the implementation of current TransLink planning policies, specifically dealing with the delivery of accessible infrastructure
- promote awareness about the need for best practice public transport infrastructure design
- improve the quality and coherency of public transport within the TransLink network.

1.1.1.4 Purpose of the PTIM

The purpose of the PTIM is to ensure that a high standard of infrastructure is planned and delivered to meet the needs and objectives of the TransLink public transport system. Ultimately, high-quality infrastructure will provide customers with a public transport system that is coherent, functional and encourages passenger use.

1.1.1.5 Who can use the PTIM?

The PTIM is intended for use by decision-makers involved in the transport planning industry. This generally involves, but is not limited to, transport planners and designers, as a reference tool for public transport infrastructure projects.

1.1.1.6 How to use the PTIM

The PTIM is a reference tool for the planning and design of public transport infrastructure in the TransLink network. Depending on the type of infrastructure, the PTIM provides planning and design to support passenger movement and safety.

This document should be referred to before starting to plan new public transport infrastructure projects. The PTIM can be read in its entirety or as individual chapters, depending on the type of infrastructure being planned—however for some infrastructure, attention should be given to all chapters as the PTIM provides a whole-of-system perspective for public transport infrastructure design and functionality.

In most cases, the PTIM is not intended to be strictly prescriptive, but the guidelines and principles outlined are to be interpreted with particular attention to specific site conditions and individual requirements of functionality. TransLink, in collaboration with relevant stakeholders and delivery partners, is to be consulted and will provide the final approval of public transport infrastructure.
1.1.2 Principles of public transport planning and design

There are a number of principles which must be considered when planning and designing public transport infrastructure. These principles are outlined below and should be incorporated within the planning and design process.

1.1.2.1 Access to the TransLink network

It is essential to provide convenient and sustainable access to public transport. To assist this, TransLink has established an access hierarchy for the provision of easy and safe access as it applies to public transport infrastructure. TransLink prioritises passenger access to stops and stations in the order of walking, cycling, transferring from another public transport service, and finally the car (including taxi and motorcycle). Public transport infrastructure should be planned and designed to reflect TransLink’s access hierarchy (figure 4.1). Refer to chapter 4 Supporting Access Infrastructure for more details.

1.1.2.2 Crime Prevention Through Environmental Design

Passenger safety is fundamental to the successful uptake and consistent use of public transport infrastructure and services. A passenger should feel safe using public transport at any time of the day or night and at any location. However, the threat of crime against people and property poses a risk for the successful operation of the TransLink network.

The Queensland Government’s Crime Prevention Through Environmental Design (CPTED) Guidelines for Queensland promotes the notion that it is possible to apply creative urban design principles to plan and design built environments which reduce the incidence and perception of crime. The underlying concept behind the theory of CPTED is that crimes against people and property are more likely to occur when the opportunity exists. Therefore, the presence of surveillance mechanisms and creation of defensible spaces—for example, effective lighting, enhanced visibility, legible and clearly defined spaces, effective signage and wayfinding, and promoting activity—act as deterrents of crimes such as anti-social behaviour, vandalism, theft, burglary, terrorist activity and assault. CPTED principles should be incorporated when planning and designing public transport infrastructure. A security professional may be consulted during the design and planning stage of a project to ensure CPTED principles are captured in the process. For details, refer to the current version of the government’s CPTED Guidelines for Queensland.

1.1.2.3 Theming

TransLink aims to make public transport more convenient for passengers by providing infrastructure that is easy to identify and understand. To achieve this, the look and feel of infrastructure should be consistent and distinctive as belonging to the TransLink network to promote a consistent collective message. TransLink will provide guidance on the appropriate use of design features and components.

1.1.2.4 Signage

Well placed signage helps to ensure easy access and navigation for passengers. Signage must be consistent and easily interpreted. TransLink has identified a suite of signage designs which are suitable for particular purposes. The signage guidelines made in the PTIM are made in accordance with the Transport Operations (Road Use Management) Act 1995.
1.1.2.5 Disability access compliance

Equitable and dignified access is a core principle to ensuring that a public transport service can be used by the whole community. TransLink requires that the relevant standards and guidelines for disability access be complied with, along with the engagement of relevant access reference groups concerning all infrastructure. Minimum standards for access of people with a disability to public transport services are identified by federal and state disability discrimination legislation, the Building Code of Australia and applicable Australian Standards. More specifically, the Commonwealth Disability Standards for Accessible Public Transport 2002, as part of the Disability Discrimination Act 1992, provides relevant standards of compliance for all conveyances, premises and infrastructure related to public transport. Other notable statutory legislation for promoting equal opportunity for all people is the Anti Discrimination Act 1991.

1.1.2.6 Environmental sustainability considerations

Public transport provides commuters with a more environmentally-sustainable alternative to the private vehicle. Encouraging people to shift from using the car to using public transport will contribute to reduced environmental impacts and a decreased reliance on non-renewable resources.

TransLink is working towards creating a more environmentally-sustainable public transport system with focus placed on:

- improving air quality through reduction of greenhouse gases and other harmful emissions from vehicles
- reducing energy consumption and promoting the use of cleaner, renewable energy
- minimising impact on biodiversity and open space
- reducing waste consumption and promoting re-use and recycling of resources (e.g. water use)
- promoting healthier travel options.

Environmental sustainability and energy-efficiency standards are identified by federal and state legislation and regulations. TransLink and relevant stakeholders involved in public transport infrastructure projects have an obligation to comply with applicable environmental and energy-efficiency standards for all public transport infrastructure used in the TransLink network.

1.1.2.7 Human Factor Considerations

Individual differences in humans will contribute to how information is perceived, processed and acted upon. Due to the large amount of elements in the environment at any given time, selective attention is thought to be necessary to enable people to cope successfully.

This results in individuals failing to select the appropriate information from the stimulus environment (i.e. they look but fail to see) or fail to select the appropriate response at the appropriate time (i.e. they know what to do but fail to act upon it).

Users of the public transport network and those who share infrastructure with public transport services may not perceive the same information in a consistent manner. For example, driving is a complex process with road users being exposed to a multitude of stimuli on which they must make choices and which in turn determine their behaviour. Drivers are able to process a limited amount of sensory information and with the introduction of technology i.e. mobile phones, GPS which increases the level of complex information presented to the driver.
Similarly, differences in a person’s behaviour may also create unsafe environments due to the perception that nothing will happen when taking the ‘path of least resistance’. Therefore the consideration of these human qualities in behaviour should be considered in the planning and design of public transport infrastructure and spaces to meet the customers’ needs.

TransLink aims to promote the application of human factors as a principle that supports the creative urban and transport design criteria to ensure a comfortable and safe public transport environment for its customers.

### 1.1.3 Implementation process

The process for developing public transport infrastructure, from inception to delivery, requires a set of clearly defined stages or milestones. When commencing public transport infrastructure projects, establish roles and responsibilities, key goals, aims, objectives, stakeholders, resource requirements, budgets, outputs and outcomes to ensure that the project proceeds effectively and the best possible outcomes are achieved. The TransLink Network Plan identifies the need to provide key infrastructure in conjunction with services. Infrastructure projects also trigger certain legislative, regulatory or discretionary requirements for project assessment and approvals.

Figure 1.1 demonstrates the relationship between the planning and design processes, with the analysis showing the link between the various strategy and design components for public transport infrastructure projects. Figure 1.2 broadly outlines key stages in the process for developing public transport infrastructure.

### 1.1.4 Asset management

Public transport infrastructure is essential to the people of South East Queensland and needs to be managed and maintained on an ongoing basis to ensure the TransLink network operates at a high-quality standard. While the PTIM is primarily concerned with the immediate planning and design of infrastructure from concept design to delivery, the ongoing maintenance and management—of individual components of infrastructure or an entire facility—is an important aspect of the planning process. Careful consideration must be given to the operation, cleaning, maintenance, onsite and remote monitoring, and other management schedules for infrastructure after the completion of a project and for the life of the infrastructure components or facility. Collaborative working agreements between relevant stakeholders involved in asset management should be established at the planning stage, to promote a whole-of-life approach to infrastructure management and to contribute towards a functional, high-quality, safe and easy-to-use TransLink network.

### 1.1.5 TransLink planning policies

TransLink has planning policies which set out TransLink’s interests and intentions in the planning and development of the TransLink network. These planning policies guide the TransLink Network Plan. Consult TransLink for advice on planning policies relevant to the PTIM.

### 1.1.6 Information resources

Some sections of the PTIM cite key information resources, such as planning guides or documents, which provide specific or relevant detail for elements of public transport infrastructure that is outside the scope of the PTIM. Additionally, relevant maintenance manuals will be required for components of public transport infrastructure to ensure that designs meet applicable standards and specifications (such as components, materials, finishes, structures etc.). Refer to Appendix A for further details on information resources.
**Figure 1.1** Integration of planning and design processes

**Figure 1.2** Infrastructure planning and design process
1.1.7 Document structure

The following figure outlines the structure of the PTIM.

Figure 1.3 PTIM structure

- **Chapter 1**
  Introduction
  - Outlines the framework for public transport infrastructure planning and design.

- **Chapter 2**
  Bus Stop Planning and Design
  - Provides detailed guidance and standards on the planning and design of bus stop infrastructure.

- **Chapter 3**
  Station Planning and Design
  - Provides guidelines and principles for station infrastructure planning and design.

- **Chapter 4**
  Supporting Access Infrastructure
  - Provides guidelines and standards for infrastructure to support stops and stations as per the TransLink access hierarchy.

- **Chapter 5**
  Branding, Theming and Signage
  - Provides guidance for TransLink branding and theming of infrastructure and signage standards within the TransLink network.

- **Chapter 6**
  Appendices
  - Provides information resources, reference material, and standard drawings.
CHAPTER 02

Bus stop planning and design
2.1 Principles of bus stop planning and design

2.1.1 Introduction

This chapter contains the planning and design guidelines and standards for bus stop infrastructure in the TransLink network. Bus stops act as collector points for passengers using public transport by means of bus services. It is important that the design of infrastructure provided at bus stops is of a high quality and consistent standard so that passengers can catch public transport conveniently. Additionally, the location of bus stops within the TransLink network is critical for passengers, bus operators, traffic management, fare zone boundaries and overall performance of the TransLink network.

These guidelines have been developed in conjunction with TransLink’s access policies and in collaboration with key stakeholders. The guidelines are intended to provide high-quality, practical standards for bus stop design to improve access to bus services on the road network. The guidelines are intended to be used by TransLink and other key stakeholders (such as transport and land use planners, designers, engineers, architects and other construction professionals) in the planning and design phase of bus stop infrastructure implementation. While this chapter provides guidance on bus stop design standards, it is important to recognise that each bus stop site is unique with individual requirements and constraints to be taken into account.

2.1.1.1 What is a bus stop?

Within the TransLink network, a bus stop is typically defined as a collector and drop off point (allowing for boarding and alighting) for pedestrians along a public transport bus route. A stop can be located anywhere in the TransLink network where sufficient demand warrants the operation of bus services through a particular area.

2.1.2 Principles of bus stop placement

It is important to ensure that all stops along a bus route are accessible to an acceptable standard to maintain equitable access for all passengers. Failure to implement accessible bus stops will reduce the quality of the public transport experience for passengers and may consequently hinder the development of a high-quality public transport system that is easy to use. The concept of providing a quality journey from decision to destination (as outlined in the TransLink Network Plan) must be recognised for a passenger catching a bus who is also a pedestrian at each end of a bus trip. As a result, a bus stop is not interpreted as simply a location for boarding and alighting a bus, but instead as the key connection between the surrounding land use and a public transport service (i.e. as a point of interchange between a pedestrian trip and a public transport trip). Additionally, bus stop planning and design is to be done in conjunction with appropriate pedestrian planning to ensure a highly-accessible environment.

The following section highlights the foremost considerations when locating bus stops in the early planning and design phase.

It is intended that stop spacing on a bus route is ideally between 400 metres and 800 metres for most services. In the case of inner city or densely built up areas, a spacing of less than 400 metres may be warranted along a route while express services may range greater than 800 metres between stops.
TransLink, in consultation with relevant stakeholders, will determine the most appropriate location for bus stops taking into account the present and future TransLink network requirements.

It is the intent for bus stops to be located in areas:

- with high visibility and lighting (or access to power for future lighting)
- which are clearly visible from surrounding locations (i.e. away from dense foliage and other objects hindering direct sightlines)—the use of street lamps can assist in maintaining visibility at night
- where the bus driver and waiting passengers are clearly visible to each other
- close to other stops (and in some cases, stations) to minimise walking if transferring between services
- where possible, close to significant attractions (e.g. shopping centres or community centres) to minimise walking distances and assist with passenger safety
- where there is sufficient pavement area for pedestrians to walk past the bus stop area (and shelter if required) safely
- away from tight bends, hill crests or gullies as these can create blind spots for vehicles—bus operators need to see traffic approaching from the rear while clear sightlines need to be maintained between the bus vehicle operator, the bus stop and passengers
- preferably, on-road to allow priority for high occupancy vehicles and provide on-board passenger safety and comfort. However each bus stop needs to consider local road operations and should be assessed on a case-by-case basis.

Bus zones should be located:

- preferably on the far side of an intersecting street to assist with sightlines of intersecting vehicles
- not adjacent to an intersecting street (i.e. at a T-intersection)
- where there is minimal conflict with parking areas and other potential traffic hindrances
- a minimum of 10 metres far side of non-signalised intersections or non-signalised pedestrian crossings (refer to statutory regulations)
- a minimum of 10 metres approaching non-signalised intersections and a minimum of 20 metres approaching non-signalised pedestrian crossings (refer to statutory regulations)
- a minimum of 20 metres far side of signalised intersections or pedestrian crossings (refer to statutory regulations)
- a minimum of 20 metres approaching signalised intersections or pedestrian crossings (refer to statutory regulations).

Refer to Transport Operations (Road Use Management - Road Rules) Regulation 2009 for current details.
2.1.3 Key considerations when locating bus stops and infrastructure

2.1.3.1 Bus stop marker

The bus stop marker is the approved sign including the standard bus stop icon and TransLink logo (typically known as regulatory signage). Ideally, the layout of the passenger waiting area should be based around the position of the bus stop marker. It is the bus stop marker which directs passengers to where they should wait to board the bus. Additionally, the bus stop marker also guides the bus driver on where the bus should be positioned at the stop.

Specification details on the bus stop marker and other signage information can be found in chapter 5 Branding, Theming and Signage. The bus stop marker will:

- line up with the front of the bus when the vehicle is at the stop and ready for boarding and alighting
- be located at least 1.5 metres (preferably 2 metres) from approaching driveways, if applicable
- preferably not be positioned directly adjacent to the front door of a property to maintain privacy for local residents
- preferably, be located in close proximity to street lighting.

The clearance space for a standard rigid bus door from the stop marker should typically be:

- 0-2 metres back from the bus stop post for the front door
- 6-8 metres back from the bus stop post for the rear door.

The distance between the front and rear door (2-6 metres) should also be kept clear.

Specific consideration needs to be given to stops accommodating articulated buses requiring a greater clearance distance.

2.1.3.2 Bus stop zone

The bus stop zone is the allocated space where the bus vehicle can pull up, adjacent to the bus stop area, to allow for passenger boarding and alighting. Depending on the road requirements, space on either side of the bus stop may be a no standing parking. Parking should not restrict the pedestrian footpath area.

The bus stop zone will:

- typically for on-road bus stops, be located within 20 metres approaching the bus stop marker and 10 metres far side of the stop marker depending on vehicle type, length and quality (refer to current statutory regulations). Where possible, TransLink preference is to provide additional approach (ie 25 metres)
- be formalised with kerb and channelling (where possible)
- be kept clear of kerb ramps and kerb openings
- be kept clear of electricity pole stay wire and away from sewer and electricity pits
- be kept clear of tree foliage (minimum height of 4.5 metres)
- be kept clear of all infrastructure and plantings for at least 600 millimetres from the kerb
- be located where there is good drainage to prevent pooling of water or other low lying ground problems
- preferably, be away from driveways to avoid buses restricting private access—however, it is legally acceptable only when picking up or setting down passengers.
2.1.3.3 Bus stop area

The bus stop area consists of the whole pavement space used by the bus stop and importantly, includes the pedestrian space available for passengers to wait for a bus service.

The bus stop area will:

- be free from stormwater drains or pits, to prevent buses from splashing pooled water when approaching and departing
- be able to allow for efficient runoff and drainage to prevent water from pooling on the footpath and bus stop waiting areas
- be located to minimise exposure to direct sunlight for waiting passengers
- allow passengers to easily view timetables and public transport information without being obstructed by other objects
- be maintained with at least 1.2 metres (preferably 1.5 metres) of clear access, around and between all infrastructure and obstructions, to ensure compliance with applicable disability standards
- be maintained with bus stop boarding points that are flat and stable (maximum gradient of 1:40). Walkways should be a maximum gradient of 1:20 and ramps a maximum gradient of 1:14, to comply with the applicable disability standards
- where possible, be kept free from clutter produced from other street furniture—especially in the spaces of the bus stop area used for waiting, pedestrian footpath, boarding and alighting
- allow for sufficient pedestrian and cyclist through-flow and not clash with waiting passengers—for sites with narrow bus stop area allowances (such as inner city streets), a cantilevered shelter structure without an advertising panel provides a possible solution
- consider pedestrian and cyclist users when providing bus stops and supporting amenities (ie shelters, seating, bins etc.).

All attempts will be made to meet these specifications, however, it is recognised that some areas may have site constraints which require specific consideration.

2.1.3.4 Other considerations

Also consider the following requirements:

- bus door locations must be kept free from all roadside infrastructure including electrical posts, signposts, trees, tree grates, planter boxes, street furniture and garden beds
- rigid, low-floor fully-accessible buses are typically 12.5 metres long and articulated buses are typically 18 metres long. Approximate width allowance is 3 metres and height is 3.5 metres accordingly for both types
- where on-road bicycle lanes are required, refer to the current Transport and Main Roads’ Road Planning and Design Manual: A Guide to Queensland Practice and/or the relevant local authority for guidance
- if kerbside parking lanes are provided, there are few advantages to indented bays
- traffic calming devices are not preferred along TransLink bus routes. For more information on bus route infrastructure refer to Appendix C.
2.2 Bus stop types

2.2.1 TransLink bus stop types

The different types of TransLink bus stops are primarily distinguished by the services operating and therefore the different levels of infrastructure specifications.

TransLink has established a stop/station hierarchy which identifies a suite of different types of stops and stations with regard to their function and location within the TransLink network.

TransLink has identified four types of stops approved for use in the network:

- regular stops
- intermediate stops
- premium stops
- signature stops.

Implementation of the different types of stops will depend on the bus routes servicing the particular stop and therefore, the rest of the bus route. Additionally, the functionality and surrounding land use will also influence the type of stop required at a particular site. TransLink will determine the bus route and type of bus stop to be used on a particular site with reference to the stop hierarchy and relevant policies. The stops outlined in this section are designed to meet the requirements of all buses operating in the TransLink network and are to comply with all standards applicable to bus stop planning and design.

2.2.2 Regular stop

Regular stops typically service locations with low passenger demand, or where outbound services operate (due to the majority of alighting occurring). These stops have low-frequency bus services (typically more than 30 minutes between services) and are generally located in outer-suburban or non-urban areas. The minimum entry level of stop comprises of a hard stand, TGSI, sign, timetable information with preference to be upgraded to include seating and bin.

Figure 2.1 Regular stop
2.2.3 Intermediate stop

Intermediate stops typically service locations where there is moderate passenger demand. These stops have moderate-frequency bus services (typically 30 minutes between services) and are predominantly located in suburban areas. A moderate level of supporting components is considered for these stops (i.e. bus stop sign, timetable information, shelter, seating and bin).

Figure 2.2 Intermediate stop
2.2.4 Premium stop

Premium stops are predominately located at major attractions (such as shopping centres) and/or along high-frequency priority corridors. These stops can serve locations which have a moderate to high level of passenger demand and have bus routes operating at moderate to high frequencies (less than half an hour between services). Premium stops can generally be supported by bus priority measures (such as bus queue jumps, bus lanes or HOV lanes) and will contain a high level of supporting components.

![Figure 2.3 Premium stop](image)

2.2.5 Signature stop

Signature stops are typically located on specifically identified high-frequency priority corridors and have a similar function and location as ‘premium’ stops. Signature stops or stations are typified by their distinguishable infrastructure design (such as shelters and platforms) and include a high level of supporting components. They include a specific design to signify a specialised service and corridor brand.
2.3 Bus stop components

2.3.1 Component parts

This section presents the components required at the different types of bus stops. The components list will be adhered to for the different bus stop types while TransLink, along with relevant stakeholders, will provide the final decision on individual components and/or requirements for bus stops.

- **m** mandatory (component must be included)
- **p** preferred (component will be included subject to site constraints)
- **s** site-specific response (may be required depending on the specific bus stop function and requirements)
- **-** not applicable

<table>
<thead>
<tr>
<th>Table 2.1 Bus stop component parts</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Category</strong></td>
</tr>
<tr>
<td>Information (sign)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Information (display)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Information (network)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Information (regulatory signage)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Furniture</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Access</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Category</td>
</tr>
<tr>
<td>-------------------------</td>
</tr>
<tr>
<td>Security</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Optional enhancements</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Landscaping</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Arrangement type</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
2.3.2 Regular stop components

Figure 2.4 Regular stop plan view (NTS)

Figure 2.5 Regular stop end elevation (NTS)

Figure 2.6 Regular stop front elevation (NTS)
Table 2.2 Regular stop components

<table>
<thead>
<tr>
<th>Category</th>
<th>Component</th>
<th>Requirement</th>
<th>Technical note reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information (sign)</td>
<td>Location, number and fare zone (if applicable):</td>
<td>m</td>
<td>Appendix B B1.2 B4.1</td>
</tr>
<tr>
<td></td>
<td>• flag sign as per TransLink standard</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• minimum flag sign (and timetable case) clearance of 600mm from face of kerb</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• if applicable, 200mm forward of concrete hardstand area.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Information telephone:</td>
<td>m</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• TransLink Call Centre number on bus stop sign consistent with TransLink graphic standards</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information (display)</td>
<td>Stop-specific timetable:</td>
<td>p</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• timetable to show route numbers, departure times, destinations and fare zone consistent with TransLink standards</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• cased timetable mounted to sign pole at standard heights</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• timetable should be easily read.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Furniture</td>
<td>Shelter:</td>
<td>s</td>
<td>Appendix B B1.2 B1.3</td>
</tr>
<tr>
<td></td>
<td>• strongly defines bus stop area and provides protection from weather</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• incorporates seating and wheelchair waiting areas</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• should incorporate overhead lighting to maximise personal security</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• maintains clear sightlines and CPTED measures to maximise personal safety and allow efficient passenger pick up (passengers should be able to easily see and hail approaching buses)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• should not obstruct footpath</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• installation as per this manual</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• dimensions as per this manual (one shelter module).</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Seating:</td>
<td>s</td>
<td>Appendix B B1.3</td>
</tr>
<tr>
<td></td>
<td>• for approximately five people (for one shelter module or stand-alone seating)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• must contain a back rest and preferably arm rests at each end</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• preferably orientated towards the street</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• stand-alone seating may be orientated for better weather protection</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• made from resilient and graffiti-proof material</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• comply with applicable disability and Australian Standards</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• dimensions as per this manual.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bin:</td>
<td>s</td>
<td>Appendix B B1.3</td>
</tr>
<tr>
<td></td>
<td>• conveniently located (minimum 1.2m clear of other bus stop infrastructure)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• if placed at kerb, minimum clearance of 600mm is required from face of kerb</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• will not obstruct boarding, alighting or pedestrian footpath</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• graffiti-proof materials and as per local authority requirements</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• should also include bird-proof lids (or similar to design standards)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• comply with applicable Australian Standards.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Category</td>
<td>Component</td>
<td>Requirement</td>
<td>Technical note reference</td>
</tr>
<tr>
<td>------------------</td>
<td>----------------------------------</td>
<td>-------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td><strong>Access</strong></td>
<td>Footpath:</td>
<td>s</td>
<td>Appendix B B1.2</td>
</tr>
<tr>
<td></td>
<td>• generally accessible gradients</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• footpath and hardstand areas</td>
<td>m</td>
<td>Appendix B B1.2</td>
</tr>
<tr>
<td></td>
<td>with appropriate crossfalls for</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>drainage, as per local authority</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• will not be obstructed by bus</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>stop furniture</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• width and infrastructure</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>clearances will consider shared</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>access (e.g. pedestrians and</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>cyclists), so to minimise conflict</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>between all footpath users.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hardstand area (concrete):</td>
<td>m</td>
<td>Appendix B B1.2</td>
</tr>
<tr>
<td></td>
<td>• used to aid extent of passenger</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>waiting space</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• allow for easy manoeuvring of</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>wheelchairs and prams</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• requires minimum size of 2.07</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>m x 2.07m</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• length will depend if a seat</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>is installed and will then</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>typically be 4m long</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• must include TGSIs perpendicular</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>to kerb and across the full</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>width of path of travel to guide</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>people with vision impairments</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>to the boarding point.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TGSIs:</td>
<td>m</td>
<td>Appendix B B1.2</td>
</tr>
<tr>
<td></td>
<td>• used to guide passengers with</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>vision impairments to the boarding</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>points and warn of hazards (such</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>as kerb)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• perpendicular to kerb and across</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>the full width of the path of</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>travel as per disability standards</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• specification layout and colours</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>as per this manual and disability</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>standards</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• all furniture to be a minimum of</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>300mm clear of TGSIs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Security</strong></td>
<td>General:</td>
<td>p</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• utilise street lighting where</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>possible</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• street lights should be 3–4m</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>away from shelter and/or seating</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• incorporate additional CPTED</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>principles.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Optional</strong></td>
<td>Solar panel:</td>
<td>s</td>
<td>Appendix B B1.3</td>
</tr>
<tr>
<td>enhancements</td>
<td>• required to be attached to</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>shelters to power lighting</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• should complement and be</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>consistent with TransLink shelter</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>design and specification</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>requirements.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Recycled materials:</td>
<td>s</td>
<td>Appendix B B1.3</td>
</tr>
<tr>
<td></td>
<td>• bin located conveniently at</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>stop</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• maintenance schedules and</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>contracts to be arranged</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• as per requirements of standard</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>bins.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Category</td>
<td>Component</td>
<td>Requirement</td>
<td>Technical note reference</td>
</tr>
<tr>
<td>----------------</td>
<td>-----------------------------------------------</td>
<td>-------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>Landscaping</td>
<td>Approach side:</td>
<td>s</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• shrub and groundcover planting to be maintained less than 500mm in physical height</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• must not obstruct sightlines between approaching bus and waiting passengers, shelters or seats</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• vegetation must not enter into the kinetic envelope of bus vehicle and bus stop area.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• be maintained with tree trunks clear of vegetation for minimum of 4.5m from underside of tree canopy, 600mm from face of kerb and 20m from bus stop post</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• should be in accordance with local authority standards.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Departure side:</td>
<td>s</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• must not obstruct sightlines between approaching bus and waiting passengers, shelters or seats</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• be maintained with trunks clear of vegetation for minimum of 4.5m to underside of tree canopy, 600mm from face of kerb and 10m from bus stop post</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• should be in accordance with local authority standards.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arrangement</td>
<td>Indented bay:</td>
<td>s</td>
<td>Appendix B B1.2</td>
</tr>
<tr>
<td>type</td>
<td>• will require sufficient pavement area for buses to stop safely and efficiently out of main traffic stream</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• will accommodate minimum of one bus</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• avoid slopes and curves</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• requires buses to stop out of traffic stream</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• length of bay tapers (for accelerating and brake) dependant on traffic speed (typically 60km/hr)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• bus bay width to be minimum 3m.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Kerbside bus bay (zone):</td>
<td>p</td>
<td>Appendix B B1.2</td>
</tr>
<tr>
<td></td>
<td>• allows bus to conveniently pull up to stop preferably out of main traffic stream</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• as per current regulations</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• will accommodate minimum of one bus</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• avoid major slopes and curves.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Open bus bay (zone):</td>
<td>s</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• variation to indented bay, but located at an intersection</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• will accommodate minimum of one bus</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• requires implementing a turn left only, buses excepted lane at intersection</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• avoid steep gradients and curves.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Single bus manoeuvring:</td>
<td>m</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• represents low-frequency bus service, therefore single bus manoeuvring should be accommodated.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Kerb:</td>
<td>p</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• should allow for safe, efficient passenger set down and pick up</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• to be in accordance with local authority standards (typical kerb height is 150mm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• standard 90 degree upright kerb (avoid rounded or sloped kerb).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Category</td>
<td>Component</td>
<td>Requirement</td>
<td>Technical note reference</td>
</tr>
<tr>
<td>---------------------------</td>
<td>----------------------------------------------------------------------------</td>
<td>-------------</td>
<td>-------------------------</td>
</tr>
</tbody>
</table>
| Information (regulatory signage) | Marked bus zone:  
  - line markings in accordance with national road design standards (subject to road owner approval)  
  - should highlight bus zone area. | s           | Appendix B B1.2 B4.1    |
|                           | Bus zone signs:  
  - located at beginning and end of bus zone. | s           |                         |
|                           | Stop identification sign (stop marker):  
  - to be clearly identified by signage  
  - to contain stop name and number for drivers and passengers as per TransLink standards. | m           | Appendix B B4.1          |
2.3.3 Intermediate stop components

Figure 2.7 Intermediate stop plan view (NTS)

Figure 2.8 Intermediate stop end elevation (NTS)

Figure 2.9 Intermediate stop front elevation (NTS)
<table>
<thead>
<tr>
<th>Category</th>
<th>Component</th>
<th>Requirement</th>
<th>Technical note reference</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Information (sign)</strong></td>
<td>Location, number/name and fare zone:</td>
<td>m</td>
<td>Appendix B B1.2 B4.1</td>
</tr>
<tr>
<td></td>
<td>• inverted J-Pole sign as per TransLink standards</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• minimum sign (and timetable case) clearance of 600mm from kerb and, if applicable, 200mm forward of concrete hardstand area.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Information telephone number:</td>
<td>m</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• TransLink Call Centre number on bus stop sign consistent with TransLink graphic standards.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Information (display)</strong></td>
<td>Stop-specific timetable:</td>
<td>m</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• display route numbers, departure times, destinations and fare zone consistent with TransLink graphic standards</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• cased timetable mounted to sign pole at standard heights</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• must be easily read.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Real-time information:</td>
<td>s</td>
<td>Appendix B B1.2</td>
</tr>
<tr>
<td></td>
<td>• display located in shelter</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Furniture</strong></td>
<td>Shelter:</td>
<td>p</td>
<td>Appendix B B1.2 B1.3</td>
</tr>
<tr>
<td></td>
<td>• used to strongly define bus stop area and must provide protection from weather</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• incorporates seating and wheelchair waiting areas</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• should incorporate overhead lighting to maximise personal security</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• maintain clear sightlines and CPTED measures to maximise personal safety and allow efficient bus pick up (passengers must be able to easily see and hail approaching bus)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• should not obstruct the footpath and pedestrian flow</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• installation as per this manual</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• dimensions as per this manual (for one shelter module).</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Seating:</td>
<td>p</td>
<td>Appendix B B1.3</td>
</tr>
<tr>
<td></td>
<td>• for approximately five people (one shelter module)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• must contain a back rest and arm rests</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• set back and oriented towards the street</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• stand-alone seating may be oriented for better weather protection</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• made from resilient and graffiti-proof material</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• comply with applicable disability and Australian Standards</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• dimensions as per this manual.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Category</td>
<td>Component</td>
<td>Requirement</td>
<td>Technical note reference</td>
</tr>
<tr>
<td>----------------</td>
<td>-----------------------------------------------</td>
<td>-------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>Furniture</td>
<td>Bin:</td>
<td>s</td>
<td>Appendix B B1.3</td>
</tr>
<tr>
<td></td>
<td>• conveniently located (minimum 1.2m away from bus shelter or bus stop sign)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• if placed at kerb, minimum clearance of 600mm is required from face of kerb</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• graffiti-proof materials and as per local authority requirements</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• should also include bird-proof lids (or similar)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• comply with applicable Australian Standards.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Access</td>
<td>Footpath:</td>
<td>p</td>
<td>Appendix B B1.2</td>
</tr>
<tr>
<td></td>
<td>• should generally provide accessible gradients (must comply with applicable disability standards)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• footpath and hardstand areas with appropriate crossfall for drainage as per local authority standards</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• minimum footpath width of 1.2m or as per local authority standards</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• all furniture will maintain an unobstructed footpath</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• width and infrastructure clearances should consider shared access (e.g. pedestrians and bicycles) to minimise conflict with all footpath users.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hardstand area (concrete):</td>
<td>m</td>
<td>Appendix B B1.2</td>
</tr>
<tr>
<td></td>
<td>• includes the area used to define extent of bus stop</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• allows for easy manoeuvring of wheelchairs and prams</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• requires minimum hardstand width of 4m, or to property boundary at shelter location</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• pick up/set down hardstand will be minimum of 8m long and 2m wide for both inbound and outbound stops</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TGSIs:</td>
<td>m</td>
<td>Appendix B B1.2</td>
</tr>
<tr>
<td></td>
<td>• used to guide passengers with vision impairments to the boarding points and warn of hazards (such as kerb)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• perpendicular to kerb and across the full width of the path of travel as per disability standards</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• specification layout and colours as per this manual and disability standards</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• all furniture to be a minimum of 300mm clear of TGSIs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pavement treatment:</td>
<td>s</td>
<td>Appendix B B1.2</td>
</tr>
<tr>
<td></td>
<td>• complement bus stop area.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Park ‘n’ ride/kiss ‘n’ ride:</td>
<td>s</td>
<td>Chapter 4 Supporting Access Infrastructure</td>
</tr>
<tr>
<td></td>
<td>• if required, to be provided so that convenient access is maintained to stop</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• where possible, this can be incorporated with other surrounding uses (e.g. community centre car parking)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• refer to chapter 4 Supporting Access Infrastructure for guidance.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Category</td>
<td>Component</td>
<td>Requirement</td>
<td>Technical note reference</td>
</tr>
<tr>
<td>----------------</td>
<td>---------------------------------------------------------------------------</td>
<td>-------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td><strong>Security</strong></td>
<td>General:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• utilise street lighting where possible</td>
<td>p</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• street lights should be 3-4m away from shelter and/or seating</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• back-lit advertising/information panels used to provide additional lighting</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• incorporate additional CPTED principles.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Public telephone on-site or nearby:</td>
<td>s</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• should be placed within 10m of bus shelter</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• where possible, encourage the location of bus stop close to existing public telephones (such as near local shops).</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Optional enhancement</strong></td>
<td>Drinking fountain:</td>
<td>s</td>
<td>Appendix B B1.3</td>
</tr>
<tr>
<td></td>
<td>• located adjacent to shelters</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• comply with disability and Australian Standards.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Commercial vending machine:</td>
<td>s</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• maximum of one commercial vending machine</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• should be located adjacent to shelters.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Solar panel:</td>
<td>s</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• required to be attached to shelters to power lighting</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• should complement and be consistent with TransLink shelter design and dimensions.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Recycled materials:</td>
<td>s</td>
<td>Appendix B B1.3</td>
</tr>
<tr>
<td></td>
<td>• bin for recyclable materials to be located conveniently</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• maintenance schedules and contracts to be arranged</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• as per requirements of standard bins.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Landscaping</strong></td>
<td>Approach side:</td>
<td>s</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• shrub and groundcover planting to be maintained less than 500mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• must not obstruct sightlines between approaching bus and waiting passengers, shelters or seats with advertising</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• vegetation must not enter into the kinetic envelope of bus vehicle and bus stop area.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• any tree trunks to be a minimum of 4.5m between the base of trunk to the canopy, 600mm setback from face of kerb, and 16m from waiting area</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• should comply with local authority standards.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Departure side:</td>
<td>s</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• must not obstruct sightlines between approaching bus and waiting passengers, shelters or seats with advertising</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• any tree trunks to be a minimum of 4.5m between the base of trunk to the canopy, 600mm setback from face of kerb, and 8m from waiting area</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• should comply with current local authority standards.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Category</td>
<td>Component</td>
<td>Requirement</td>
<td>Technical note reference</td>
</tr>
<tr>
<td>-------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>-------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>Arrangement type</td>
<td><strong>Indented bay:</strong></td>
<td>s</td>
<td>Appendix B B1.2</td>
</tr>
<tr>
<td></td>
<td>• will require sufficient pavement area for buses to stop safely and</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>efficiently out of main traffic stream</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• will accommodate at least one bus</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• avoid slopes and curves</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• length of bay tapers (for accelerating and braking) to be dependent on</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>traffic speed (typically for 60km/hr)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• bus bay width to be minimum width of 3m.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Kerbside bus bay:</strong></td>
<td>p</td>
<td>Appendix B B1.2</td>
</tr>
<tr>
<td></td>
<td>• allows bus to conveniently pull up to stop preferably out of main</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>traffic stream</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• as per current regulations</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• will accommodate minimum of one bus</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• avoid slopes and curves</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Open bus bay:</strong></td>
<td>s</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• variation of indented bay, but located at an intersection</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• accommodate minimum of one bus</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• requires implementing a turn left only, buses excepted land at the</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>intersection</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• avoid slopes and curves</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Single bus manoeuvring:</strong></td>
<td>m</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• represents moderate-frequency bus service so at least single bus</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>manoeuvring can be accommodated.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Kerb:</strong></td>
<td>m</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• should allow for safe, efficient passenger set down and pick up</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• to be in accordance with local authority standards (typical kerb height</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>is 150mm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• to be standard 90 degree upright kerb (avoid rounded or sloped kerb).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information</td>
<td><strong>Marked bus zone:</strong></td>
<td>p</td>
<td>Appendix B B1.2</td>
</tr>
<tr>
<td>(regulatory</td>
<td>• line markings in accordance with national road design standards</td>
<td></td>
<td></td>
</tr>
<tr>
<td>signage)</td>
<td>(subject to road owner approval)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• should highlight bus zone area.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Bus zone signs:</strong></td>
<td>p</td>
<td>Appendix B B4.1</td>
</tr>
<tr>
<td></td>
<td>• located at beginning and end of bus zone (including tapers if</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>applicable).</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Stop identification sign (stop marker):</strong></td>
<td>m</td>
<td>Appendix B B4.1</td>
</tr>
<tr>
<td></td>
<td>• to be clearly identified by signage</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• to contain stop name and number for drivers and passengers as per</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TransLink standards.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
2.3.4 Premium stop components

Figure 2.10 Premium stop plan view (NTS)

Figure 2.11 Premium stop end elevation (NTS)

Figure 2.12 Premium stop front elevation (NTS)
### Table 2.4 Premium stop components

<table>
<thead>
<tr>
<th>Category</th>
<th>Component</th>
<th>Requirement</th>
<th>Technical note reference</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Information (sign)</strong></td>
<td>Location, number/name and fare zone:</td>
<td>m</td>
<td>Appendix B B1.2 B4.1</td>
</tr>
<tr>
<td></td>
<td>• bus stop blade sign as per TransLink standards</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• sign clearance of 600mm from kerb and located on concrete hard stand.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Information telephone number:</td>
<td>m</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• TransLink Call Centre number on bus stop sign consistent with TransLink graphic standard.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Information (display)</strong></td>
<td>Stop-specific timetable:</td>
<td>m</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• display route numbers, departure times, destinations and fare zone consistent with TransLink graphic standards</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• must be easily read.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Real-time information:</td>
<td>p</td>
<td>Appendix B B1.2</td>
</tr>
<tr>
<td></td>
<td>• display located in shelter.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Information (network)</strong></td>
<td>Network and locality map:</td>
<td>m</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• located inside blade sign and consistent with TransLink graphic standard.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Information telephone:</td>
<td>p</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• incorporated into shelter or located adjacent to shelter.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Furniture</strong></td>
<td>Shelter:</td>
<td>m</td>
<td>Appendix B B1.2 B1.3</td>
</tr>
<tr>
<td></td>
<td>• used to strongly define bus stop area and must provide protection from weather</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• incorporates seating and wheelchair waiting areas</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• incorporates overhead lighting to maximise personal security</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• maintains clear sightlines and CPTED measures to maximise personal safety and allow efficient bus pick up (passengers must be able to easily see and hail approaching bus)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• should not obstruct the footpath and pedestrian flow</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• installation as per this manual (for two shelter modules).</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Seating:</td>
<td>m</td>
<td>Appendix B B1.2 B1.3</td>
</tr>
<tr>
<td></td>
<td>• for approximately ten people (two shelter modules)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• must contain a back rest and arm rests</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• set back and oriented towards the street</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• stand-alone seating may be oriented for better weather protection</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• made from resilient and graffiti-proof material</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• comply with applicable disability and Australian Standards</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• dimensions as per this manual.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bin:</td>
<td>s</td>
<td>Appendix B B1.3</td>
</tr>
<tr>
<td></td>
<td>• conveniently located (minimum 1.2m clearance from other bus stop infrastructure)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• if placed at kerb, minimum clearance of 600mm is required from face of kerb</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• made from graffiti-proof materials and as per local authority requirements</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• should also include bird-proof lids (or similar)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• comply with applicable Australian Standards.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Category</td>
<td>Component</td>
<td>Requirement</td>
<td>Technical note reference</td>
</tr>
<tr>
<td>------------</td>
<td>------------------------------------------------</td>
<td>-------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>Furniture</td>
<td>Shopping trolley bays:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• may be required when stops are located near shopping centre entries or exists</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• located for efficient trolley pick up (by collectors)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• provide adequate capacity.</td>
<td>s</td>
<td></td>
</tr>
<tr>
<td>Access</td>
<td>Pedestrian refuge/crossing:</td>
<td>p</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• when not located near a pedestrian-accessible intersection, pedestrian refuge (or similar) should be located nearby for safe and convenient access.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Footpath (concrete):</td>
<td>m Appendix B B1.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• should generally provide accessible gradients (must comply with applicable disability standards)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• footpath and hardstand areas with appropriate crossfall for drainage as per local authority standards</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• minimum footpath width of 1.2m or as per local authority standards</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• all furniture to maintain an unobstructed footpath</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• width and infrastructure clearances should consider shared access (e.g. pedestrians and bicycles) to minimise conflict with all footpath users.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hardstand area (concrete):</td>
<td>m Appendix B B1.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• includes the area used to define extent of bus stop</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• allows for easy manoeuvring of wheelchairs and prams</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• requires minimum hardstand width of 4m or to property boundary at shelter location</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• pick up/set down hardstand to be minimum of 8m in length for both inbound and outbound stops</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• full concrete width and length is preferred</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TGSIs:</td>
<td>m Appendix B B1.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• used to guide passengers with vision impairments to the boarding points and warn of hazards (such as kerb)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• perpendicular to kerb and across the full width of the path of travel as per disability standards</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• specification layout and colours as per this manual and disability standards</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• all furniture to be a minimum of 300mm clear of TGSIs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pavement treatment:</td>
<td>p Appendix B B1.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• complement bus stop area.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Park ‘n’ ride/kiss ‘n’ ride:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• if required, to be provided so that convenient access is maintained to bus stop</td>
<td></td>
<td>Chapter 4 Supporting Access Infrastructure</td>
</tr>
<tr>
<td></td>
<td>• where possible, this can be incorporated with other surrounding uses (e.g. community centre car parking)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• refer to chapter 4 Supporting Access Infrastructure for guidance.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Category</td>
<td>Component</td>
<td>Requirement</td>
<td>Technical note reference</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------------------------------------------</td>
<td>-------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>Security</td>
<td>General:</td>
<td>m</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• utilise street lighting where possible</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• street lights should be 3-4m away from shelter and/or seating</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• back-lit advertising/information panels used to provide additional lighting</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• incorporate additional CPTED principles.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Public telephone on-site or nearby:</td>
<td>p</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• should be placed within hardstand area (adjacent to shelter)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• where possible, encourage the location of bus stop close to existing public telephones (such as near local shops).</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CCTV/security cameras:</td>
<td>s</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• located overhead to maximise personal security of passengers.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Emergency phone:</td>
<td>s</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• incorporated into shelter in well-lit area.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Optional enhancement</td>
<td>Drinking fountain:</td>
<td>s</td>
<td>Appendix B B1.3</td>
</tr>
<tr>
<td></td>
<td>• located adjacent to shelters</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• comply with disability and Australian Standards.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Commercial vending machine:</td>
<td>s</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• maximum of one commercial vending machine</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• should be located adjacent to shelters.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Public art:</td>
<td>s</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• should be located within the bus stop extent (within hardstand area)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• must not obstruct access and movement of passengers</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• can be incorporated into furniture, if consistent with TransLink or current local authority standards, subject to approval.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Solar panel:</td>
<td>s</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• required to be attached to shelters to power lighting</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• should complement and be consistent with TransLink shelter design and specification requirements.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Recycled materials:</td>
<td>s</td>
<td>Appendix B B1.3</td>
</tr>
<tr>
<td></td>
<td>• bin for recyclable materials to be located conveniently</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• maintenance schedules and contracts to be arranged</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• as per requirements of standard bins.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Landscaping</td>
<td>Approach side:</td>
<td>s</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• shrub and groundcover planting to be maintained less than 500mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• must not obstruct sightlines between approaching bus and waiting passengers, shelters or seats with advertising</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• vegetation must not enter into the kinetic envelope of bus vehicle and bus stop area.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• any tree trunks to be a minimum of 4.5m between the base of trunk to the canopy, 600mm setback from face of kerb, and 16m from waiting area</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• should comply with current local authority standards.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Category</td>
<td>Component</td>
<td>Requirement</td>
<td>Technical note reference</td>
</tr>
<tr>
<td>--------------</td>
<td>---------------------------------------------------------------------------</td>
<td>-------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td><strong>Landscaping</strong></td>
<td>Departure side:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• must not obstruct sightlines between approaching bus and waiting</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>passengers, shelters or seats with advertising</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• any tree trunks to be a minimum of 4.5m between the base of trunk to</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>the canopy, 600mm setback from face of kerb, and 8m from waiting area</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• should comply with local authority standards.</td>
<td>s</td>
<td></td>
</tr>
<tr>
<td><strong>Arrangement type</strong></td>
<td>Indented bay:</td>
<td>s</td>
<td>Appendix B B1.2</td>
</tr>
<tr>
<td></td>
<td>• will require sufficient pavement area for buses to stop safely and</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>efficiently out of main traffic stream</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• accommodate a minimum of two buses</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• avoid slopes and curves</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• length of bay tapers (for accelerating and braking) to be dependent on</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>traffic speed (typically for 60km/hr)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• bus bay width to be minimum width of 3m</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• should allow for sufficient space for footpath and pedestrian waiting</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>area.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Kerbside bus bay (zone):</td>
<td>s</td>
<td>Appendix B B1.2</td>
</tr>
<tr>
<td></td>
<td>• allows bus to conveniently pull up to stop preferably out of main traffic</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>stream</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• as per current regulations</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• accommodate at least two buses</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• avoid slopes and curves</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Open bus bay (zone):</td>
<td>s</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• accommodate a minimum of two buses</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• variation of indented bay, but located at intersection</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• requires implementing a <strong>turn left only, buses excepted</strong> lane</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>at intersection</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• avoid slopes and curves</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Multiple, nose-to-tail manoeuvring (platooning):</td>
<td>p</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• will determine bus bay length required (additional pull-out length)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• minimum additional 5m per bus needs to be added for this type of</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>manoeuvring to occur.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Multiple, independent stop manoeuvring:</td>
<td>s</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• will determine the bus bay length required (additional pull-in and</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>pull-out length)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• requires additional minimum of 12m per bus to allow for efficient</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>manoeuvring.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Kerb:</td>
<td>s</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• should allow for safe, efficient passenger set down and pick up</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• to be in accordance with local authority standards (typical kerb height</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>is 150mm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• standard 90 degree upright kerb (not rounded or sloped kerb).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Category</td>
<td>Component</td>
<td>Requirement</td>
<td>Technical note reference</td>
</tr>
<tr>
<td>---------------------------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>-------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>Information (regulatory signage)</td>
<td>Marked bus zone:</td>
<td>m</td>
<td>Appendix B B1.2 B4.1</td>
</tr>
<tr>
<td></td>
<td>• line markings in accordance with national road design standards</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(subject to road owner approval)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• should highlight bus zone area.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bus zone signs:</td>
<td>m</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• located at start and finish of bus zone (including tapers if applicable)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stop identification sign (stop marker):</td>
<td>m</td>
<td>Appendix B B4.1</td>
</tr>
<tr>
<td></td>
<td>• to be clearly identified by signage</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• to contain stop name and number for drivers and passengers as per</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TransLink standards.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
2.3.5 Signature stop components

Table 2.5 Signature stop components

<table>
<thead>
<tr>
<th>Category</th>
<th>Component</th>
<th>Requirement</th>
<th>Technical note reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information (sign)</td>
<td>Location, number/name and fare zone:</td>
<td>m</td>
<td>Appendix B B1.2 B4.1</td>
</tr>
<tr>
<td>Information (sign)</td>
<td>• bus stop blade sign as per TransLink standards</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information (sign)</td>
<td>• minimum sign (and timetable case) clearance of 600mm from kerb and located on concrete hard stand.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information (sign)</td>
<td>Information telephone number:</td>
<td>m</td>
<td></td>
</tr>
<tr>
<td>Information (sign)</td>
<td>• TransLink Call Centre number on bus stop sign consistent with TransLink graphic standards.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information (display)</td>
<td>Stop-specific timetable:</td>
<td>m</td>
<td></td>
</tr>
<tr>
<td>Information (display)</td>
<td>• display route numbers, departure times, destinations and fare zone consistent with TransLink graphic standards</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information (display)</td>
<td>• cased timetable mounted to sign pole at standard heights</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information (display)</td>
<td>• must be easily read.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information (display)</td>
<td>Real-time information:</td>
<td>m</td>
<td>Appendix B B1.2</td>
</tr>
<tr>
<td>Information (display)</td>
<td>• display located in shelter.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information (network)</td>
<td>Network and locality maps:</td>
<td>m</td>
<td></td>
</tr>
<tr>
<td>Information (network)</td>
<td>• located inside timetable case and consistent with TransLink graphic standards.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information (network)</td>
<td>Information telephone:</td>
<td>m</td>
<td></td>
</tr>
<tr>
<td>Information (network)</td>
<td>• incorporated into shelter or located adjacent to shelter.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Furniture</td>
<td>Shelter:</td>
<td>m</td>
<td>Appendix B B1.2 B1.3</td>
</tr>
<tr>
<td>Furniture</td>
<td>• used to strongly define bus stop area and must provides protection from weather</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Furniture</td>
<td>• incorporates seating and wheelchair waiting areas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Furniture</td>
<td>• incorporates overhead lighting to maximise personal security</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Furniture</td>
<td>• maintains clear sightlines and CPTED measures to maximise personal safety and allow efficient bus pick up (passengers must be able to easily see and hail approaching bus)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Furniture</td>
<td>• should not obstruct the footpath and pedestrian flow</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Furniture</td>
<td>• generally individually designed to suit transport corridor, with approval from TransLink and relevant stakeholders.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Furniture</td>
<td>Seating:</td>
<td>m</td>
<td>Appendix B B1.2 B1.3</td>
</tr>
<tr>
<td>Furniture</td>
<td>• provided to cater for anticipated demand</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Furniture</td>
<td>• must be convenient and comfortable for short waiting periods</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Furniture</td>
<td>• must contain a back rest and preferably arm rests at each end</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Furniture</td>
<td>• preferably oriented towards the street</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Furniture</td>
<td>• stand-alone seating may be oriented for better weather protection</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Furniture</td>
<td>• made from resilient and graffiti-proof material</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Furniture</td>
<td>• comply with applicable disability and Australian Standards.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Category</td>
<td>Component</td>
<td>Requirement</td>
<td>Technical note reference</td>
</tr>
<tr>
<td>----------</td>
<td>-----------</td>
<td>-------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>Bin:</td>
<td>conveniently located (minimum 1.2m clearance from other bus stop infrastructure)</td>
<td>m</td>
<td>Appendix B B1.3</td>
</tr>
<tr>
<td></td>
<td>if placed at kerb, minimum clearance of 600mm is required from face of kerb</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>made from graffiti-proof materials and as per local authority requirements</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>should also include bird-proof lids (or similar)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>comply with applicable Australian Standards.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shopping trolley bays:</td>
<td>may be required when stops are located near shopping centre entries or exists</td>
<td>s</td>
<td></td>
</tr>
<tr>
<td></td>
<td>located for efficient trolley pick up (by collectors)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>provide adequate capacity.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Access</td>
<td>Pedestrian refuge/crossing:</td>
<td>s</td>
<td></td>
</tr>
<tr>
<td></td>
<td>when not located near a pedestrian accessible intersection, pedestrian refuge (or similar) should be located nearby for safe and convenient access</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>as per current local authority standards.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Footpath:</td>
<td>should generally provide accessible gradients (must comply with applicable disability standards)</td>
<td>m</td>
<td>Appendix B B1.2</td>
</tr>
<tr>
<td></td>
<td>footpath and hardstand areas with appropriate crossfall for drainage as per local authority standards</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>minimum footpath width of 1.2m or as per local authority standards</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>all furniture to maintain an unobstructed footpath</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>width and infrastructure clearances should consider shared access (e.g. pedestrians and bicycles), so to minimise conflict with all footpath users.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hardstand area (concrete):</td>
<td>includes the area used to define extent of bus stop</td>
<td>m</td>
<td>Appendix B B1.2</td>
</tr>
<tr>
<td></td>
<td>allow for easy manoeuvring of wheelchairs and prams</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>full concrete hardstand is required</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>may incorporate special pavement treatment to define hardstand area.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TGSIs:</td>
<td>used to guide passengers with vision impairments to the boarding points and warn of hazards (such as kerb)</td>
<td>m</td>
<td>Appendix B B1.2</td>
</tr>
<tr>
<td></td>
<td>perpendicular to kerb and across the full width of the path of travel as per disability standards</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>specification layout and colours to be as per this manual and disability standards</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>all furniture to be a minimum of 300mm clear of TGSIs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pavement treatment:</td>
<td>complement bus stop area</td>
<td>s</td>
<td>Appendix B B1.2</td>
</tr>
<tr>
<td>Category</td>
<td>Component</td>
<td>Requirement</td>
<td>Technical note reference</td>
</tr>
<tr>
<td>------------------------</td>
<td>----------------------------------------------------------------</td>
<td>-------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>Access</td>
<td>Park 'n' ride/kiss 'n' ride:</td>
<td>s</td>
<td>Chapter 4 Supporting Access Infrastructure</td>
</tr>
<tr>
<td></td>
<td>• if required, to be provided so that convenient access is maintained to stop</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• where possible, this can be incorporated with other surrounding uses (e.g. community centre car parking)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• refer to chapter 4 Supporting Access Infrastructure for guidance.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Security</td>
<td>General:</td>
<td>m</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• utilise street lighting where possible</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• street lights should be 3-4m away from shelter and/or seating</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• back-lit advertising/information panels used to provide additional lighting</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• incorporate additional CPTED principles.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CCTV/security cameras:</td>
<td>s</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• located overhead to maximise personal security of passengers.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public telephone on-site or nearby:</td>
<td></td>
<td>p</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• should be placed within hardstand area (adjacent to shelter)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• where possible, encourage the location of bus stop close to existing public telephones (such as near local shops).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emergency phone:</td>
<td>• should be incorporated into shelter in well-lit area.</td>
<td>s</td>
<td></td>
</tr>
<tr>
<td>Optional enhancement</td>
<td>Drinking fountain:</td>
<td>p</td>
<td>Appendix B B1.3</td>
</tr>
<tr>
<td></td>
<td>• located adjacent to shelters</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• comply with disability and Australian Standards.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commercial vending machine:</td>
<td></td>
<td>s</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• maximum of one commercial vending machine</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• should be located adjacent to shelters.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public art:</td>
<td>• should be located within the bus stop extent (within hardstand area)</td>
<td>s</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• must not obstruct access and movement of passengers</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• can be incorporated into furniture, if consistent with TransLink or current local authority standards, subject to approval.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solar panel:</td>
<td>• required to be attached to shelters to power lighting</td>
<td>s</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• should complement and be consistent with TransLink shelter design and specification requirements.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recycled materials:</td>
<td>• bin for recyclable materials to be located conveniently</td>
<td>s</td>
<td>Appendix B B1.3</td>
</tr>
<tr>
<td></td>
<td>• maintenance schedules and contracts to be arranged</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• as per requirements of standard bins.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Category</td>
<td>Component</td>
<td>Requirement</td>
<td>Technical note reference</td>
</tr>
<tr>
<td>-------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>-------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td><strong>Landscaping</strong></td>
<td>Approach side:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• shrub and groundcover planting to be maintained less than 500mm</td>
<td>s</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• must not obstruct sightlines between approaching bus and waiting passengers, shelters or seats with advertising</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• vegetation must not enter into the kinetic envelope of bus vehicle and bus stop area.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• any tree trunks to be a minimum of 4.5m between the base of trunk to the canopy, 600mm setback from face of kerb, and 16m from waiting area</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• should comply with current local authority standards.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Departure side:</td>
<td>• must not obstruct sightlines between approaching bus and waiting passengers, shelters or seats with advertising</td>
<td>s</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• any tree trunks to be a minimum of 4.5m between the base of trunk to the canopy, 600mm setback from face of kerb, and 8m from waiting area</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• should comply with current local authority standards.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Arrangement type</strong></td>
<td>Indented bay:</td>
<td>p</td>
<td>Appendix B B1.2</td>
</tr>
<tr>
<td></td>
<td>• will require sufficient pavement area for buses to stop safely and efficiently out of main traffic stream</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• accommodate a minimum of two buses</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• avoid slopes and curves</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• length of bay tapers (for accelerating and braking) to be dependent on traffic speed (typically for 60km/hr)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• bus bay width to be minimum width of 3m.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multiple, nose-to-tail manoeuvring:</td>
<td>• will determine bus bay length required (additional pull-out length)</td>
<td>s</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• minimum additional 5m per bus needs to be added for this type of manoeuvring to occur.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multiple, independent stop manoeuvring:</td>
<td>• will determine the bus bay length required (additional pull-in and pull-out length)</td>
<td>s</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• requires additional minimum of 12m per bus to allow for efficient manoeuvring.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Kerb</strong>:</td>
<td>• should allow for safe, efficient passenger set down and pick up</td>
<td>m</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• to be in accordance with local authority standards (typical kerb height is 150mm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• to be standard 90 degree upright kerb (avoid rounded or sloped kerb).</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Information (regulatory signage)</strong></td>
<td>Marked bus zone:</td>
<td>m</td>
<td>Appendix B B1.2 B4.1</td>
</tr>
<tr>
<td></td>
<td>• line markings in accordance with national road design standards (subject to road owner approval)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• should highlight bus zone area.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bus zone signs:</td>
<td>• located at start and finish of bus zone (including tapers if applicable).</td>
<td>m</td>
<td></td>
</tr>
<tr>
<td>Stop identification sign (stop marker):</td>
<td>• to be clearly identified by signage</td>
<td>m</td>
<td>Appendix B B4.1</td>
</tr>
<tr>
<td></td>
<td>• to contain stop name and number for drivers and passengers as per TransLink standards.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
03

CHAPTER

Station Planning and Design
3.1 Principles of station planning and design

3.1.1 Introduction

This chapter outlines the preferred guidelines and principles for public transport station infrastructure within the TransLink network. Derived from lessons-learned, national and international accepted practice, and tried and tested approaches for designing high-quality, consistent station infrastructure.

While parts of stations feature standardised components, station design is site-specific, with no two stations ever being exactly the same. This gives planners and designers the opportunity to tailor specific outcomes to meet the functional and operational needs of passengers and services. Because there are a wide variety of station types, this chapter provides generic guidelines which can be applied to all stations. Refer to applicable sources for more detailed specifications with regard to particular station types (for example, for rail and busway stations refer to the current Queensland Rail Stations Design Guide and Queensland Transport and Main Roads Busway Station Planning and Design Manual respectively). For further applicable references, refer to Appendix A.

The guidelines provided in this chapter represent the requirements and expectations of TransLink for new public transport station infrastructure and existing station requiring upgrades.

These guidelines apply to designers, planners, architects and other urban professionals involved in the delivery of stations in collaboration with TransLink. Decision-makers should consult this guide before starting to plan and design station infrastructure. TransLink aims to achieve a consistent and distinctive look and feel for stations, to make public transport more convenient for passengers by providing infrastructure that is functional and easy to identify.

This chapter is divided into four key sections:

- principles of station design
- station environment
- station formation
- station design (functional station design principles).

3.1.2 What is a station?

For the purpose of this manual, a station is defined as a high-quality public transport facility which acts as a central departure and/or destination point to accommodate high passenger volumes. Stations provide passengers with the key point of connection between a public transport service and a desired destination (or transfer point enroute to a destination). Stations are normally located on high-frequency priority (HFP) corridors and can be located from outer-suburban areas to inner-city areas.

Stations generally serve key catchment areas such as commercial and business districts, and may contain a moderate to very high level of supporting infrastructure (such as park ‘n’ rides, kiss ‘n’ rides, public amenities and bicycle amenities).

3.1.2.1 Station types

TransLink has identified four types of stations with regard to their function within the network. These include:

- standard stations
- intra-modal stations
- multi-modal stations.
**Standard stations**

Standard stations primarily provide access to beginning and end-of-trip movement from multiple services and are generally located along public transport corridors. Standard stations are typically not intended for interchanging purposes.

![Standard station](image)

*Figure 3.1 Standard station*

**Intra-modal stations**

Similar to standard stations, intra-modal stations act as a destination or departure point for high-priority services operating in significant catchment areas. In addition, intra-modal stations act as a key point of transfer between the same modes (i.e. bus to bus or rail to rail) along two or more public transport corridors.

![Intra-modal station](image)

*Figure 3.2 Intra-modal station*
Multi-modal stations

Multi-modal stations build on intra-modal stations by providing transfers between different modes (e.g. bus to train). These stations function to serve significant catchment areas and where two or more public transport corridors come together with different modes.

Figure 3.3 Multi-modal station
3.1.3 Hierarchy of station facilities

TransLink has established a hierarchy of station facilities based on station locality. The hierarchy is used to coordinate and prioritise TransLink’s agenda for the delivery of services, infrastructure and planning projects throughout the TransLink network. With the hierarchy in place, TransLink aims to ensure that stations have a clearly defined role and are easily identifiable across the TransLink network.

Ultimately, the stop and station hierarchy will help inform planning decisions at the regional, district and local site levels by state and local government and the private sector. The hierarchy is based on capacity, passenger volumes, the type and level of service, and the function of the facility within the surrounding environment. Contact TransLink for confirmation and assistance with determining the hierarchy of station facilities.

Depending on the location, purpose and function of particular stations, and their supporting infrastructure, the hierarchy used to assist design component inclusions and layout is as follows.

**Local facility**

Local facilities are designed primarily to cater for the transport needs of the immediate community. They are generally located in residential suburban areas and/or local shopping centres. These facilities supply feeder public transport services which provide access to more significant facilities. The primary means of accessing a local station is by walking or cycling via local paths and roadways, kiss ‘n’ rides, and in some cases, park ‘n’ rides. These stations have medium to high station component inclusions.

**District facility**

A district facility acts as a significant attractor within the network and is typically located in a residential area and/or adjacent to a commercial or business area (such as a suburban or major shopping centre). These facilities provide primarily HFP services (a mix of express and all-stops), although feeder services may also operate. Access to district facilities is as for local facilities, but also include bus feeder. These stations also have medium to high station component inclusions for passenger convenience.

**Regional facility**

Regional facilities are found where two or more HFP services come together within the network. Major attractors such as regional commercial or business centres are generally serviced by these facilities. Typically characterised by high levels of service with high passenger demand, these stations are commonly supported by transit priority measures such as dedicated HOV lanes or forms of grade separation. Regional facilities support the highest level of access, depending on location, ranging from walking and cycling to bus feeder and private car access (such as park ‘n’ ride and kiss ‘n’ ride). These stations contain a high level of station components for high-quality passenger convenience.

For details regarding the level of components provided at each facility refer to table 3.1 Components parts list.
3.1.4 Asset management

Stations are major elements of public transport infrastructure and they need to be managed and maintained to sufficient operational conditions suitable for passenger comfort and safety. The many components which make up a station need to be maintained and managed on an ongoing basis to ensure the effective operation of a facility. The framework for how a facility will be managed after the delivery of station infrastructure needs to be considered within the planning and design process.

The following must be considered when planning and designing station facilities:

- the general requirements for cleaning and maintenance schedules of infrastructure components
- surveillance and access control of the facility
- durability and ease of cleaning of components
- cost-effectiveness, commonality and replacement of components
- approved suppliers of the materials and components
- access to water, electricity and other resources
- general operating costs (such as electricity, water and staff)
- emergency procedures, testing and protocols (such as evacuation and counter terrorism procedures)
- maintaining fire ratings for material and components
- staff requirements for comfort and safety.

The above is not a definitive list and other considerations may be required depending on site-specific circumstances.

Relevant operational stakeholders should be engaged in the planning and design process to ensure that the requirements of asset management by operators and/or owners have been considered. All components of station infrastructure to be maintained by TransLink should use materials and finishings consistent and compatible with existing infrastructure and of an approved standard by TransLink. In consultation with relevant operating and maintenance stakeholders through TransLink, detailed maintenance manuals should be developed for all components and operation schedules within a station facility.
3.2 Station environment

3.2.1 Locality guidance

Stations can function most effectively when supported by the appropriate land uses conducive to high levels of passenger activity. While other factors outside of the station operations (i.e. operational capacity and network characteristics) also influence the functionality of a station, ultimately the location characteristics provide the key driver for passengers using the station and public transport.

The majority of locality factors (e.g. population projections, demographics, major attractors etc.) for public transport station infrastructure are led by the TransLink Network Plan under TransLink’s strategic direction, which aims to provide a quality journey from decision to destination. However, the site-specific characteristics of a station location must be considered to create an attractive, seamless integration with the surrounding environment. This will also ensure that a particular station becomes a fundamental part of the surrounding community. In some cases major public transport infrastructure (such as railway, busway or light rail stations) can shape transit oriented developments. For further information on transit oriented development around public transport stations, refer to the Queensland Government’s Transit Oriented Development: guide for practitioners.

![Locality guidance examples for station facilities](image)

**Figure 3.4** Locality guidance examples for station facilities

3.2.1.1 Locality principles of station design

The link between transport and land use plays a fundamental role in ensuring that a public transport system can operate effectively and sustainably. The proximity of stations with attractive land use developments is vital, as urban consolidation is necessary for achieving increased public transport patronage and therefore justifying high frequency services.

Fundamental principles to be considered in the early stages of station planning and design include:

- collaborate with stakeholders and delivery partners involved in transport and land use planning to support transit-oriented development opportunities
- promote the appropriate community densities from surrounding development to benefit existing or future proposed stations
- identify and match appropriate supportive mixed land use opportunities to public transport (e.g. consolidated community and commercial centres with residential) and avoid conflicting land uses
- understand the surrounding network catchment in order to recognise existing and potential anticipated passenger demands
3.2.2 Station operation

The appropriate design of station infrastructure is significantly influenced by the operational capacity demands of its immediate location and services from the wider TransLink network. Therefore, the consideration of potential short-term and long-term capacity constraints that may be placed on station infrastructure should be addressed early in the planning stage of station design. These may include, but are not limited to:

- future patronage and service growth
- future transport network and corridor connections
- demographics applicable to surrounding land use nodes
- future potential surrounding land use development.

3.2.2.1 Understanding operational capacity

Passenger volume and service frequency influence the capacity requirements of a station. The layout and geometrical design adopted for a station can also determine the ability for a station to operate effectively. Therefore, it is important that appropriate station planning and design responds effectively to locality requirements along with existing and future demands.

Provision should be made for future expansion to allow for increased capacity—especially for stations with lower levels-of-service. Modular infrastructure can allow for expansion while minimising the amount of reconstruction and modification required to existing infrastructure. Modular infrastructure also promotes uniformity in station design, which helps passengers to easily identify the station as part of the TransLink network.

3.2.2.2 Demand analysis

It is important that station infrastructure is planned and designed rigorously to suit the immediate and potential future demand for the site. This can be undertaken using a range of recognised analytical tools and methods. The suitable tool and depth of analysis will mainly depend on the scale and role of the transit facility, along with the available data and time available for the analysis.

Important demand factors that should be considered are:

- baseline daily and/or peak volumes (includes passengers and/or vehicles)
- any forecast future daily volume (includes passengers and/or vehicles)
- other volume-related demand factors, including:
  - length and scale of peak demand
  - breakdown between flows associated with boarding and alighting
  - timing factors, including whether it coincides with other peaks in the surrounding area
  - number of peak periods per day per direction
  - likely directional travel mode-share
• special needs demand, including:
  — potential volumes of special needs users—disability groups, schools etc
  — special events.
• potential for land use scale, intensity or typology change.

TransLink may be able to provide basic information, such as:
• existing patronage for the location and, in some cases, forecast demand for the node
• targets and forecast demand for the immediate and surrounding catchment
• number of current and future anticipated services for the location or corridor
• service frequency and average waiting times.

TransLink may also be able to provide historical data on reliability measures such as scheduling performances of existing services.

In some cases, additional counts, surveys or demand forecasts, may need to be undertaken due to the absence of data. TransLink should always be consulted regarding appropriate demand identification methodologies and data validity.

While TransLink endeavours to use as accurate information as possible, there are a range of global external issues—such as fuel and energy prices, and climate change, as well as many local issues (employment locations and policy changes)—that may impact on the demand for public transport. In an attempt to counter these uncertainties, any demand forecasts for locations should be considered within the assumptions in which they were developed. As well as this, the uncertainty and long timeframes involved in these demand forecasts means that it is prudent to allow for the protection of additional space for future expansion of facilities rather than via the immediate provision of additional capacity up front.

### 3.2.2.3 Influences on station operation

There is a broad range of factors which affect the delivery of services and operation of a station and overall TransLink network. The current and predicted network capacity will affect the individual capacity requirements of a particular station. The following information focuses on aspects influencing the network and station capacity:

• available land or space
• surrounding attractions and facilities
• frequencies of services
• public transport vehicle access
• public transport vehicles
• fare payment procedures
• mobility aids, wheelchair, prams and bicycle boarding
• platform area design
• supporting infrastructure.

For further information on station operation and capacity requirements, refer to the current Transit Capacity and Quality of Service Manual (see Appendix A).
Available land or space

The availability of land or space can provide either constraints or opportunities for station infrastructure. In some instances, the available space may determine the size, configuration and the function of a station which will ultimately influence its operating capacity. Where abundant space is available for station construction, it should be best used to meet the short and long-term anticipated operational demands. Conversely, a station should not consume a greater amount of space than will ever be required to function effectively.

Surrounding attractions and facilities

The surrounding land uses generally act as major attractors for station passengers and in most cases, determines the operational capacity of a station. When designing station infrastructure to meet anticipated demands, the surrounding land uses and demographics need to be assessed in conjunction with other capacity factors (such as network and service operations).

Frequencies of services

The quantity and frequency of public transport services using a station will affect the station capacity and network’s ability to service waiting passenger volumes. Additionally, the numbers of services and frequencies can also influence passenger demands on a station.

Anticipated future patronage increases will require stations to be able to accommodate multiple services at higher frequencies. For bus stations, this requires adequate numbers of bus berths to minimise delay to services using the facilities. For rail stations, this may require the possible upgrade of both station and track to accommodate additional services.

One objective of TransLink is to actively improve the quality of services to operate within the constraints of network capacity. Therefore, both the existing and possible future frequencies and numbers of services are to be considered when planning and designing a station so that current and future passenger demands can be met. Future requirements of a station shall be determined by consultation between TransLink and key stakeholders.

Public transport vehicle access

Bus Stations

Bus stations are typically located near arterial roads and service HFP and local routes. Local services may use surrounding local bus stops and dwell at station facilities while awaiting connecting services. HFP services generally stop at stations that are designed to ensure fast and efficient service operation by not significantly conflicting with other types of services.

Station design will not be significantly constrained by access locations to the major road network, as this affects not only the number of services able to access a station, but also contributes to delays in scheduled services. Capacity restrictions at intersections providing access to and from the station facility are of great importance as delays at intersections can affect the operation of the station and the network itself. When approaching the provision of access between the station and surrounding road network, it is desirable that the following principles be followed:

- access to and from the surrounding road network is to be direct and limit circuitous routing for buses
- the geometric design and intersection control with the major road network should limit delay for services and provide bus priority measures
There are various ways public transport vehicle access movements can be planned and designed. Access to stations may be in the form of a left in left out arrangement exclusively for buses through the adoption of priority lanes and signalised intersection, or other solutions including real-time priority.

Station design must consider current vehicles and vehicles which are expected to use the station in the future. The ability for vehicles to efficiently manoeuvre within a station will depend on the vehicle type and length, and station configuration.

The turning circles for vehicle manoeuvrability is to be assessed in the design phase. Firstly, station function and vehicle operation requirements need to be determined as different vehicles have different turning circle requirements. Once this has been determined, designers are required to source the appropriate turning circles and manoeuvring patterns for vehicles expected to operate in the facility. The manoeuvring requirements should then be overlayed and incorporated into the preferred station formations. Refer to relevant Australian Standards for bus turning circle and manoeuvrability requirements.

Stations which adopt an independent bus stop configuration need to allocate sufficient distances between stops to allow vehicles to efficiently manoeuvre between stops. TransLink recommends that a minimum of 12 metres be allowed between the end of the last vehicle at the first stop and the front of the vehicle at the second stop in the case of an independent stop configuration.

For stations using a lead stop configuration, which requires bus vehicles to platoon behind each other (i.e. nose to tail operation), there will typically be a five metre allowance between the two vehicles to ensure that the vehicle behind is able to manoeuvre out efficiently. This distance may change depending on the width allowance. TransLink and relevant stakeholders will determine the stop type configuration to be used at a station. Refer to Appendix B for specifications on minimum distance allowances for sufficient bus vehicle manoeuvrability.

For stations with low speed environments, TransLink recommends that the turning and manoeuvring speeds be restricted to 15 kilometres per hour. Additionally, station design must not require buses to reverse when manoeuvring into and out of stops. Forward direction in and out is the required option.

Speed humps are not preferred along TransLink bus routes. Where they are absolutely necessary, they are to be designed as an approved flat top speed hump. TransLink should be consulted when speed humps are considered for inclusion along TransLink bus routes. Refer to Appendix C for more information.

**Rail stations**

Trains will be serviced by grade separation treatments from the road network and therefore public transport access is given priority. In some instances, trains may be required to wait for other trains to clear approaching platforms during congested periods or when single carriageways are in place. Where single carriageways are in place, strategic solutions (such as track duplication) may be reviewed and adopted to offer high quality of services.

While this chapter provides guidelines for the planning and design of rail stations with regards to passenger movement, comfort and safety, the PTIM does not provide guidelines for below rail infrastructure (i.e. track and corridor, signalling and associated infrastructure).
Public transport vehicles

Bus

Low floor fully-accessible buses generally reduce loading times, particularly in situations where a high percentage of passengers would benefit from ease of access (such as people with a disability, the elderly, people with prams and people with shopping or bulky goods). All new public transport vehicles are required to comply with applicable disability standards and Australian Standards.

The point within a vehicle where passengers board and alight will commonly affect stopping times and the overall network efficiencies. Generally, stations with services which allow for all doors boarding and alighting approach will achieve minimal vehicle dwell times. However, this is dependent on station functionality.

Rail

Trains offer a high passenger carrying capacity public transport option. Key considerations for station design with trains (including light rail vehicles) which affect capacity, (especially during peak periods) include:

- The vehicle carrying capacity of trains (i.e. the amount of passengers able to be transported on a service) will affect the number of passengers entering, exiting and waiting at a station facility.
- The dwell times of vehicles for rail services will affect station capacity considerations due to time taken for passengers to board and alight a vehicle effectively. The number of doors per car on the train set and width of doors will also affect dwell times.
- Trains effectively allow for an all doors boarding and alighting approach which will affect the platform area used in a station.
- The number of car sets used on a train service will affect the length and space allocation of platforms at stations. Therefore, current and future possible car sets need to be considered when design station platforms.
- The number and type (i.e. all-stops or express) of train services which are able to operate through a station will affect the passenger capacity (and rail line capacity) for a station.

All new public transport vehicles are required to comply with applicable disability standards and Australian Standards.
Fare payment procedures

Fare payment options can affect the operational capacity of public transport stations. Prepaid ticketing procedures enable efficient boarding onto public transport vehicles reducing dwell times, maximising revenue collection and easing the management of fare payments.

It is the intent for stations to be designed to accommodate prepaid ticketing systems, especially those with a high level-of-service. The provision of ticketing systems at stations (such as SACID, Fare Gates and AVVMs) will be determined by station layout, size, passenger comfort and level-of-service requirements, and revenue protection strategies.

The use of paid ticketing areas may be achieved through several measures such as providing a central entry and exit points in conjunction with the appropriate placement of fare machines, fare gates or staff ticket officers. Additionally, stations which are staffed will work towards incorporating the use of paid spaces. Contact TransLink for preferred fare payment options at stations.

Mobility aid, wheelchair, pram and bicycle boarding

Mobility aids, wheelchairs, prams and bicycles have implications for loading times and potentially decrease the operational capacity of a station. However, it is imperative that stations are designed to accommodate all public transport users and ensure dignified and equitable access to all members of the community. All infrastructure components relating to access must comply with the DSAPT and Australian Standards.
Platform area design

The density of people to be accommodated should be within the range of personal comfort and safety. The design of the loading area should have the ability to accommodate passenger movements when waiting, queueing, and accessing services (including persons boarding and alighting, not inhibiting waiting passengers).

The required space for passenger waiting areas will be determined by the Level-of-Service (LOS) necessary to cater for passenger demands during a given period. Typically, the LOS for pedestrian planning and design (Fruin, 1987, Pedestrian Planning and Design) is experienced where peak demand periods (maximum passenger densities) are of a short duration, such as peak queuing and alighting conditions for public transport vehicles. The design of the platform area will depend on the hierarchy of station facility (i.e. local, district or regional), the type and function of station (i.e. bus or rail), the number and type of services operating, and individual site constraints.

Bus and rail stations function differently in terms of boarding and alighting of passengers. Rail stations will typically allow for boarding and alighting from numerous locations along a station platform, whereas buses will board from the front end of the platform in a lead stop situation or from individual stops, warranting separate design considerations for queuing and waiting passengers.

Additionally, the seating and waiting areas should be separated so that they do not interfere with boarding and alighting, station entrances and exits, information points or other pedestrian circulation points.

Typically, TransLink requires that a minimum LOS C be achieved for station platform areas and access paths during peak periods to ensure a comfortable travel experience.

Given the typical LOS C requirements, station platform width and lengths will vary depending on a range of design criteria including:

- the type and size of station layout
- the anticipated peak passenger demand (i.e. numbers of boarding and alighting, waiting and circulating)
- the type of public transport mode and stopping arrangement
- the number and types of services expected to utilise the station.

Refer to section 3.4.1.10 Density of occupation for further details about space allocation for station design.

Supporting infrastructure

The inclusion of supporting infrastructure is essential depending on the type of station and its functionality with regard to passenger access requirements. Supporting infrastructure has been classified by TransLink as the infrastructure required for passengers to access a station based on TransLink’s access hierarchy (see figure 4.1). Refer to chapter 4 Supporting Access Infrastructure for guidance on relevant supporting infrastructure.
3.3 Station formation

3.3.1 Understanding station layouts

The following station layout arrangements act as generic templates and are considered a starting point in the early station planning and design phase. The schematic layouts depicted in this section are not to be considered fully functioning stations, but resemble basic station characteristics and are to be used as a foundation towards developing a station design. Station formation is defined as taking a generic layout and configuring this to meet the specific function and site requirements. Given that no two sites will ever be the same, the translation from a generic station layout to a specific functioning station allows for a site-specific design response which considers the surrounding environment (i.e. land uses), functional and operational capacity requirements, and surrounding catchment demand from the wider transport network. This process is to be done in consultation with TransLink and key stakeholders.

Station layouts can be adapted to suit specific urban contexts and it is important to note that a particular site configuration may be suited to a range of station layouts. When used in conjunction with capacity considerations and design principles, station layouts are useful tools to ensure the configuration is practical and suited to a particular environment and functional purpose.

3.3.2 Station layouts

TransLink has defined a range of generic station layouts to suit the needs of both passenger and public transport vehicle requirements. Each layout defined in this section contains guidelines to assist its appropriate application given the operational and site requirements for specific stations. The details depicted in the station layout drawings such as bus lay-bys, crossings, amenity facility locations etc. aim to represent possible best practice outcomes, however not all stations will be able to achieve the depicted desired outcomes given site constraints. Site-specific requirements of individual stations will influence the station design layout.

In addition to the station layout itself, a range of supporting infrastructure (e.g. pedestrian and bicycle components, kiss ‘n’ ride, and park ‘n’ ride) needs to be incorporated to complement station functionality. Access to the station should conform to TransLink’s access hierarchy (see figure 4.1). Refer to chapter 4 Supporting Access Infrastructure for details.
3.3.2.1 Bus linear platform (mono-directional)

This layout comprises linear berths and passenger loading platforms located on either side of a through carriageway. Buses will run through the station in a single direction and use one entry and exit point. In most cases, depending on site constraints, the platform waiting areas for each bay (including shelters) will run parallel, aligned with each other and have the same directional facing aspect. Passengers must be provided with adequate platform areas for movement and waiting, while pedestrian crossings will be positioned behind vehicle movements and close to surrounding attractors to ensure safe and efficient passenger movement. Passenger safety can be further enhanced with the design of transparent and lightweight structures which promote passive surveillance. This layout can operate by allowing buses to either pull-up at individual stops along the platform, or a lead stop approach can be implemented.

The layout is suited to:

- linear sites with reasonable length and adequate width
- sites with vehicle access and egress locations at either end of the platforms
- stations located at-grade with lower speed limits and access from the surrounding road network
- a greater proportion of HFP services compared to local and feeder services
- standard stations or intra-modal stations with intended transferring between services.

Figure 3.5 Bus linear platform (mono-directional)
3.3.2.2 Bus linear opposing platform (bi-directional)

Linear bi-directional stations consist of a linear formation with berths and platforms located on either side of a through carriageway and services running in opposite directions. Bi-directional platforms will face and run parallel to each other with entry and exit at both ends. These stations are predominantly located on HFP corridors and tend to be grade separated. Pedestrian access will primarily be through grade-separated measures such as stairs, lifts and pedestrian overpasses. However, pedestrian access will generally require a site-specific response due to the lead stop approach commonly used. Pedestrian access will generally be located at the back end of the platform for the morning peak inbound services to assist efficient passenger movements. This layout can offer high passive surveillance between platforms when designed with a transparent median barrier, and still deter pedestrians from crossing inappropriately.

The layout is suited to:

- linear sites with reasonable length and adequate width
- sites with vehicle access and egress locations at either end of the platforms
- predominantly dedicated busway corridors featuring grade-separation with HFP services
- bus routes passing through stations with no intended transferring between services.

For details on busway station formations, refer to the current Queensland Transport and Main Roads Busway Station Planning and Design Manual.

**Figure 3.6** Bus linear opposing platform (bi-directional)
3.3.2.3 Bus linear staggered platform (bi-directional)

This station layout consists of an elongated linear platform arranged in a staggered configuration and is suitable where space is limited. The staggered platforms consist of a mid block chicane so that the overall cross section requires three lanes instead of the more conventional four lanes. This station is suited to buses running in a bi-directional manner along a route, while a lead stop approach is commonly employed. Pedestrian access is typically at-grade while crossings are to be located directly in the middle of the station layout to ensure convenient and safe passenger movements. Effective passive surveillance is considered to be more difficult to achieve at these stations because of the greater distance between the ends of opposite platforms. It should be noted that this layout is not compatible with LRT station operation.

The layout is suited to:

- linear sites with ample length and limited width
- sites with vehicle access and egress locations at either end of the platforms
- typically HFP services
- stations located at-grade and/or access from surrounding road network
- bus routes with no intended transferring between services.

![Diagram](image-url)

Figure 3.7 Bus linear staggered platform (bi-directional)
3.3.2.4 Bus island platform—at-grade and grade-separated (mono-directional)

This layout consists of an island platform where passenger platform areas are located in the middle of the station with bus stops located around the island perimeter. Individual stops, as opposed to a lead stop approach, is generally used. Depending on the location of vehicle access and egress to the surrounding road network, buses circulate in a single direction around the island platform and allow boarding from both sides. Depending on the location, site requirements and number of services, pedestrian access can be provided with at-grade or grade-separated treatments. The layout of the island platform provides for a central waiting point for passengers which enhances personal safety with optimal passive surveillance, maintains simplicity and provides for convenient interchanging if required. This station is suited to feeder and terminating services where bus stops can easily access lay-by areas.

The layout is suited to:

- rectangular sites with ample width and limited length
- sites with limited or fixed vehicle access and egress locations to surrounding road networks
- a high proportion of local, feeder and terminating services, particularly for services needing to manoeuvre through the station
- standard stations or intra-modal stations requiring transfers.

**Figure 3.8** Bus island platform at-grade (mono-directional)

**Figure 3.9** Bus island platform grade-separated (mono-directional)
3.3.2.5 Bus sawtooth platform (mono-directional)

This layout consists of angled bus bays with passenger loading platforms located as either an island or linear loading style arrangement where buses manoeuvre forward into and out of bays. Bus circulation will be determined by the location of stops (around the island or outer perimeter) and access options from the surrounding road network. Passenger access will predominantly be provided at-grade due to the slower speeds of buses manoeuvring in and out of the station. Pedestrian crossings should be located at safe and convenient access points depending on the surrounding attractors and direction of bus circulation. Specific shelter design should be taken into consideration to ensure adequate coverage due to the unique platform layout.

It should be noted that the sawtooth station layout has the potential for increased manoeuvring times as well as posing safety risks for sightlines of bus operators and pedestrians. Providing adequate shelter coverage at this type of station layout can be more complicated than more conventional layouts due to the nature of the sawtooth bays. Because of this, it is TransLink's least preferred station layout and should only be adopted if other layouts are unable to meet the site requirements.

The layout is suited to:

- compact site footprints with inadequate length to provide the appropriate number of vehicle bays in a linear arrangement
- sites with limited access and egress locations to surrounding road networks
- a high proportion of local, feeder or terminating services compared to limited or no line haul services operating
- standard stations or intra-modal stations requiring transfers.

---

**Figure 3.10** Bus sawtooth platform (mono-directional)
3.3.2.6 Rail station layouts

The vast majority of rail stations within the TransLink network are comprised of one of two layouts, namely the ‘island’ platforms and ‘side’ platforms. The remaining stations in the network tend to comprise elements of these layouts with site-specific operating principles that differ depending on their location, capacity, and types of services that operate (i.e. all-stops or express services). While the PTIM only provides guidelines on the ‘above-rail’ components of station design, the ‘below-rail’ operational elements (i.e. track alignment, signalling and associated infrastructure) should also be considered in the planning and design process. For further details on rail station planning and design, refer to the current Queensland Rail Stations Design Guide.

**Side Platforms**

A side platform layout is based on the fact that the platform sits on the ‘side’ of the rail corridor, as opposed to the middle (see island platforms). By definition, a station on a section of single track is a side platform. A station on a dual track corridor which has the two tracks running parallel through the middle of the station also has a side platform layout (technically a pair of side platforms). This arrangement is the predominant layout for a corridor with dual tracks (i.e. inbound and outbound). The layout comprising a pair of side platforms is the layout that is examined here, and will be referred to as a ‘side platform layout’.

A typical side platform layout is the preferable station layout for a dual track corridor, where the station is neither a junction station, a terminus station, nor a station where services perform turnbacks. A side platform layout requires comparatively minimal space as the rail corridor does not need to be widened, and requires little or no curvature of rail tracks. As the platforms can generally be accessed at grade from outside the station, the lifts, stairs and pedestrian overpass arrangement and quantities will depend on station capacity and fare payment requirements (e.g. placed centrally as represented in the figure or at each ends of the platform).

![Figure 3.11 Rail station with a side platform layout](image-url)
**Island Platforms**

An island platform is situated in between two tracks (and hence an ‘island’ in the middle of the rail corridor). An island platform layout is preferable on dual track corridors at terminus stations. As services can turn back at either platform, an island platform provides the option for passengers to interchange between services without the need to change platforms by using vertical transport (i.e. stairs, lift and overpass).

Island platforms tend to require a greater amount of space than side platforms due to the widening of the rail corridor and the increased amount of supporting access infrastructure. Island platforms generally require more passenger access infrastructure (i.e. crossings, stairs, lifts and overpasses) than side platforms, particularly when the station is at grade. The number of accessible entry and exit points will depend on station capacity, sequence of spaces, pedestrian circulation, and fare payment procedures. As a minimum however, a typical island platform requires three accessible lifts to be compliant, as all passengers are required to cross the rail corridor in some manner to access the stations platforms.

![Island platform layout for a terminus station](image)

**Figure 3.12** Island platform layout for a terminus station
Other types of platforms

In areas of the network with more than dual track (i.e. three or four tracks), stations will be some combination of island and side platforms. In any three track section, providing three platforms, a station will comprise one side platform and one island platform (typically, in a station with four platform faces, typically two will always be inbound, and two always outbound, although some platforms are likely to be used predominately during peak periods). The same basic principles apply for the more complex station layouts. For example, a four platform at-grade station comprised of two side platforms and one island platform will require a minimum of three accessible lifts, while the same station with two island platforms will require four accessible lifts to comply with disability standards.

![Figure 3.13](image1) Station layout with three platforms comprised of one island and one side platform

![Figure 3.14](image2) Four platform station layout provided by an island and two side platforms (left), and by two island platforms (right)
3.3.2.7 Rail and bus multi-modal platform

Any of the previous layouts can be manipulated and incorporated to create a facility capable of providing key multi-modal transfers for passengers travelling from one service to another. The linkage between bus and rail platforms through correct design considerations (described in the following section) is a crucial element of journey transfers. Failure to effectively design stations for interchanging purposes will result in poor station functionality and inefficient network operation.

The design of multi-modal stations for interchanging purposes is not simply a matter of combining an existing bus and rail station layout. It is imperative that the positioning of bus and rail platforms be located in a manner which promotes seamless transfer opportunities between different services. Platforms should be adjacent to, and preferably parallel to, one another in order to minimise connection distances, maintain easy navigation and enhance passive surveillance. Successful integration with regard to connectivity will give the impression of one integrated station rather than two which have been retro-fitted while the figure below shows a layout with both bus and rail stations at the same grade, multi-level station layouts can be explored (such as integrating bus station platforms above rail station platforms).

Ticketing and information facilities are to be easily accessed from station entry points and areas used to transfer between services. Platforms supporting peak inbound services should etc.). Pedestrian access around the station should be through correct layout of crossings and/or grade-separated solutions (stairs, overpasses, lifts etc.) where required.

The layout is suited to:
- multi-modal stations offering complimentary bus and rail transfers
- bus feeder or HFP services
- sites with larger land area availability and/or significant surrounding attractors
- good access to rail corridor and surrounding road network (or dedicated bus corridors).

Figure 3.15 Rail and bus multi-modal platform
3.4 Station design

3.4.1 Functional station design principles

The selection of the appropriate station layout for use in a site or for a particular operational purpose is only the preliminary step towards planning a fully functional station. In order for a station to function completely, key functional station design principles must be considered. The inclusion of functional station design principles is aimed at ensuring that the passenger requirements are fully incorporated within station planning and design.

Functional station design principles will serve other purposes including meeting current station operation demands and future-proofing (ensuring stations are able to cope with future predicted passenger demands). Ensuring that the arrangements of key station components are correctly incorporated will contribute towards quality outcomes for station design. The inclusion of these design principles is to be done in conjunction with the selection of station layouts and also consideration of locality, operational and capacity factors.

Each of the following principles described in this section will be incorporated into the design of a particular station.

3.4.1.1 Coherence

The coherence principle is about implementing a legible and consistent theme (or visual appearance) at all sites in the TransLink network—so passengers find it easy to interpret and navigate. Infrastructure that is easy to interpret helps to make public transport more convenient for passengers.

Station design should be given strong character and visual appropriateness with respect to the wider public realm. The design should bring out the relative functional importance of the facility as a place of public transport. The visual appropriateness is especially important for a station, as the site will likely be frequented by people across the whole community (including those using the site for the first time). A visually appropriate station can also contribute towards creating an identity for the facility with a sense-of-place in the street environment.

Visual cues (including contextual and functional cues) in the design of a station can be used to indicate that the facility is for high quality public transport. Contextual cues can be associated with particular places (e.g. the prominence of built form) which people identify with, while functional cues are associated with particular uses (e.g. signage, wayfinding, seating, etc.).

Consistent signage, information devices and other components across the network will increase passenger confidence, because customers will know what to expect when using the TransLink network. The use of common materials and appropriate modular infrastructure will assist with initial and ongoing maintenance cost savings. Standard components used across the network can be purchased at a cheaper rate when procuring in volume rather than individual items.

Standardised specifications can be easily adopted for future layouts providing initial savings in timing schedules and resource costs. This also further contributes towards achieving a coherent system.
3.4.1.2 Functional arrangement of space

Stations consist of public and private spaces. Public spaces form the pathway from the point of entry to the point of departure. Private spaces include areas such as (but are not limited to) retail, maintenance and management facilities, communications and electrical cupboards. For convenience, safety and security, private spaces must not obscure or obstruct paths of travel, sightlines to points of entry, information and decision points, and waiting and seating areas. Access for services not intended to interact with the public should be secure from public space unless the site is constrained.

3.4.1.3 Sequence of movement

The logical sequence of passenger activity should respond to the progressive sequence of actions along the path of travel. Key spaces include the entrance, information and decision points, ticket purchase or fare validation points, horizontal (walkways, travelators, overpasses) or vertical (lifts, stairs) pathways, and waiting and platform areas. This movement should be in a forward direction from the entrance to the point of departure. The layout of a station should consider the passenger sequence of identifying the facility, entering the facility, gathering information and making a decision, purchasing a ticket or validating a fare (either manned or un-manned), before proceeding to the paid waiting area of the station (including seating) and platform boarding point. The following figure illustrates this sequence of movement.

![Sequence of movement](image)

**Figure 3.13** Sequence of movement

3.4.1.4 Direct circulation

Connection between station entry and boarding points should be as direct and short as possible. Turns in the path of travel should be minimised while turns greater than 180 degrees are to be avoided. Turns of more than 180 degrees are commonly associated with directing passengers back along their previous path of travel. Changes of level should be facilitated through continuous straight flights of stairs or ramps and if appropriate, lifts. If turning is required, landings are to be provided with ample room for appropriate separation and manoeuvring. Stairs circulating at 90 degree turns must adopt suitable measures to provide good sightlines for ascending and descending.

![Direct circulation](image)

**Figure 3.14** Direct circulation
3.4.1.5 Cross-path circulation

Passengers must have simple and clearly defined paths of travel which avoid conflict. Conflicting paths may reduce capacity for the efficient flow of passengers, compromise convenience by increasing travel times of passengers and cause passenger congestion. Paths of travel should be clearly established to meet the requirements of passengers on the dominant side of the pathway, away from the opposite flow path. Avoid circulation systems that have people crossing the paths of others to access information, ticketing, amenities, platforms, seating, rubbish disposal and other requirements.

![Cross-path circulation diagrams](image_url)

**Figure 3.15** Cross-path circulation

3.4.1.6 Left-hand circulation

In the TransLink network, the dominant movement pattern of pedestrians is based on the majority of travel undertaken on the left-hand side. Circulation within the station (including around components and amenities) should follow this convention for predictability and efficiency.

3.4.1.7 Vertical circulation

Vertical circulation components such as stairs, ramps, lifts and escalators are required to assist passenger manoeuvrability within and around a station. Components should be assembled together centrally, rather than separated, for clearly defined single points of entry and exit so that passengers are conveniently exposed to all available options. Centralised location of components assists with convenient placement of passenger information. All access components must comply with the relevant disability standards.

3.4.1.8 Changing direction

Changes in direction within circulation should only occur where there is sufficient space to allow passengers to maintain a sense of direction. This can be enhanced by the use of transparent materials to enable views through and beyond. Appropriate spaces should be provided at information and decision points for people to avoid conflict with the flow path of travel to ensure comfortable and efficient movement.

3.4.1.9 Emergency evacuation circulation

The facility design must include specific requirements for emergency evacuation including appropriate circulation paths, exits and assembly points for the maximum volume of people using the facility at any one time. Effective signage and wayfinding is a key consideration for passenger circulation in an emergency situation. This must be reviewed in the detailed design stage and receive approval by an emergency evacuation specialist.

Stations which are structurally at-grade, elevated or below grade present different emergency and safety requirements which warrant project specific design investigation. The Building Code of Australia provides technical emergency and safety requirements and also cross references a range of Australian Standards.
3.4.1.10 Density of occupation

The most significant factor affecting pedestrian areas is density—which refers to the length, width and height of space within a station. The density of pedestrians to be accommodated should be within the range of personal comfort and passengers should experience modest restrictions without coming into undesirable contact with any person. The passenger 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 within station design 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 SACIDs, Fare gates and AVVMs, and information displays)
- seating
- walkways or other areas of circulation
- stairways
- overpasses
- lifts
- ramps
- escalators and travelators.

Note that the suitable LOS for different pedestrian 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 (i.e. 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 for platform areas during peak periods. In addition to the appropriate LOS allowance, platform waiting areas require the additional allowance of a minimum 0.6 metres (0.8 metres preferred for stations) safety zone from the platform edge or face of kerb free of any components or structures (excluding TGSIs).

However, this preference may be subject to change depending on station and service functional arrangements.

**Figure 3.16 Density of occupation**

In the figure above, the image with a tick depicts a LOS C while the image with a cross is a platform area with a LOS F.
3.4.1.11 Identifiable entry/facility

Station facilities need to be clearly identifiable to the public as a place for catching high-quality public transport. Facilities should be designed to promote an active street frontage with built form that responds to the pedestrian level.

In addition, clearly defined way in and way out points are essential, particularly in consolidated urban environments where there is competition with other commercial and business messages through built form, signage and advertising. These locations not only provide points of access, but also define the boundaries for connection between the surrounding built environment and a public transport service, and thus interchanging between a pedestrian trip and a public transport trip. In the case for some stations, considerations should be given to the entry plaza, information area, station concourse, fare gates or ticket office (in the case for rail stations).

Easy visual recognition is important for public transport users, and for TransLink as the authority for the public transport.

![Figure 3.17 Identifiable entry/facility](image)

3.4.1.12 Functionality and simplicity

The design of structures, platforms, seating, signage, pavements and other components must be incorporated within the overall design process to achieve highly functional station design outcomes. The design should provide an integrated and visually simple product to ensure uncluttered, minimal concealed spaces, legible and pleasant architectural pedestrian environments. Maintaining simplicity within the station design assists passengers to interpret and use a facility comfortably and safely.
3.4.1.13 Passive surveillance

The physical environment of stations must be designed to include CPTED principles to reduce crime, property damage and anti-social behaviour associated with people gathering in public spaces. Creating defensible spaces which allow for surveillance from outside and within the station will promote safe public environments and will attract greater passenger use. With surveillance occurring naturally, this may deter undesirable behaviour, as there is the perception of any criminal activity being seen by others. For details on CPTED principles, refer to the current version of the Queensland Government’s Crime Prevention Through Environmental Design guidelines.

Figure 3.18 Passive surveillance

3.4.1.14 Climatic comfort and weather protection

Facility planning should allow for physical protection from local climate and weather conditions. Sun and weather protection has a significant effect on station design (especially during peak periods) due to the nature of South East Queensland’s sub-tropical environment. Facility structures must provide sufficient physical width, length and height to achieve high-quality climatic comfort and weather protection for passengers to carry out their activity. Passengers should be provided with appropriate protection with enclosed or covered station access points, passenger information and decision points, seating and waiting areas, and boarding and alighting areas. Consideration must be given to the management of sun, wind, rain, heat, glare and humidity. An appropriate climate analysis must be included within the planning and design of a station to inform appropriate station orientation and optimal physical cover design.

Figure 3.19 Climatic comfort and weather protection
3.4.1.15 Sustainable energy use

The use of environmentally-efficient components must be considered when designing new facilities to assist in reducing the dependency of non-renewable resources and promoting a cleaner environment. Traditional forms of energy also contribute towards high operating and maintenance costs. The use of renewable resources as alternatives to conventional energy should be considered for inclusion in station design and operation. Refer to 3.4.3.31 for further information.

3.4.1.16 Operations and maintenance

The components and materials which make up a station should be durable and meet their intended operational requirements. Whole-of-life cost assessments are important considerations for operating and maintaining a station from the short to long-term life expectancy. Components should be functional, self-cleaning, vandal resistant for easy cleaning and readily repairable if damaged. The use of fire aids and fire resistant components must also be included in station infrastructure for safety purposes. Ensuring a quality station environment will increase safety perception and promote community ownership.

Poor-quality materials and finishes or low-cost technical solutions may result in high ongoing maintenance and costs for the station asset. Unless facility budgets allow for adequate levels of expenditure for parts and materials with long-term life expectancy (e.g. 50 years), stations will require ongoing repairs and replacement of components and fixtures. This will amount to higher than anticipated investment requirements for a facility.

An assessment of capital costs compared to ongoing station operational and maintenance costs must be conducted. Stations which adopt high-quality components and materials are less susceptible to malfunction or deterioration, and are less likely to require areas to be closed off from passengers or vehicles.

Furthermore, public transport facilities may need to be designed and constructed with future-proofing provisions. This can involve using easily adaptable (or modular) infrastructure components for further expansion, rather than entering a potentially costly and onerous retrofitting process.

3.4.1.17 Cultural heritage

Existing sites may contain components or structures of cultural or heritage significance. Such sites may require particular investigation and attention in the station design (or avoid in extreme cases). Rail stations are commonly listed with cultural or heritage significance and require careful consideration with respect to structural design and modification. Upgrades to existing station sites must be reviewed for heritage significance, and where applicable, relevant stakeholder approvals must be sourced prior to the design process. For rail stations, refer to the Queensland Rail Stations Design Guide for guidelines regarding sites listed with cultural or heritage significance.
3.4.2 Detailed design

This section focuses on the inclusion of components and physical parts which shape station infrastructure design. The use of appropriate components (including materials and furnishing) will help to ensure that a station functions correctly, is robust, provides passenger convenience and safety, and is a comfortable place to be.

TransLink strives for high standards and supports the use of quality products for the supporting components within station design. The correct level of design components making up a station will depend significantly on the type of station facility and station purpose in the TransLink network, as identified by TransLink and relevant stakeholders. All building and construction components of station design is to comply with the relevant requirements under the Building Code of Australia.

3.4.2.1 Station components

A multitude of components make up each station, depending on the station classification under the TransLink stop/station hierarchy policy. The station components are presented in the following table 3.1 to show which components are required when planning and constructing each type of station facility. The components list includes both private contractor and TransLink responsibility of infrastructure provision. TransLink should be consulted for the breakdown of infrastructure provision by relevant stakeholders. For definitions surrounding station facility types based on TransLink’s station hierarchy, refer to section 3.1.3 Hierarchy of station facilities.

3.4.2.2 Station components list

<table>
<thead>
<tr>
<th>Category</th>
<th>Station component</th>
<th>Local and district station facilities</th>
<th>Regional station facilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface transactions and access</td>
<td>Pavements</td>
<td>m</td>
<td>m</td>
</tr>
<tr>
<td></td>
<td>Kerbs</td>
<td>m</td>
<td>m</td>
</tr>
<tr>
<td></td>
<td>Kerb ramps</td>
<td>m</td>
<td>m</td>
</tr>
<tr>
<td></td>
<td>Ramp access</td>
<td>s</td>
<td>s</td>
</tr>
<tr>
<td></td>
<td>Stairs and escalators</td>
<td>s</td>
<td>s</td>
</tr>
<tr>
<td></td>
<td>Lifts</td>
<td>s</td>
<td>s</td>
</tr>
<tr>
<td></td>
<td>Overpasses (pedestrian bridges)</td>
<td>s</td>
<td>s</td>
</tr>
<tr>
<td></td>
<td>Tactile ground surface indicators (TGSIs)</td>
<td>m</td>
<td>m</td>
</tr>
<tr>
<td></td>
<td>Grade-separated pedestrian crossings</td>
<td>s</td>
<td>s</td>
</tr>
<tr>
<td>Key supporting components</td>
<td>Bus lay-by (bus holding zone)</td>
<td>s</td>
<td>s</td>
</tr>
<tr>
<td></td>
<td>Park ‘n’ ride</td>
<td>s</td>
<td>s</td>
</tr>
<tr>
<td></td>
<td>Kiss ‘n’ ride</td>
<td>p</td>
<td>p</td>
</tr>
<tr>
<td></td>
<td>Shelters</td>
<td>m</td>
<td>m</td>
</tr>
<tr>
<td></td>
<td>Ticketing/information office</td>
<td>s</td>
<td>p</td>
</tr>
<tr>
<td></td>
<td>AVVM (Fare machine for go card transactions)</td>
<td>p</td>
<td>p</td>
</tr>
<tr>
<td></td>
<td>Fare gates/SACID (Stand alone card interface device for rail stations)</td>
<td>s</td>
<td>s</td>
</tr>
<tr>
<td></td>
<td>Bicycle storage</td>
<td>p</td>
<td>p</td>
</tr>
<tr>
<td></td>
<td>Public toilets</td>
<td>p</td>
<td>p</td>
</tr>
<tr>
<td></td>
<td>Driver amenities</td>
<td>s</td>
<td>s</td>
</tr>
<tr>
<td>Category</td>
<td>Station component</td>
<td>Local and district station facilities</td>
<td>Regional station facilities</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>------------------------------------------------------------------------------------</td>
<td>---------------------------------------</td>
<td>----------------------------</td>
</tr>
<tr>
<td><strong>Furniture</strong></td>
<td>Public telephone</td>
<td>s</td>
<td>s</td>
</tr>
<tr>
<td></td>
<td>Seating</td>
<td>m</td>
<td>m</td>
</tr>
<tr>
<td></td>
<td>Bins</td>
<td>m</td>
<td>m</td>
</tr>
<tr>
<td></td>
<td>Drinking fountain</td>
<td>p</td>
<td>m</td>
</tr>
<tr>
<td></td>
<td>Shopping trolley bays</td>
<td>s</td>
<td>s</td>
</tr>
<tr>
<td><strong>Information and signage</strong></td>
<td>Signage (includes all relevant station identification, supporting components or infrastructure, and wayfinding)</td>
<td>m</td>
<td>m</td>
</tr>
<tr>
<td></td>
<td>Bus stop identification sign (if applicable)</td>
<td>m</td>
<td>m</td>
</tr>
<tr>
<td></td>
<td>Zone information</td>
<td>m</td>
<td>m</td>
</tr>
<tr>
<td></td>
<td>Site-specific timetables with route destinations</td>
<td>m</td>
<td>m</td>
</tr>
<tr>
<td></td>
<td>Public transport information (static timetables, locality maps, interchange information, other customer information)</td>
<td>m</td>
<td>m</td>
</tr>
<tr>
<td></td>
<td>Real-time passenger information display</td>
<td>p</td>
<td>m</td>
</tr>
<tr>
<td></td>
<td>Public transport next service information</td>
<td>s</td>
<td>s</td>
</tr>
<tr>
<td></td>
<td>Journey Planner (electronic public transport service information for passengers)</td>
<td>p</td>
<td>p</td>
</tr>
<tr>
<td></td>
<td>Park ‘n’ ride/kiss ‘n’ ride signage</td>
<td>s</td>
<td>s</td>
</tr>
<tr>
<td></td>
<td>Public address system</td>
<td>s</td>
<td>p</td>
</tr>
<tr>
<td><strong>Security</strong></td>
<td>CCTV system</td>
<td>p</td>
<td>m</td>
</tr>
<tr>
<td></td>
<td>Emergency help points (linked to CCTV system)</td>
<td>p</td>
<td>p</td>
</tr>
<tr>
<td></td>
<td>Lighting (bright white)</td>
<td>m</td>
<td>m</td>
</tr>
<tr>
<td></td>
<td>Break glass detection sensors</td>
<td>s</td>
<td>s</td>
</tr>
<tr>
<td><strong>Enhancements</strong></td>
<td>Landscaping</td>
<td>p</td>
<td>p</td>
</tr>
<tr>
<td></td>
<td>Public art</td>
<td>s</td>
<td>s</td>
</tr>
<tr>
<td></td>
<td>Commercial vending machine</td>
<td>s</td>
<td>s</td>
</tr>
<tr>
<td></td>
<td>Customer wireless internet access solutions</td>
<td>s</td>
<td>s</td>
</tr>
<tr>
<td></td>
<td>Advertising allowances (for generating revenue to maintain facility)</td>
<td>s</td>
<td>s</td>
</tr>
<tr>
<td></td>
<td>ATM</td>
<td>s</td>
<td>s</td>
</tr>
<tr>
<td><strong>Environmental Sustainable Design</strong></td>
<td>Energy-efficient applications</td>
<td>p</td>
<td>p</td>
</tr>
<tr>
<td></td>
<td>Water-saving devices</td>
<td>p</td>
<td>p</td>
</tr>
<tr>
<td></td>
<td>Renewable and recycled materials used for components</td>
<td>p</td>
<td>p</td>
</tr>
<tr>
<td></td>
<td>Air quality solutions</td>
<td>s</td>
<td>s</td>
</tr>
<tr>
<td></td>
<td>Noise quality solutions</td>
<td>s</td>
<td>s</td>
</tr>
</tbody>
</table>

Note: All components are to be compliant with applicable disability standards and Australian Standards. TransLink, with the assistance of relevant stakeholders, will determine facility hierarchy and final components required at facilities.
3.4.3 Materials and furnishings

The components list outlines the key station components to be considered for inclusion depending on the station facility hierarchy and function. As a descriptive supplement to that list, this section provides a high-level performance specification for several identified key elements.

3.4.3.1 General

TransLink aims to establish a distinctive station design which is contemporary, consistent, timeless and appropriate to promote a coherent, integrated and seamless public transport system. To provide a common visual appearance throughout the network, TransLink’s objective for public transport facilities is to ensure that structures, pavements, signage, wayfinding and other infrastructure align with the TransLink architectural theme. A collective message of themed stations is stronger than singular individual messages because stations are the most recognisable part of the TransLink network.

This approach does not necessarily result in identical station layout and formation. The opportunity exists for design elements to be tailored to meet specific operational and functional requirements in different sites, therefore creating a variation of station design outcomes while still promoting the TransLink theme.

There may be the option for some variations to this, such as special themed or signature stations. However, design principles described in the PTIM must still be followed to ensure quality outcomes for station design. It is a requirement that the components used within stations are high quality, easy to use and maintain, comply with applicable standards and guidelines and be approved by TransLink and relevant stakeholders.

It is generally preferred that a range of modular and consistent facility components are used to facilitate future maintenance and expansion of infrastructure if required.

The use of materials (such as steel) for structure supports and beams should emulate a lightweight appearance to achieve a modern, open and safe environment. All materials, construction details and methods, gradients and other elements associated with the design and construction of facility environments are required to comply with all applicable standards and regulations.

3.4.3.2 Pavements and access

Pavements and access within a station need to take on an integrated approach which considers the functional requirements of access for both pedestrians and public transport vehicles.

Pedestrian pavements must ultimately provide a consistent, attractive, durable, easily-maintained surface that is appropriately graded and sheltered. Pavements must be suitable for access, waiting and queuing, and be able to accommodate the full range of furniture elements. Pedestrian pavements should also integrate TGSIs for persons with a visual impairment as determined by applicable disability standards. Access for service and emergency vehicles should also be considered if required. Separate or shared pedestrian and bicycle paths shall be implemented where bicycle use is promoted. The broader view of external access paths and links to and from the transport station should be reviewed and considered in the planning and design phase to ensure direct and equitable access for all users. Consultation with relevant stakeholders is required.

Footing details for platform shelters and other facility infrastructure, as well as all pavements, need to meet current regulations and standards and be approved by a certified engineer. As a guide for platform furniture pavement details for bus stop waiting areas, refer to drawing number TL-HS02 in Appendix B.
At-grade pedestrian crossings can affect the operating capacity of the station. Conflicts between pedestrians and general vehicle traffic with transport vehicles should be avoided where possible to promote efficient movement and reduce the risk of accidents.

Grade-separated pedestrian crossings should be provided at all high-volume stations with the use of stairs, ramps, lifts and/or bridges. The use of extensive ramp systems is not preferred as they can be too onerous for some people, and in those cases lifts or escalators are the preferred options.

Medium and lower level-of-service stations may include at-grade pedestrian crossings. The crossings are to be well signed and integrated in the station environment, have good sightlines for pedestrians and vehicle operators. Signalised crossings may also be considered but are subject to site-specific requirements.

All pedestrian crossings should have clear and direct access to supporting infrastructure and surrounding facilities. The development of grade-separation should be carefully planned and incorporated in the early stages of the development planning. Where possible, the grade-separated structure should be integrated into the primary facility structure in order to minimise passenger travel.

Vehicular pavement design must accommodate the loads and turning movements associated with all vehicle types expected to access the station. This may include the use of appropriate concrete rather than asphalt to minimise ongoing maintenance.

Overall pavement finish options must be endorsed by TransLink and relevant stakeholders.

3.4.3.3 Kerbs

Kerbs will typically provide the transition between the waiting environment and the vehicle pavements associated with the bus bays, lay-by areas and road access.

Kerbs should be extruded concrete in square-edged profile with a typical height of 150 millimetres from the road surface and should be provided consistently throughout each facility. At certain locations, the profile may be adapted to meet the requirements of vehicles and vehicle ramps, pedestrians and service vehicle movements in and around the station.

3.4.3.4 Ramps

Ramps should provide a smooth disability-compliant transition between road and platform surface levels—and in any other instance where a transition between different levels is required. All ramps are to comply with applicable building and disability standards.

Ramps should be constructed with materials that are consistent to the platform waiting areas and surrounding station pavements.

Ramps are preferred to stairs where practical.

3.4.3.5 Stairs and escalators

Stairs are required in instances where grade-separated treatments are necessary for access or movement within a station (such as over transit lanes or rail lines).

Stairs should provide simple and safe transition between levels and comply with all applicable design standards including the proportion of treads to risers, landings, slip resistance, TGSIs, colour contrasts and hand rails/balustrades. The desirable levels of service based on adequate space for this primary component for vertical transportation should be calculated based on pedestrian flow during peak periods and emergency and evacuation procedures. Stair widths should be sufficient to handle the flow of pedestrians in both an ascending and descending direction. TransLink prefers that a LOS C should be achieved for stairs. Stairs are to be constructed from materials which complement the overall station architectural design.
Escalators offer an alternative to stairs for stations operating with consistently high volumes of passengers during peak periods or stations which feature high levels of grade separation. Escalators should be co-located with stairs to offer passengers both options. If the option of including bi-directional escalators is not available (due to site constraints or station capacity volumes not being sufficient), escalator travel should be given preference towards ascending passengers or the dominant peak flow. Escalator width should be sufficient for passengers to queue in a single file by simply standing, while still allowing pedestrians who wish to walk (in the travel direction) to pass with minimal obstruction.

Escalators and stairs should not conflict with the direction of established horizontal pedestrian flow for those entering or leaving the flow of vertical travel. Escalators must comply with applicable structural building and disability standards, and should be consistent with the overall station architectural design.

3.4.3.6 Lifts and overpasses (pedestrian bridges)

Some station arrangements will require that each platform be connected with a lift and overpass structure (also possibly includes travelators). These measures are to provide a convenient and equitable means of accessing station platforms typically due to grade separation, and are to comply with applicable disability standards and Australian Standards. Since overpasses function primarily as pedestrian walkways, TransLink prefers a LOS C be achieved during peak periods. A LOS D during peak periods is more acceptable for lifts as pedestrians are more likely to accept being stationary in crowded situations for a limited period.

Lifts and overpasses should appear to be of a light structure, transparent to ensure passive surveillance, durable, self-cleaning (such as stainless steel finish) safe and efficient in operation, and be consistent with the overall architectural look and feel of the station.

3.4.3.7 Signage

Signage forms a major component of station design to assist a pedestrian’s ability to navigate their way around a station. Signage must comply with TransLink’s signage guidelines to create a simple, coherent and integrated system. Logical timetable displays, wayfinding signage and overall facility signage is important to achieving a consistent and recognisable public transport system. The use of previously applied universal icons and indicators are always preferable to unique or new icons or indicators. For more information on signage considerations which can be applied to stations, refer to table 4.2.

Refer to chapter 5 Branding, Theming and Signage for the required facility signage suite. TransLink should be consulted on the general inclusions and arrangement of signage (including wayfinding signage, timetables, information displays, statutory safety and emergency signs, advertising and promotions) at station facilities.
3.4.3.8 Wayfinding including Tactile Ground Surface Indicators

Wayfinding includes non-text or map-based indicators and themes to help suggest that a person is travelling in the right direction. Wayfinding aids can range from hand-rails, tapping rails, building or shore lines, path widths, lighting, paving patterns, arrows, vistas, colours, shapes and Tactile Ground Surface Indicators. Wayfinding can assist in aiding equitable access for all passengers, especially people with a vision impairment, and must comply with applicable disability standards and Australian Standards.

When designing stations, specific attention must be given to providing the most direct (straight) and convenient access from entry to boarding points and/or adjacent facilities. The use of facility buildings or shore lines to facilitate clear and direct access is an effective means to assist wayfinding, and minimise the need for other additional aids.

Two types of TGSIs are used at public transport facilities for persons with vision impairments—warning TGSIs and directional TGSIs. Warning TGSIs identify hazards such as stairs, change of direction, or gradients. Directional TGSIs may be used as a walking guide to show the most appropriate and desirable route of travel and in some stations may be installed from entry points to boarding points. (However, other alternatives are preferred where possible such as use of shore lines, contrasting pavements, consistent and logical sequence of spaces etc.). In some cases, warning TGSIs are provided along the front of each platform edge. This will be determined by station functionality and operation (such as high-speed environments, platform height drop-off (at rail stations) and site locations. TGSIs must achieve or better the minimum contrast required from surrounding pavement surface colour. Refer to the current Queensland Rail Stations Design Guide and the Queensland Transport and Main Roads Busway Station Planning and Design Manual for rail station and busway station layouts of TGSIs respectively.

Note that each station warrants a site-specific treatment depending on individual site requirements or constraints. However, the fundamental layout and design principles must be adopted at all stations. It is imperative that designs and layouts be reviewed by specialist access personnel, as well as appropriate user groups, to achieve the most suitable outcome for each location.

3.4.3.9 Hand rails, balustrades and fencing

Hand rails are generally used in conjunction with ramps, stairs and walkways, and can be used as a form of support and wayfinding aid that is compliant with relevant standards. Balustrades and fencing provide vital separation between people and hazards where access is not permitted.

Balustrades and hand rails should provide a visually attractive, semi-transparent, and functional system and should be constructed from materials that are robust and easily maintained, including glazing, woven or perforated metal, galvanised or stainless steel.

Fencing is typically used to provide a discreet barrier between hazards, such as between two opposite platforms, to promote safe alternative access routes via dedicated crossings or overpasses. Fencing should not be installed between the boarding and alighting space used by a public transport vehicle and a connecting platform, as this can pose a potential hazard by restricting passengers’ ability to move safely between vehicles and platforms.

In General, fencing should be used at a minimum, and only installed where necessary while still able to promote an open station layout. They are to provide a visually-attractive, semi-transparent, and functional system, and be constructed from materials that are robust, contemporary and easily maintained. TransLink’s preference is for black coloured fencing for a discreet and sophisticated, yet functional station facility.

All hand rails, balustrades and fencing are to comply with applicable disability standards and Australian Standards.
3.4.3.10 Driver lay-by amenities/store room

The provision of bus driver lay-by facilities (including adequate lay-by or vehicle holding areas, meal rooms and toilets) may be required depending on the function of the station and services operating through the station.

If required, these amenities should be integrated within the station design so that they are accessible and provide an appropriate level of service for drivers. Lay-by amenities may include air-conditioning, preferably separate male and female toilets, seating and tables consistent with driver demand, a kitchenette, and any other components which may be necessary (refer to TransLink for typical inclusions).

Driver lay-by amenities should be designed and constructed to appear as a seamless element within the overall composition of the station. The toilet building may include a store room for cleaning products and other miscellaneous items used at stations.

Driver amenities should be located adjacent to the bus holding areas for convenient access and should be separated from public passenger areas. Bus holding areas require adequate space to meet potential maximum demand.

Bus manoeuvring from stop to holding area and vice versa should be direct and efficient. Refer to section 3.2.2 Station operation for more information.

3.4.3.11 Public telephones

Since stations provide access to a public service, the inclusion of public telephones is a necessary consideration.

Public telephones are desired at stations with a significant level of gathering and waiting unless provision is constrained by operating and maintenance costs outweighing anticipated use.

If public telephones are included as part of station design, they may be located at entrances, exits and/or at key decision making points. Consideration must be given to installation requirements (e.g. power and data conduits containing necessary cabling, manholes etc.) and asset management schedules. Consult TransLink when determining the inclusion of public telephones at stations.

3.4.3.12 Shelters

Shelters and associated infrastructure are significant visual and functional features of the public transport waiting environment, and play a key role in the overall identity of the TransLink network.

It is intended that shelters and all facility structures project a consistent design language that:

- appears modern, light and spacious
- is of a high quality and standard
- is reflective of the South East Queensland sub-tropical climate
- is reflective of TransLink’s infrastructure theming and architectural design.

Structures at platforms must be cantilevered to provide an unobstructed kerb-line (free from posts or other structural supports) and can be single or double sided cantilever depending on platform layout. All structures must provide complete weather protection (i.e. sun, rain, airflow and natural light) during all parts of the day and where possible, be constructed with high-quality, robust and common materials to assist in long-term maintenance and potential expansion, and be coherent with other stations across the TransLink network. Passenger information displays, signage and wayfinding can be attached to the cantilevered structure permitted they do not obscure sightlines.
Shelter structures should be made from high-quality finishes with modern, durable, and easily maintained materials that are reflective of the station environment and climatic conditions. Some examples of these materials include stainless and/or epoxy painted hot dipped galvanised steel, glazing, perforated or woven metal and aluminium.

Refer to Appendix B for examples of station shelter designs.

3.4.3.13 Ticketing and public transport information

Ticketing windows and/or fare machines and information kiosks will be required at all nominated facilities.

Ticketing amenities (such as AVMs) issue TransLink’s integrated tickets for use on buses, trains and ferries. Station facilities should provide options for customers to purchase tickets and to validate electronic go cards.

Ticketing amenities are typically located near entrance points or close to nominated boarding points within the station. Some nominated facilities may accommodate ticket and information windows with the presence of transport staff to assist. Additionally, SACIDs will be required at rail stations to allow for the start or end-of-trip calculation using the electronic go card system. In the case of bus stations, card interface devices located on buses provide fare validation options and some bus stations may have manned or unmanned pre-boarding ticketing facilities.

In situations where paid and un-paid zones are desirable, fare gates are the preferred fare validation procedure for rail stations. The number and arrangement of fare gates for a station will depend on station size, layout, patronage during peak periods, customer comfort and safety.

Public transport information can consist of kiosks, static or real-time displays. These components are used by passengers to access public transport information including timetables, maps, services, special events etc. This form of information is generally located at waiting areas (and can be attached to structures such as shelters) or decision points within the facility.

Electronic information displays should face passengers and be positioned at a comfortable viewing angle and height. Displays can be located at decision/information points and on station platforms depending on passenger requirements at the station. Designers will need to determine the most suitable numbers and locations for electronic displays, for example at entry points, decision points and waiting areas such as platforms.

Both ticketing and information amenities should be integrated within the design of the station structure and environment, and in locations that do not impede free flowing access paths and walkways. The provision of ticketing and information amenities must be considered early in the design phase to incorporate appropriate security, surveillance, power and data requirements. Ultimately, their location should be the subject of station specific design as each station is likely to have a range of differing sightlines, decision points and movement patterns.
3.4.3.14 Bicycle storage

In line with the objective of facilitating more sustainable transport choices, it is intended that bicycle storage and amenities be included in the design and layout of all stations.

Bicycle storage should be close to station facility platforms for a safe and easy transfer. Bicycle storage must be located in a visually prominent position within or immediately adjacent to the station environment to ensure compliance with the TransLink access hierarchy (see figure 4.1).

Materials used for bicycle storage structures should be secure, durable, self-cleaning and resistant to vandalism or abuse. The design of bicycle storage should promote passive surveillance, be well lit and integrate with the station facility by featuring consistent architectural design features. Lighting should be provided for enclosed bicycle storage. Depending on location and design within the facility, some bicycle storage structures may also accommodate adjoining facilities such as the provision of a communications room, shower amenities or store room.

The amount of bicycle storage provided will be determined by the level-of-service and availability of adjoining cycle access paths. This should be investigated with the appropriate stakeholders in the during the design stage.

For bicycle storage, consideration should be given to providing appropriate cable conduits in preparation for electronic access cards, lighting and other construction requirements. For further details on bicycle storage, refer to section 4.3 Cycle access infrastructure.

3.4.3.15 Public Toilets

All public transport toilet amenities are required to meet applicable disability standards and Australian Standards. Toilets should be located in visible and practical, yet discreet locations, within the facility environment. They should be consistent with the design of the station structure and incorporate the relevant security and lighting requirements.

Inclusion of toilet amenities must consider construction and installation requirements within station design such as plumbing and sewerage. Generally, a store room is included in the toilet facility building for cleaning products and other miscellaneous items used at stations.

The inclusion of public toilets will depend on the station location, level-of-service, staffing arrangements, asset management and passenger comfort and safety. TransLink and relevant stakeholders will determine the final inclusion of public toilet amenities at stations.

3.4.3.16 Seating and lean rails

Seating is an important aspect of the station waiting environment and must be provided in quantities reflective of the expected waiting times and levels of anticipated patronage for the station. Where applicable, seating should be provided at all allocated waiting areas whilst not impeding free flowing access paths and walkways. It may be determined that less seating (and clutter) is provided at high-frequency service locations due to minimal passenger waiting times whereas some stations featuring longer waiting periods may require higher seating numbers.

Seating and lean rails should be provided on platforms where passengers can easily see approaching public transport vehicles, typically where there is complete weather protection and where the environment is safe and well lit. They are typically positioned facing the conveyance and either against the rear of the single-sided platform and shelter or in the centre of a double-sided platform and shelter.

Station vehicle stopping patterns, the location of individual boarding points, size of available platform space, transport information displays, congregation areas, passenger volumes etc. also determine seating requirements.
Seats should include back rests and arm rests and be constructed from durable, self cleaning, easily-maintained materials that allow drainage from liquids. Seating should project a modern and pleasant design to complement overall station architectural design. It is preferred that seating be cantilevered to a wall or shelter structure to allow easy platform maintenance, however they can remain free standing when this cannot be achieved. All seating must offer appropriate contrast in colour with the immediate background and comply with applicable disability standards and Australian Standards.

Lean rails provide passengers with a convenient waiting option by allowing passengers to perch or lean, rather than be seated when waiting for brief periods or where waiting space is limited. Lean rails should be of a contrasting colour to the background (as per seating) and generally consist of a horizontal beam supported at either end by vertical posts, or the beam can be attached directly to a wall or station structure. Horizontal beams should be positioned at a height appropriate for the average person. Lean rails must comply with applicable disability standards and Australian Standards.

3.4.3.17 Bins
Rubbish bins should be provided at all stations. The number of bins should be determined by anticipated passenger patronage, facility size and layout of a station. Bins are generally located close to waiting or congregation areas, seating, information displays, boarding points, bicycle storage areas, and station entries and exits. The use of bins at high passenger volume stations such as regional facilities may warrant careful consideration due to potential security risks.

Bins should be designed to allow for possible detection of suspicious objects. Bins at stations should be constructed from materials with open gauge to provide a transparent appearance. They should be easy to maintain and include a transparent clear plastic liner.

Bins should have a pleasant and stylish design consistent with station architecture and theming. Bin design should aim to be vandal-proof, water-proof and bird-proof. The provision of recycling bins may also be an option and should be considered during the facility detailed design phase. All bins must comply with applicable disability standards and Australian Standards.

3.4.3.18 Drinking fountains
Drinking fountains offer a convenient passenger amenity and may be provided at stations. The number of drinking fountains should be determined by anticipated passenger patronage, facility size, location and design. They are generally located close to waiting or congregation areas, seating, information displays, bicycle storage areas, and station entries and exits.

Drinking fountains should be constructed from metal that is easy to maintain, and should include a stainless steel bowl or catchment. Furthermore, they must be designed to be accessible for people with disabilities.

3.4.3.19 Shopping trolley bays/storage
Where public transport facilities co-exist with shopping centres or retail outlets, there may be the requirement to include appropriate, discreet, and easy to maintain shopping trolley bays or storage within or close to the facility. The provision of these should be investigated and reviewed during the facility design phase and agreement from the retail outlet to collect shopping trolleys on a regular basis is also required.
3.4.3.20 Ancillary services

This section provides guidance on the location of key ancillary services such as vending machines, ATMs and other third-party services not directly concerning public transport.

Ancillary services should be located in visually prominent locations to assist in their interpretation and ease of use. These services should not impede with a passenger’s ability to enter the facility, make their way to the platform area and board a public transport service. Ultimately, the inclusion and location of these services will depend on agreement with third-party stakeholders, station asset management and the station designers which is performed on a site-specific basis.

Consideration should be given to the consolidation of ancillary services to reduce visual clutter and to provide a more integrated service for passengers. Generally, these facilities are positioned close to other passenger services such as ticketing machines, information displays and emergency help points.

Materials used for ancillary services should be consistent with other passenger facilities to achieve a visually integrated suite of services. Ancillary services should be considered early in the detailed design phase to incorporate relevant security, monitoring, power and data requirements.

3.4.3.21 Intelligent Transport System (ITS)

The ITS functionality should be considered for all public transport facilities within the context of the broader TransLink network. These functions include CCTV cameras, real-time information, public address systems, incident management systems, and monitoring and communications systems.

ITS hardware and connection points are typically located in a communications room within the overall facility. These ITS or communications control rooms may be adjoined to other facilities within the station, such as toilets or store rooms. They should be located in discreet locations within the facility environment, not impede public spaces or free flowing pedestrian access to the station, and are generally signed as staff only.

The specific installation (including power and data conduits and security) and asset management schedule requirements for the inclusion of the ITS at each facility should be investigated on a site-specific basis prior to detailed design. Specialist ITS personnel should be commissioned when proceeding to design the ITS within the station facility.

3.4.3.22 Public address system

A public address system should be integrated into the design of all station facilities. The aim is to provide a robust, functional and visually discreet system that can provide communicative information and also be linked to the security system for warning in the event of an emergency.

The public address system is to be clearly audible and reverberate throughout the passenger waiting areas of the station with minimal distortion and at a decided level that should not adversely impact on the surrounding environment. The possibility of background noise affecting the audibility of the address system should be treated with appropriate acoustic adsorption techniques. Loudspeakers for the system should be distributed appropriately throughout the station, and may be wall (including shelter structures) or ceiling mounted depending on acoustic requirements. Speaker units should be mounted at an appropriate distance away from direct reach or sit flush with station structures in order to minimise potential vandalism and damage.
3.4.3.23 Security infrastructure

Security infrastructure refers to CCTV, security cameras and other items used for the creation of safe and well monitored waiting environments. The intent is to ensure a visually discreet, easily maintained system that provides surveillance to all public areas of the station environment. Details on the specifications and management schedules for these systems will be established in collaboration with the facility owner and/or asset manager. Appropriate construction and installation requirements must be considered when planning for the inclusion of security infrastructure. The use of signage informing people of the presence of security infrastructure within a facility can further enhance personal safety and highlight the perceived risk of detection to potential offenders.

Security help points are typically located at entrances, exits, in the centre of platforms and/or other waiting areas. Ultimately, the location of all these elements should be the subject of station specific design as each site is likely to have a range of differing sightlines and movement patterns.

Counter terrorism design considerations should be explored where possible on a site by site basis for each station depending on the station location, level-of-service and potential security risk for a station. Where applicable, station design should strive towards universal standards for security and counter-terrorism measures.

3.4.3.24 Lighting

Lighting plays two key roles at station facilities. Firstly, lighting should provide an ambient amount of light to facilitate a safe, comfortable, and functional station environment. Secondly, feature lighting can be used to highlight aspects of the architecture to create an iconic and attractive station.

The intent for station design is to use a range of high quality lighting fixtures, features and effects to ensure a safe and visually attractive station environment. An appropriate amount of bright white artificial light (i.e. illuminance) must be adopted to give the environment a safe and open feel for passengers who access and wait at facility at night. This can be achieved through approved fluorescent or LED lighting to maximise energy-efficiency and lamp life.

Light fixtures, fittings and features should be robust, tamper-proof, discreet, and consistently themed and should complement the station architecture. Fixtures should generally be from proprietary ranges to assist in maintenance and replacement when required.

During appropriate daylight, the use of translucent materials and structures which emulate an open and spacious design helps to achieve a more naturally lit station environment. For further details regarding lighting requirements at stations, refer to Appendix B.

3.4.3.25 Graffiti deterrents and treatments

Station facilities are vulnerable from unwanted offenses such as vandalism, abuse and careless use of infrastructure components. In line with specifying durable, self-cleaning and easily maintainable materials and finishes, all infrastructure components—furniture, lighting equipment, timetable and information devices, walls, floors, ceilings, balustrades, glass panels, screens, elevators, escalators and other components—coming into contact with passengers must be resistant to acts of vandalism and graffiti. This may involve components being applied with anti-graffiti coatings or constructed from non-porous graffiti-resistant.

Other options include requiring the design and arrangement of platforms and structures to maximise natural surveillance in order to minimise the incidence of graffiti and anti-social behaviour. In some instances, appropriate planting may be used adjacent to structures or walls to prevent access by vandals. Furthermore, the use of artwork that complements the station architecture and theming may be applied.
3.4.3.26 Animal and pest problems

Within the facility design there must be no, or minimal, horizontal ledges, overhangs, or concealed spaces where birds and animals are tempted to perch, nest and pollute in station facility. If cavities and horizontal surfaces are unavoidable, then appropriate measures are to be used to prevent animals and pests congregating and/or nesting. This can include designing ledges of structures to be angled (approx 45° or greater) to make it uncomfortable for birds to perch.

3.4.3.27 Landscaping

Landscaping is to be incorporated (where appropriate) in and around the initial facility design where a range of options and layouts may be reviewed. Appropriate landscaping can complement the station architecture, enhance the identification of a particular location and integrate the facility with the surrounding environment.

It is preferred that plantings used for landscaping are:
- drought resistant
- consistent with the surrounding natural environment (e.g. local flora)
- unlikely to intrude upon the integrity of the station environment
- unlikely to interfere with above and below ground services and utilities
- not toxic, highly allergenic or obnoxious weeds
- not known to produce thorns, barbs, stings or noxious secretions
- not inhibiting sightlines, passive surveillance or allow for potential offenders to hide.

3.4.3.28 Commercial opportunities

Commercial infrastructure opportunities for each facility must be investigated with facility owners, asset managers and relevant stakeholders. These commercial assets provide customers with goods and services to improve their experience while using the TransLink network.

With regard to station planning considerations it may be appropriate to integrate one or more of the following:
- commercial vending machines
- commercial advertising
- ATMs
- retail outlets, such as cafes or coffee carts, newsagents and convenience stores.

Each of these are typically developed and operated by external parties under an agreed arrangement.

Endorsement of commercial infrastructure prior to facility design is required due to the allowances for operational requirements such as available physical space, power and conduit for installation.
3.4.3.29 Other enhancements

Public art standards should be investigated and incorporated where applicable within the station design to complement the station facility and the surrounding environment in which it is located. As with landscaping, artwork can enhance a station identity and cultural significance of a place, but in most cases warrants prior approvals from relevant stakeholders. Public art should not conflict with station architecture, colour scheme and branding.

Recycle bins may be incorporated adjacent to general waste bins to promote recycling with appropriate recycling collection arrangements in place.

Wireless internet access options and connections may be investigated and incorporated within the facility to accommodate current technology and improve passenger convenience by allowing passengers to make use of waiting times. As a minimum, preliminary requirements for inclusion should be allowed for in the design for future application.

All enhancements should be endorsed by the facility owner and/or asset manager along with relevant stakeholders prior to the detailed design stage of the facility. Appropriate space and function must be identified to accommodate all additional enhancements.

3.4.3.30 Advertising allowances

Advertising allowances for each facility must be investigated with facility owners, asset managers, and relevant stakeholders. Advertising presents significant opportunities for generating revenue. Advertising should not impede free-flowing access paths, walkways, pedestrian sightlines, passive surveillance, station signage and wayfinding, platforms and other waiting areas.

Endorsement of advertising prior to facility design is required due to the allowances for operational requirements such as available physical space, power and conduiting for installation.

3.4.3.31 Environmental Sustainable Design

Sustainable Design should be considered in developing public transport infrastructure.

Design and delivery of TransLink infrastructure should be consistent with the below objectives and any other TransLink policies or guidelines on sustainability:

- Committed to station and park ‘n’ ride design that is fit for purpose now and into the future, and adaptable to change.
- Stations and park ‘n’ rides will create a positive experience by contributing to attractive community spaces and a local sense of place.
- Committed to a low environmental footprint and whole of life approach through all design, construction and maintenance activities.
- Will increase visibility of sustainable features and undertake a participatory approach to design to improve community awareness and support.
- Will protect and strive to improve the natural environment for areas affected by its infrastructure.
### Table 3.2 Key Environmental Sustainable Design considerations for TransLink infrastructure

<table>
<thead>
<tr>
<th>Environmental Sustainable Design</th>
<th>Preferred outcome</th>
</tr>
</thead>
</table>
| **Water management**             | On-site rainwater collection and reuse  
|                                  | On-site run-off treatment (i.e. scrubbing using permeable surfaces, detention basins and swales)  
|                                  | Local flooding mitigation and flow maintenance |
| **Resource minimisation**        | Water— employ water-saving devices (i.e. capture, recycle, reuse, treatment)  
|                                  | Energy— aim for energy neutral infrastructure through minimisation of energy requirements by adopting energy renewable and generation opportunities (for feeding back into electrical supply), e.g. solar power  
|                                  | Materials— apply whole-of-life design approach—construction, operation, maintenance, cleaning, and decommissioning. Materials should favour renewables and recyclables  
|                                  | Processes— avoid operational processes that generate waste, especially toxins and pollutants |
| **Habitat and physical environment** | Protect habitat (i.e. space, physical elements such as tree hollows and burrows, movement paths)  
|                                  | Maintain water flows to aquatic and other habitats  
|                                  | Avoid acid sulphate soils  
|                                  | Minimise fugitive emissions of air, surface and ground water-borne pollutants |
| **Social sustainability**        | Present minimal harm to employees or public  
|                                  | Promote social justice, inclusion and equity  
|                                  | Contribute to improving social capacity and community interaction  
|                                  | Enhance community experience and to integrate the facility within the surrounding environment to enhance the economic viability and social benefits. |
04

CHAPTER

Supporting Access Infrastructure
4.1 Principles of supporting access infrastructure design

4.1.1 Introduction

This chapter outlines good practice principles for providing supporting access infrastructure at public transport stops and stations within the TransLink network. These guidelines describe the design principles and provide preferred outcomes for delivering high-quality and safe supporting access infrastructure.

4.1.1.1 Why is supporting access infrastructure important?

Identifying, planning, and designing to meet access needs at public transport facilities is an essential part of providing high-quality and efficient infrastructure for TransLink customers. Given the fact that all public transport passengers must use some form of access mode, the provision of effective supporting access infrastructure is imperative to ensuring a quality journey for passengers. Supporting access infrastructure provides the key connection between the stop, station and the immediate surrounding environment, and therefore should be designed to minimise impacts on local communities while maximising direct and indirect community benefits.

In the end, high-quality supporting access infrastructure, that is attractive to public transport users, is essential to the usability of any stop or station and the success of the TransLink network as a whole. This will also ensure that infrastructure with a consistent visual appearance aids legibility and user-friendliness while promoting the TransLink message.

4.1.1.2 What does this chapter cover?

This chapter identifies the applicable standards and references relevant to supporting access infrastructure and provides guidance on policies, performance requirements and desired planning outcomes specific to the TransLink network.

This chapter is divided into six sections which refer to the following components:

1. General considerations applying across any supporting infrastructure
2. Walking—pedestrian access inside and outside of the immediate stop or station vicinity
3. Cycling—on and off-road bicycle infrastructure within the immediate stop or station vicinity
4. Bus feeder services and associated stops
5. Kiss ‘n’ ride—passenger set-down and pick-up infrastructure for kiss ‘n’ ride and taxi access

Each section is further broken down as appropriate to provide detailed design guidance.
4.1.2 TransLink policy and access hierarchy

This chapter is directly related to TransLink’s access hierarchy which provides the framework for how various TransLink network access modes should be prioritised when planning or designing services or infrastructure. The access hierarchy is shown in figure 4.1.

As illustrated in the access hierarchy, walk-up access and cycling are the most desirable modes for accessing the TransLink network. These access modes are followed in preference by bus feeder and kiss ‘n’ ride, with park ‘n’ ride generally being the least desirable mode. Locations suitable for significant park ‘n’ ride access have been specifically identified by TransLink strategy and policy.

![Access Hierarchy Diagram]

* Taxis included in the kiss ‘n’ ride category
^ Motorcycles included in the park ‘n’ ride category

**Figure 4.1** TransLink access hierarchy

4.1.3 Integration of supporting access infrastructure

Infrastructure within the TransLink network should be planned and designed to ensure full integration with services and other components of the overall TransLink network, to ensure a seamless and connected journey for public transport users. The overall planning principles for integration and connectivity of services and infrastructure are outlined in the TransLink Network Plan.

Specifically it is important to ensure that all facilities are well integrated into:

- local transport networks
- immediate and surrounding land uses
- asset management arrangements.

Additionally, all infrastructure should be planned and designed within planning and delivery processes across relevant government agencies and private stakeholders.
4.1.3.1 Network integration

The role of supporting access infrastructure is to support and enhance the ability of a stop or station to perform its role within the TransLink network and to allow convenient and efficient access to stops and stations. Understanding the nature and role of the stop or station within the TransLink network is therefore vital in planning and designing supporting access infrastructure.

TransLink has identified a preferred stop/station hierarchy, which outlines the different levels and types of stops and stations within the TransLink network. This hierarchy—in conjunction with the PTIM, TransLink planning policies and site-specific assessment—assists in determining the type of facility that will best suit the TransLink network function and the surrounding context, including land use, of the site.

More information on TransLink stop and station hierarchy is provided in chapter 3 Station Planning and Design.

In order to achieve an effective relationship between a stop or station and its supporting access infrastructure, several key principles must be applied, including:

- supporting access infrastructure should primarily focus on the needs of public transport passengers
- pedestrian access is paramount and should be direct, logical and safe
- supporting access infrastructure must support and enhance stop or station operations
- supporting access infrastructure should be seamlessly integrated with existing and future local movement infrastructure.

Enhancement and projection of the TransLink network function and amenity of a stop or station through successful integration is important to the development of supporting access infrastructure. Supporting access infrastructure must underpin the planning, configuration and design intent(s) of the stop or station, including:

- internal distribution—platform access, pedestrian crossings and pedestrian paths, lift and stair entries, and desired boarding and alighting points
- protecting the integrity of entry/exit points
  - managing congestion and inter-modal conflict at key access points
  - integrating appropriately designed decision points at transition zones between facilities and components along with promoting legibility and ease of navigation
  - promoting simplicity and economy of movement to, from and through the stop or station and access infrastructure
  - minimising barriers to appropriate movement along desired travel paths
- protecting the amenity of the stop or station
  - minimising and mitigating the creation of residual spaces between facilities and components using alignment and urban and landscape design treatments
  - maintaining visual connection between decision points, dwell-points and activity points
  - managing non-public transport related pedestrian activity by promoting appropriate through pedestrian traffic where capacity, behavioural conflicts and the integrity of pre-paid ticketing zones can be managed
  - maintaining environmental quality by protecting from inter-facility impacts on microclimate (shading, wind and solar access, air quality).

Each access mode will require the application of specific integration techniques along with these broader principles. An important input into integration is the stop or station design intent(s) which should be requested from the stop or station designer.
4.1.3.2 Cross-agency planning and provision

The inherently cross-discipline focus of supporting access infrastructure makes it essential to carefully coordinate integration between supporting access infrastructure and local infrastructure.

In many cases there will be a need or opportunity for shared multi-agency planning, provision and/or management to deal with gaps or overlaps in responsibility. Cooperative planning, provision or management should focus on acknowledging the individual needs and objectives of the key stakeholders involved in order to create logical, coherent outcomes for communities and public transport passengers.

When planning supporting access infrastructure, consultation with the local government and property owners should be undertaken to ensure that any new facilities are integrated with and complement existing or planned community facilities and vice versa.

Where multi-agency planning is undertaken, it is essential to gain early agreement on scope of outcome and responsibilities for infrastructure provision. This should also include establishment of consistently applied design standards and wherever possible, templates or modular infrastructure.

4.1.3.3 Asset management

Consideration should always be given to the future management arrangements for spaces created by the delivery of supporting access infrastructure. Agreed responsibilities in regards to operation, cleaning, maintenance, surveillance and access control can be a significant factor when determining project scope, design and budget. These should be clearly established as early as possible.

All supporting access infrastructure should use materials and finishings along with processes consistent with those adopted for adjacent public transport facilities.

In general, the following should be resolved for all supporting access infrastructure facilities:

- consider the needs of the asset owner(s) in managing and operating the facility
- plan and design for cleaning and maintenance, including:
  - access to water and mains electricity
  - the inclusion of selected materials for:
    - durability and ease of cleaning
    - ability to be repaired
    - cost, frequency and scale of replacement
  - on-site storage for materials, cleaning agents and/or tools
  - vehicle parking and access for appropriate maintenance vehicles and possible emergency vehicles such as:
    - extra wide clearances on corners and through paths
    - appropriate pavement treatment—ratings to hold heavy maintenance vehicles and equipment
  - access to services—maintenance pits and points
  - traffic (all modes) management impacts of likely works.
4.1.3.4 Surrounding land uses

The land uses surrounding a public transport facility will influence its function and thus the type, scale and extent of supporting access infrastructure required. Existing and future planned land uses, including those within the immediate and wider catchment, will also affect the transport behaviour of potential public transport users and thus the scale and scope of supporting access infrastructure required to accommodate access to the stop or station.

Inclusions of land use specific to supporting access infrastructure considerations for a stop or station are illustrated in table 4.1.

Table 4.1 Identified land use specific to required supporting access infrastructure

<table>
<thead>
<tr>
<th>Land use context</th>
<th>Consideration</th>
</tr>
</thead>
</table>
| Major activity or shopping centre                    | • Minimise conflict between both the functions of the public transport facility and the activity centre while capturing benefits of convenient and direct access to the centre by public transport:  
   — encourage inter and intra-modal interchange facilities where services intersect while managing potential conflict between traffic movements  
   — encourage public transport feeder interchange nodes while managing conflict between interchanging and destination movements  
   — minimise conflict between pedestrian, bicycle, kiss ‘n’ ride and local traffic movements.  
• Protect centre car-parking using park and hide minimisation strategies.  
• Protect appropriate and convenient space for kiss ‘n’ ride and bicycle amenities. |
| Consolidated, highly-urbanised environment (such as inner suburban developments) | • Park ‘n’ ride will not be acceptable.  
• Kiss ‘n’ ride may be difficult to accommodate where there is likely to be competition for available space and infrastructure.  
• Access to the TransLink network by cycling will be encouraged and considered on a case by case basis and with respect to bicycle accessibility in the broader surrounding area.  
• Interesting, convenient and direct pedestrian connections will be essential to capture maximum public transport patronage from the higher density walk-up catchment. |
| Low-density, suburban developments and local activity centre environments | • Small park ‘n’ ride facilities may be appropriate, preferably away from main local activity centres or integrated with a suitable land use allowing parking capacity during business hours (such as a sporting facility).  
• Bicycle connections and parking will be highly desirable.  
• Direct, interesting and convenient pedestrian links will be important to capture maximum patronage from the moderate-density walk-up catchment.  
• Provision for kiss ‘n’ ride will likely be important for encouraging multi-purpose household trips.  
• Inter and intra-modal interchange facilities will be encouraged where service routes intersect.  
• Minor bus feeder facilities will be encouraged at selected subregional and district level activity centres. |
| Urban fringe or edge environments (such as end of public transport corridors) | • Demand for pedestrian access may be constrained by lower-density catchments, poor pedestrian access with a lack of infrastructure and low-density development.  
• Bicycle amenities will be required but safety and security through natural surveillance may be limited, requiring additional management and operation.  
• Good access from arterial and distributor roads will be important for kiss ‘n’ ride.  
• Dedicated park ‘n’ ride facilities may be acceptable if away from designated activity centres but adjacent to good road access. These should be planned to accommodate staged (re)development consistent with strategic land use planning, and should be consistent with TransLink policy.  
• Bus feeder services are required where there are high-frequency services with available carrying capacity. |
In some cases, proximity to particular land uses will have an impact on stop or station access requirements. For example, a stop or station located:

- next to a school or major sporting facility may need to cater for highly-peaked, large volumes of people on a regular or irregular basis, or
- next to a tourist destination, public transport centre or long-haul bus stop may need capacity for interchanging from coaches and/or to mini-buses and taxis. It would also need a high level of signage and locality information.

The design of supporting access infrastructure must also protect for future planning of the local area. Future development may inform the type of public transport infrastructure needed in an area, and thus require protection for high-quality supporting access infrastructure. For example, commercial and residential development around a currently low-density or greenfield stop or station may result in increased local pedestrian and bicycle activity.

Key land use considerations which apply to all supporting access infrastructure in this chapter include:

- current wider land use context
- current surrounding uses
- current statutory designation
- strategic land use planning at local and state level
- town planning development applications, approvals and proposals on adjacent properties
- proposed or planned development opportunities on the public transport property itself
- opportunities to make use of other existing or new shared facilities in the surrounding area such as parking, access paths, bicycle storage, and end-of-trip amenities.

### 4.1.4 Demand analysis

It is important when planning and designing infrastructure to identify the likely level of demand for the site. This can be undertaken using a range of analytical tools and methods. The suitable tool and depth of analysis will mainly depend on the scale and role of the public transport facility, along with the available data and time available for the analysis. Consult TransLink regarding appropriate demand identification methodologies and data validity.

It should be noted that while TransLink endeavours to use as accurate information as possible, there are a range of global external issues—such as fuel and energy prices, climate change, and local issues such as employment locations and policy changes—that may have major impacts on the demand for public transport. In an attempt to counter these uncertainties, any demand forecasts for locations should be considered within the assumptions in which they were developed. Additionally, the uncertainty and long timeframes involved in these demand forecasts means that it is prudent to allow for the protection of additional space for future expansion of facilities rather than through the provision of additional capacity up front.
4.1.5 Supporting components

4.1.5.1 Signage and wayfinding

Appropriate signage and wayfinding is essential for orientation and the communication of information to passengers. The complexity of signage will vary with the scale and function of the stop, station and supporting infrastructure. Refer to chapter 5 Branding, Theming and Signage or consult TransLink for further information regarding signage and wayfinding. The types of signage relevant to supporting access infrastructure are outlined in table 4.2.

Table 4.2 Relevant signage for supporting access infrastructure

<table>
<thead>
<tr>
<th>Signage type</th>
<th>Guideline description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maps</td>
<td>• Maps are generally provided within the station information area and on the bus stop post—however, additional maps may be needed at other locations if visibility to local landmarks is constrained, the terrain is complex or the site is exceptionally large. These should be located at landmarks that are easily identifiable and marked as information points.</td>
</tr>
<tr>
<td>Directional signage</td>
<td>• Directional signage should be subtle but readily visible for those looking for it—avoid cluttering views and over-signing. • Complex or visually constrained environments will warrant more directional signage than simple easily navigated environments. • Directional signage should be placed with other signage or on built elements such as lighting poles, fences or other structures wherever opportunity allows.</td>
</tr>
<tr>
<td>Regulatory or warning signage</td>
<td>• Regulatory or warning signage should be suitable and visually discernable so as to catch attention without dominating or detracting from the aesthetics of the stop or station. • Standard TransLink warning and regulatory signs will be available and should be applied except where unique situations exist. Unique signs should be consistent in format and style with similar TransLink warning or regulatory signs. • Regulatory signage may need to meet certain legal requirements to be enforceable. In particular, refer to the appropriate guidelines for requirements regarding placement and development of road signage and signs warning of potential fines. • Regulatory or warning signage should, wherever possible, be placed on their own away from other signs and not be placed on built elements such as lighting poles, structures and fences unless acceptable under the applicable guidelines and standards.</td>
</tr>
<tr>
<td>Information signs</td>
<td>• Information signage will rarely be placed outside of the immediate stop or station area. Where this occurs within a TransLink supporting facility it will likely be in relation to the use of that specific facility or advance timetabling information (such as real-time). These will all be developed as per the TransLink Infrastructure Signage Manual and placed according to precedent and need while adhering to the design imperatives for the operating environment as outlined below.</td>
</tr>
<tr>
<td>Wayfinding</td>
<td>• Includes non-text or map-based indicators such as path widths, paving patterns, arrows, vistas, colours and shapes that help suggest that people are travelling in the right direction.</td>
</tr>
</tbody>
</table>
Each access mode will require specific styles and types of signage and wayfinding elements as part of its signage package. The following should be considered when developing signage and wayfinding packages:

- TransLink has guidelines for the use of TransLink visual elements such as the logo, icons and colours
- TransLink has guidelines for the development of signs provided at, or referring to, TransLink facilities
- some situations require the application of regulatory signage treatments, particularly vehicular traffic control, while applicable design guidelines should be consulted
- previously applied universal icons and indicators are always preferable to unique or new icons or indicators
- wayfinding is considered more than signage and includes the application of subtle indicators such as lighting, patterns, structures and themes in the built environment.

4.1.5.2 Public art or community literacy installations

Consider the need for provision of public art and/or community literacy installations on larger projects. TransLink will identify where this applies and will provide project specific guidance regarding scope, process and application in consultation with relevant stakeholders.

4.1.6 Strategic design considerations

4.1.6.1 Operating environment

A key consideration is the environment in which the supporting access infrastructure will operate. It is not only important to consider the operating environment for supporting access infrastructure, but also integration with the operating environment of the stop or station. Providing certain amenities within supporting access infrastructure may help facilitate the role of the stop or station, and may provide support to other stops or stations in the area.

Key considerations include:

- safety
- amenity
- efficiency of movement.

These should be addressed in proportion to the facility and supporting access infrastructure being planned and will be considered within the application to specific supporting access infrastructure as outlined in table 4.3.
### Table 4.3 Key operating environment considerations

<table>
<thead>
<tr>
<th>Key consideration</th>
<th>Requirement description</th>
</tr>
</thead>
</table>
| **Safety**        | • The performance of the supporting access infrastructure and its adjacent urban development against CPTED principles:  
|                   |  — maximise passive and active surveillance activity—visual transparency and comprehensive coverage  
|                   |  — appropriate lighting — bright white lighting for waiting spaces and paths  
|                   |  — minimise hiding or concealed spaces and entrapment opportunities.  
|                   | • The aspect and design of existing and future land uses.  
|                   | • The reality that criminal activity against people and property will occur at public transport facilities and supporting access infrastructure—thus warranting the need for suitable reporting, evidence gathering, response, repair and/or replacement procedures.  
|                   | • Active and remote surveillance arrangements for the supporting access infrastructure and its adjacent precincts:  
|                   |  — clarify patrol and incident response procedures  
|                   |  — electronic surveillance coverage  
|                   |  — access to emergency-assist call points and public telephones.  
|                   | • Traffic arrangements—posted vehicle (including motorised and bicycle) speeds, geometry, sightlines and crossing arrangements.  
|                   | • Physical hazards—trip, catch, bump and fall hazards along with sharp and jagged edges.  
| **Amenity**       | • Climate shelter and weather protection for access and waiting areas:  
|                   |  — solar access and orientation—physical shelters, shade screens, lighting, winter sun windows  
|                   |  — wind orientation—shelter from dominant winter winds, access to cooler summer breezes.  
|                   | • Provision of seating and comfortable resting spaces.  
|                   | • Provision for rubbish disposal, water and information.  
|                   | • Provision of a comfortable, interesting, high-quality environment, including:  
|                   |  — high quality (visually-appealing) finishes that are durable, self-cleaning, vandal resistant and easy to maintain  
|                   |  — interesting internal and external views from paths and waiting areas  
|                   |  — quality textured landscapes and architecture  
|                   |  — public art and community literacy elements where applicable.  
| **Efficient movement** | • Design for direct and safe pedestrian movement:  
|                   |  — avoid indirect links to allow easily overcome barriers such as gardens, kerbs, islands etc.  
|                   |  — promote fully accessible entrances and pedestrian movements over non-accessible options  
|                   |  — minimise walk distance between modes by applying priority according to the TransLink access hierarchy  
|                   |  — promote integration with surrounding access to pedestrian and bicycle paths and networks.  
|                   | • Design for direct and safe movement:  
|                   |  — avoid unnecessary conflict between cars and bicycles  
|                   |  — differentiate vehicle path by destination—i.e. separate bicycles, kiss ‘n’ ride and park ‘n’ ride movements as early as possible before reaching facility entrance.  
|                   | • Identify direct links for public transport to public transport interchange—shared or back-to-back platforms are preferable. |
4.1.6.2 Accessibility

Accessibility and disability access considerations are dealt primarily within section 4.2 Pedestrian infrastructure. All infrastructure must meet the requirements of applicable disability and Australian Standards.

4.1.6.3 Sustainability

Sustainability should be considered in the development of all public infrastructure, including supporting access infrastructure.

Design and delivery of all TransLink infrastructure should be consistent with the objectives in table 3.2 and any applicable TransLink or Queensland Government policies on sustainability.

4.1.7 Planning and approval processes

The process for the implementation of supporting infrastructure is similar to that outlined in Figure 1.1, which illustrates the relationship between planning and design. Figure 1.2 broadly outlines key stages in the process for developing public transport infrastructure. TransLink and relevant stakeholders will coordinate the appropriate schedules for project activity approvals and compliance.
Walking is the preferred and most important mode of access to the TransLink network. This section explains how to provide good pedestrian infrastructure to enhance access to TransLink stops and stations. It examines this in both a broader and specific context of TransLink-provided infrastructure and externally provided infrastructure (local government, private developers or other relevant stakeholders).

Pedestrian infrastructure primarily refers to the movement (i.e. paths), waiting and associated access infrastructure that supports their use in the TransLink network. It can also include end-of-trip amenities.

Pedestrian infrastructure should be considered in terms of:

- the local and metropolitan pedestrian network around a stop or station
- interface between the stop or station and the wider pedestrian network
- pedestrian access through other stop and station supporting facilities
- asset management.

### 4.2.1 Broad considerations

With reference to the applicable standards and guidelines for stops and stations, consider the following:

- the broader network
- network integration
- design integration
- internal network
- location
- need identification
- crossings
- staging
- accessibility and adjacent land uses
- hazards.

#### 4.2.1.1 The broader network

TransLink has an interest in promoting connective, high-quality built environments that encourage walking to local destinations such as TransLink stops or stations. Externally provided pedestrian networks should respond to TransLink stops and stations according to their volume of activity generated. The volume of activity at a stop or station will primarily be related to its place within the TransLink stop/station hierarchy, level-of-service, surrounding attractors and catchment density. High passenger volume stations should become a pedestrian focal point within their local community and will require the provision of high quality pedestrian access infrastructure.

#### 4.2.1.2 Network integration

The most imperative consideration of pedestrian access to TransLink infrastructure is seamless integration, particularly with respect to the boundaries of TransLink responsibility for provision. It is a TransLink policy objective to provide pedestrian connections to the broader network within its immediate area.

All adjoining points between local pedestrian networks and TransLink infrastructure should be functionally seamless and focus should always be on integrating with existing and anticipated future infrastructure.
Connections should be accessible, convenient, direct and legible. Elements for consideration:

- inter-modal conflict—pedestrian crossings
- kerb ramps—connection, provision, quality and configuration
- path width, grade, continuity and alternative paths
- placement of other pedestrian infrastructure—rest points, railings, street furniture
- pedestrian walkway and waiting shade cover for sun and weather protection.

4.2.1.3 Design integration

Pedestrian integration will largely involve connection between local pedestrian networks and the internal pedestrian networks between a stop or station and its supporting infrastructure. These include:

- identifying the main directions of pedestrian flow into and out of the stop or station facility
  - dependent on the stop or station type and design configuration
  - larger stations will have more complex entry arrangements and will require detailed coordination with station design intents
- ensuring that access path flows align with desired stop or station flows using appropriate capacity decision points to avoid pedestrian congestion points
  - to promote efficient movement by providing paths that use the shortest, most direct connection between facilities.

4.2.1.4 Internal network

The internal pedestrian networks within any TransLink supporting access infrastructure facility will meet all applicable standards and guidelines for the design of pedestrian infrastructure. This should also be consistent with the approach used within the adjacent stop or station area with a focus on accessibility, continuity and integration.

The use of TGSIs will be consistent with the principles adopted for stop and station areas and will be subject to an accessibility audit against the applicable disability standards.

Specific notes for pedestrian infrastructure within particular supporting access infrastructure types are included in the relevant following sections.

4.2.1.5 Location

Consideration of pedestrian access is integral to all stops and stations and as such, should have some level of pedestrian infrastructure.

4.2.1.6 Need identification

The type and scale of pedestrian amenities will be dependent on peak demand and any special needs of the people likely to use it. Explore this by identifying and mapping all pedestrian patronage desire lines to, from and through the site:

- identify links to nearby pedestrian attractions and key dispersion paths
- examine direct sightline connections compared with paths of least resistance
  - consider any non-public transport based desired pedestrian paths that might pass through site
- gauge likely order of magnitude of pedestrian demand.
4.2.1.7 Crossings

Pedestrian movement is considered the priority movement within any TransLink facility. Accordingly, points of inter-modal confluence should be designed to favour unconstricted and efficient pedestrian movement except where safety or the reasonable capacity for other modes may be compromised. Crossing considerations include:

- at-grade pedestrian crossings are preferred in circumstances where safety and relative priority can be maintained—such as when all intersecting modes are operating in a low-speed, low-volume environment, with no insurmountable environmental or design constraints
- grade-separated crossings should be considered where at-grade crossings compromise safety to either mode or create unreasonable delays. This could be due to:
  - speed and volume constraints, as a result of:
    - high speed intersecting modes
    - high volumes intersecting modes
    - high pedestrian peak volumes
  - environmental and design factors due to:
    - poor sightlines
    - steep approach gradients for intersecting modes
    - lack of space for adequate pedestrian storage at kerb-side or in median refuges
- all at-grade pedestrian crossings will meet or better minimum engineering and accessibility design standards
- uncontrolled crossings such as zebra crossings and shared zones can be considered, except where safety or capacity concerns exist based upon public transport facility functionality and operational requirements
- corresponding kerb ramps on a crossing should always be directly aligned
- where controlled pedestrian crossings are necessary, as much priority as possible should be applied to pedestrian movement to minimise waiting times within the signal period
- separate pedestrian crossings from bicycle crossings except where no other option is available
  - where this occurs, provide wider kerb ramps and additional footpath waiting space at the crossing dwell-point and any median refuges (refer to 4.3 Bicycle infrastructure for guidance).

4.2.1.8 Staging

- Where initial pedestrian and vehicle traffic (including public transport) volumes may not justify investment in grade-separated pedestrian walkways, yet future volumes may be expected to potentially do so, it is important to design for the protection of land requirements for accessible grade-separated pedestrian crossings for the stop or station.
- Identify and protect for staging of stop or station infrastructure delivery—for example, a grade-separated connection between platforms or a platform extension may be delivered when traffic or public transport service volumes increase. Any supporting access infrastructure or other permanent element should not impede these future requirements.
- Prioritise investment to protect for future connections while immediately providing for existing paths.
4.2.1.9 Accessibility and adjacent land uses

As per 4.1.3.4 Surrounding land uses, review nearby land uses and gauge potential pedestrian related risks, impacts and needs that they may generate. In particular:

- identify any area-specific special accessibility and safety needs. For example:
  - businesses or services visited by persons with mobility or visual impairments
  - primary, secondary, special, and tertiary education facilities
  - aged care facilities, hospitals
  - government offices and service centres
  - local, regional and state level cultural facilities
  - services and businesses catering to non-English speaking persons
  - licensed venues, restaurants, concert venues, popular recreational parks.
- allow extra peak pedestrian capacity near facilities with sharp peaks such as schools or facilities catering for special events. Active or off-site management in partnership with schools or event organisers can be effective
- if changes of grade are required to get to a stop or station, allow appropriate rest areas at regular intervals on walkways and ramps for mobility-impaired and aged persons. Where severe grade changes or disproportionate ramp lengths are required, assisted vertical movement (e.g. lifts and escalators) should be provided
- if large numbers of non-English speaking people are likely to be using the station, then identify the most commonly spoken languages where supplementary orientation information may be needed.
- always use appropriate universal icons and symbols as per applicable disability and Australian Standards to ensure that signage is easily understood by all people
- if it is likely that inebriated people will regularly use or pass by the stop or station, design for more forgiving environments by assessing and addressing the additional risks with respect to:
  - durability, maintenance and cleaning of materials and furniture
  - impaired decision-making and depth perception (crossings and path geometry)
  - security, incident response and emergency services access
- seek advice and clarification on issues and current best practice in the application of accessibility standards and guidelines. This information is available from TransLink and relevant accessibility reference stakeholders.

4.2.1.10 Hazards

- Where possible, design paths to physically avoid proximity to, or creation of, hazards. Where avoidance isn’t possible, reduce or manage the risk of hazards such as:
  - escarpments, batter slopes, walls
  - objects that could cause physical pain or discomfort (such as sharp, pointed, rough, live or hot objects)
  - interface with other paths and modes (such as roadways, bicycle paths, busway carriageways)
  - other objects such as poles, street furniture, service pits.
4.2.2 Pedestrian demand analysis

It is important to identify likely pedestrian demand profiles for pedestrian access amenities. This can be undertaken using a range of tools to a range of depths of analysis. The suitable tool and depth of analysis will mainly depend on the scale and role of the facility. Some transport models can provide information regarding pedestrian demand—however their inputs and assumptions should always be carefully understood and critiqued.

Once a suitable forecast has been established, the relationship between pedestrian demand and capacity is generally assessed based on LOS classification ranges for pedestrian design (Fruin 1978, Pedestrian Planning and Design). As a guide, standard pedestrian trip generation depending on land use type is defined by Austroads (see Appendix A).

Emphasis should be placed on catering for peak demand, however where space is at a premium, there may be other strategies available than simply providing more path capacity such as active or off-site management.

In analysing demand forecasts and capacity needs, the variables that should be considered include:

- the size and nature of the likely catchment, which includes:
  - the reasonable walk-up catchment radius for stop is typically 400 metres, with limited walk-up from within 800 metres
  - the reasonable walk-up catchment radius for a station is typically within 800 metres, with limited walk-up up to 1.2 kilometres
  - these are impacted by:
    - the surrounding environment that the stop or station operates within (i.e. terrain, land use, traffic and safety)
    - the permeability of the area (i.e. the actual distance travelled due to block size, mid-block paths or barriers)
    - climate (i.e. walking distances may be less where heat or inclement weather is more frequent)
- amount of interchanging transfers and average waiting time
- existing and future surrounding residential development intensity (population density, dwelling density). Apply current mode-shares and relevant targets to identify the project requirements
- pedestrian activity generated by adjacent land uses (i.e. large institutional and commercial land uses, such as shopping or activity centres, universities and hospitals, sometimes collect privately owned data on staff and visitor travel behaviour for their own site planning purposes). Broader mode share assumptions or policy targets can be applied to these to generate approximate incoming pedestrian volumes or future pedestrian activity targets.
4.2.3 Supporting components

The scope for supporting components to be provided will be subject to the scale and functionality requirements of the public transport facility and any immediately adjacent land uses which may affect the facility.

4.2.3.1 Signage and wayfinding

Signage and wayfinding for pedestrians should be implemented at a human scale using both explicit and implicit signals (i.e. maps and directional signage to the use of paths—which can feature contrasting paving patterns and navigational landmarks).

The signage plan for a stop or station should include any signage associated with supporting pedestrian infrastructure to be included. A review of off-site directional signage needs for a stop or station should be undertaken and presented to the stakeholder/s responsible for local pedestrian infrastructure. Consultation should then proceed over quality and extent of directional signage provision.

4.2.3.2 Amenity utilities

Amenity utilities for pedestrians include items that are desirable to improve the experience of using the facility but are generally not considered an immediate necessity. Where applicable, all such components should be placed so as to allow clear visibility without compromising pedestrian safety. This particularly includes not creating either physical protrusion or the incidental conflict for persons accessing these facilities. The components are included in table 4.4.
<table>
<thead>
<tr>
<th>Amenity utility</th>
<th>Consideration requirement/notes</th>
</tr>
</thead>
</table>
| Shelter from rain, sun and wind                    | • Consider the amount of natural shelter along paths and likely exposure.  
• Consider need for shelter at pedestrian dwelling points such as decision points or points of interest or activity.  
• Consider relationship between accessible parking bays and paths with shelter.  
• Refer to the chapter 2 Bus Stop Planning and Design and chapter 3 Station Planning and Design for shelter design guidance.                                                                                                                                                              |
| Rubbish bins and drinking fountains                | • Consider provision at pedestrian dwell points on access paths that are remote from stop or station areas, or access facilities where these may already be provided.  
• Consider separated recycling bins.                                                                                                                                                                                                                                                                                                         |
| Seating                                            | • Non-discretionary seating (i.e. seating required to meet applicable guidelines and standards such as at accessibility rest points).  
• Discretionary seating (i.e. seating provided at the discretion of the designers—for example additional seating at points of interest, viewing points or entry plazas depending on potential use and demand).  
• Seating should feature modern and pleasant design and complement TransLink architecture.  
• Seating should include back rests and arm rests, and should be constructed from durable, self-cleaning, easily maintained materials that allow drainage from liquids.  
• Seating must comply with applicable disability and Australian Standards.                                                                                                                                                                                                        |
| Public art or community literacy installations     | • Consider the potential for inclusion of such elements along pedestrian spaces where they may enliven a journey or enhance a site.                                                                                                                                                                                                                                                                 |
| Vending machines and other retail activities or outlets | • Consider provision at pedestrian dwell points or on paths that are remote from stop or station areas, or where these may already have been provided.  
• Consider for areas with good passive or surveillance or active security to minimise likelihood of vandalism and abuse.  
• Clearly establish installation, maintenance and asset management requirements before inclusion.                                                                                                                                                                                                 |
| Non-public transport based information points—static, dynamic and interactive | • Consider opportunities for these at pedestrian dwell points on access paths.  
• Possibly include interpretive signs, memorials, plaques or other local information if relevant.  
• Clearly establish installation and maintenance requirements and procedures before inclusion.                                                                                                                                                                                                 |
| Advertising                                        | • Consider appropriate provision at pedestrian dwell points on paths that are remote from stop or station areas or other access facilities (refer to chapter 2 Bus Stop Planning and Design and chapter 3 Station Planning and Design for further details).  
• Amenity and CPTED principles must not to be compromised.  
• Consider availability of adequate exposure necessary to meet market expectation and hence potential revenue generation.                                                                                                                                                                                                 |
| Internet access                                    | • Consider extension of wireless internet access into supporting facility areas where available at stops or stations.                                                                                                                                                                                                                                                                 |
| Emergency call points                              | • Consider the provision of emergency call points at dwell points along extended paths.  
• Ensure electrical and communication connections are provided or allowed for if not immediately supplied.                                                                                                                                                                                                 |

Table 4.4 Amenity utilities for pedestrian infrastructure
4.2.4 Asset management

All infrastructure to be maintained should use materials and processes consistent with those adopted for the adjacent public transport facility, applicable sustainability guidelines and as approved by TransLink. Pedestrian infrastructure specific considerations include:

- appropriate heavy vehicle and equipment access where access to water and mains electricity is not available
- the impact on pavement integrity from any potential interaction between pavement materials and landscaping elements—such as roots, leaf litter and animal leavings.

4.2.5 Design considerations

The following are some of the key design considerations related to pedestrian amenities based upon applicable standards and guidelines for pedestrian movement and accessibility:

- envelope of travel
  - the minimum clearance for the envelope of travel for a single pedestrian is 1 metre wide (ambulant person with walking aids) x 2.2 metres high.
- minimum path widths
  - refer to applicable disability and Australian Standards for required width for single direction and/or bi-directional path for allowing two wheelchairs to pass each other and a 180 degree turn
  - TransLink prefers a minimum path width of 1.8 metres
  - add hand railings and barriers plus minimum required width (0.2 metres) in addition to railing and barrier width to minimum path width near dangerous edges including roadways, bicycle paths, carriageway escarpments, batter slopes and walls, and through underpasses or tunnels
  - add railings on steep gradients
- railing and barriers to conform to design requirements for applicable disability and Australian Standards.
- the required frequency of rest points between top and bottom landings along longitudinally sloping paths are to comply with applicable disability and Australian Standards
- objects must not protrude into any path of pedestrian travel within the envelope of travel:
  - avoid placing grates, grids, grills, service pits or other interruptions to a pavement surface within a pedestrian pathway or paved area
  - remove or redesign the placement of sharp, pointed, live or hot objects
  - allow a minimum of 1.2 metres (preferred 1.8 metres) manoeuvring width around poles, street furniture and raised service pits or preferably place off path
  - where pits must be placed in path of travel:
    - they must be flush with the path surface as per disability standards
    - covers must meet the same anti-slip and load bearing performance requirements as the path pavement
- where a change in level exceeds the acceptable height, crossover (kerb) ramps, step ramps or assisted vertical travel (e.g. lifts) will be required as appropriate as per applicable Australian Standards
- lifts will comply with applicable disability and Australian Standards
- doorways will comply with applicable disability and Australian Standards
- stairs will comply with applicable disability and Australian Standards
• crossover (kerb) ramps minimise unnecessary changes of direction except where geometry (depth, width or sightlines) is constrained
• lighting will be consistent with applicable disability and Australian Standards
  — lighting quality (colour and lux) at waiting points will be consistent with platform lighting and should be bright white light (refer to chapter 3 Station Planning and Design for lighting requirements)
  — lighting along paths will be bright white light with an illuminance as per applicable Australian Standards
  — reflective light spill guards may be used to minimise fugitive light in urban environments and concentrate it downwards to where it is required
  — luminance contrasts will be consistent with station areas including paths and must comply with a minimum contrast with background, as per applicable disability standards
• shade and shelter structures design consistent with stop or station TransLink architectural design requirements
• surveillance
  — consider the use of camera surveillance coverage for paths through all supporting access infrastructure
  — underpasses must be avoided. However if absolutely necessary, an appropriate design solution with necessary surveillance treatments may be accepted with TransLink and key stakeholder consultation
• choose path materials which feature ease of cleaning and slip resistance in all weather conditions
• design paths to avoid pooling or collection of detritus or other unwanted debris
• at-grade pedestrian paths will generally be designed to withstand occasional use by heavy vehicles. Paths where this is not reasonable should be clearly signed or made inaccessible to such vehicles
• utilise plantings/landscaping along paths that are:
  — unlikely to interfere with path integrity
  — unlikely to interfere with above and below ground services and utilities
  — unlikely to regularly shed material that may make a path slippery
  — unlikely to intrude upon a path at ground level
  — unlikely to significantly block views between 0.5 and 2.5 metres above ground level
  — drought resistant
  — not toxic, highly allergenic or obnoxious weeds
  — not known to produce thorns, barbs, stings or noxious secretions
  — not generally know to broadly attract obnoxious or dangerous fauna
  — consistent with local flora and in natural areas of significant ecological value from the local genetic populations
• accessibility symbols will comply with applicable disability and Australian Standards
• signs will comply with applicable disability and Australian Standards
  — use of Braille will be in accordance with applicable disability standards
• use of TGSSIs will be consistent with applicable disability and Australian Standards
• street furniture must comply with applicable disability and Australian Standards
Cycling is the second most important preference mode of access to the TransLink network. This section explains how to provide good bicycle infrastructure that enhances access to TransLink stops and stations. This is examined in a broader context as well as in the specific contexts of appropriate infrastructure whether provided by TransLink, local or state government agencies, private developers or other relevant stakeholders.

Bicycle infrastructure in this section primarily refers to:

- bicycle routes which include:
  - off-road (i.e. bicycle and shared pedestrian paths and associated elements)
  - on-road (i.e. lanes, shared lanes, signals, prop boxes—on-road refuges for cyclists provided at traffic lights or islands)
- end-of-trip facilities which include:
  - bicycle storage—rails, racks, lockers, enclosures, centres
  - personal amenities—showers, change rooms, gear storage lockers
  - service centres.

For the purposes of the PTIM, high demand bicycle storage refers to a stop or station with high levels of bicycle access and large scale bicycle storage components such as an enclosure or large banks of rails, racks or lockers. Amenities including higher level end-of-trip components—such as showers, change rooms and gear storage lockers—are referred to as end-of-trip facilities.

Bicycle infrastructure should be considered in terms of:

- the local and metropolitan bicycle network around a stop or station
- interface between the bicycle network and the stop or station
- bicycle access through other stop or station supporting facilities
- asset management.

4.3.1 Broad considerations

With reference to the applicable standards and guidelines for stop and stations, consider the following:

- the broader network
- network integration
- design integration
- internal network
- location
- need identification
- crossings
- staging
- adjacent land uses
- hazards.

4.3.1.1 The broader network

TransLink has an interest in promoting connective, high-quality on and off-road networks that encourage cycling to local destinations such as TransLink stops or stations. Bicycle networks provided by external parties should respond to TransLink stops and stations according to the volume of bicycle activity generated. The volume of activity is primarily related to the defined place in the stop/station hierarchy, level-of-service and connection to broader bicycle networks. Conversely, TransLink stops and stations should
respond to existing and planned bicycle networks by providing access directly to points where a transport corridor or a key HFP route intersects a major bicycle path.

4.3.1.2 Network integration
An important consideration of bicycle access to public transport infrastructure is network integration, particularly with respect to the boundaries of TransLink responsibility for infrastructure provision. It is a TransLink policy objective to promote bicycle connections to the broader network within its immediate area of works impacted.

All interface points between local bicycle networks and TransLink infrastructure must be functionally seamless and focus should always be on integrating with existing infrastructure. Where new TransLink infrastructure has the opportunity to do so, a reasonable attempt must be made to protect for any planned new or upgraded infrastructure by local authorities or other state government agencies.

Connections must be accessible, direct and legible. Particular elements that need focus include:

- Inter-modal conflict—the need for dedicated or shared crossings, use of bicycle lanterns (red and green bicycle crossing lights) and signals at controlled intersections.
- Kerb ramps—appropriate connection, shared or dedicated provision, quality, storage space, width and configuration. Wider kerb ramps are preferred when pedestrians and cyclists share crossings.
- Path/lane width, grade, continuity and alternatives.
- Provision and/or placement of any end-of-trip amenity components—storage, water, other amenities.
- Connection to existing or planned shared or neighbouring bicycle amenities.

4.3.1.3 Design integration
Bicycle design integration will largely involve connection between local bicycle networks and the internal distribution networks of a stop or station and its supporting infrastructure, to allow access to end-of-trip amenities such as bicycle storage. These include:

- identifying the main directions of flow for bicycle activity into and out of the stop or station facility area with consideration for stop or station entry arrangements, station design intents and the location of any end-of-trip amenities
- ensuring that access paths connect, provide appropriate capacity and are easily recognisable
- ensuring that adequate advance information is provided for decision (entry and turning) points
- promoting safe and efficient movement by providing routes that minimise inter-modal conflict and provide direct and convenient connection to end-of-trip amenities.

4.3.1.4 Internal network
The internal bicycle network within any supporting access infrastructure component must meet all applicable standards and guidelines for the design of bicycle infrastructure in a way that is consistent with the approach used within the adjacent stop or station area, with an additional focus on accessibility and continuity. Bicycle access should not inhibit or conflict with pedestrian movements.

In general, through (non-public transport related) bicycle movements will be discouraged within the immediate stop or station area.
Cyclists should have direct and convenient access to any end-of-trip amenities that, wherever possible, does not require them to dismount until reaching the amenity destination.

Cyclists will be required to dismount in any area where:

- boarding or alighting occurs (e.g. at platforms or stop pads)
- pedestrian movement is either constrained or is clearly the dominant mode (e.g. through over/underpasses, ramps to platforms).

Provide for dismounted cyclists to move bicycles to and from boarding and alighting points when accessing public transport. Where geometry constraints prevent the inclusion of a ramp, this could be accommodated using lift access—however this would be unsuitable at high demand bicycle storage where bicycle activity may interfere with general pedestrian lift capacity.

Specific notes for bicycle infrastructure within particular supporting access infrastructure types are included in the relevant following sections.

### 4.3.1.5 Location

Consideration of bicycle access is integral to all TransLink stops and stations. All stations and some high passenger volume stops where major bicycle paths are intersected will require end-of-trip amenities ranging from bicycle rails and racks to lockers, enclosure and possibly showering and associated amenities.

The provision of bicycle amenities at or adjacent to TransLink facilities should be assessed on a case by case basis and considered in terms of bicycle and TransLink network staging. The scale and nature of end-of-trip amenities to be provided or protected for will be determined by demand creation along with state and local government bicycle network planning and policy.

In general, high passenger volume stations located on or near intersections of major metropolitan bicycle paths (on or off-road) should be considered as potential high demand bicycle storage with end-of-trip amenities. Principal and major activity centres should also be considered as locations for high demand bicycle storage, however the bicycle demand to such centres is often a mix of the activity centre and public transport based demand.

Where activity centre and public transport based demand for end-of-trip facility capacity does not directly conflict, they may be shared. However, this will depend on the demand profile for long versus short stay, available space and the ability to achieve functional partnering arrangements for delivery, maintenance and management.

In cases where centre-based bicycle demand would be in conflict with public transport-based bicycle demand, commuter bicycle storage may be better located away from the major activity centre and closer to bicycle paths. This may offer the added benefit of less spatial constraints and reduced inter-modal conflict. In such situations, high-quality connection between the station facility and the bicycle centre amenities should be incorporated.

 Stops and stations near a bicycle path where demand is relatively moderate will typically incorporate some bicycle storage depending on the demand profile and the level of security available. Other stops or stations may require post-establishment retro-fitting for bicycle storage to maintain safety and amenity if use exceeds anticipated demand. This can be protected for by providing suitable vacant space (minimum operating and storage space requirement as specified in 4.3.5 Design considerations). Wherever possible, alternative provision of storage as part of nearby land uses or public spaces should be considered if better surveillance is available and agreement is established.
The location of end-of-trip amenities should also take into account the placement of any sites identified for potential commercial operations within the TransLink stop or station area in terms of managing any potential conflicts along with capturing opportunities such as shared use and theming of structures and utility services.

4.3.1.6 Need identification

The type and scale of bicycle infrastructure provided at TransLink stops and stations is outlined in TransLink’s applicable planning policies along with collaborative state and local government bicycle planning.

These policies are based upon expected or targeted peak demand and the desired shape of the bicycle network. This can be explored by identifying and mapping actual, designated and future bicycle routes to, from, and past the site.

To identify the need associated with a bicycle amenity, undertake the following:

- identify links to nearby bicycle paths and major bicycle intersections
- examine direct connections against paths offering the least resistance (i.e. barriers), most convenience or most safety (including on- and off-road). In particular:
  - consider existing and likely new planned paths
  - consider non-public transport based bicycle paths that might pass the site
  - consider future bicycle paths that may intersect with the site.
- gauge the likely order of magnitude of bicycle demand (refer to 4.3.2 Bicycle demand analysis).

4.3.1.7 Crossings

Points of inter-modal convergence should be designed to favour free and efficient bicycle movement except where safety or the reasonable capacity for other prioritised modes may be compromised. Pedestrian movement will always take precedence within shared parts of the area of a stop, station or supporting access infrastructure and cyclists should be appropriately informed of this through signage. Cyclists will have priority on any designated bicycle paths and accordingly pedestrians and motorists should be informed of this through appropriate signage. As with motorised vehicles on road, this priority does not negate the need for care towards pedestrians intruding into designated bicycle areas.

In particular the following should be considered with respect to bicycle crossings associated with public transport infrastructure:

- all bicycle crossings will meet or better minimum engineering design standards (as specified by Austroads)
- avoid infrastructure configurations that are likely to generate conflict between dominant bicycle movements and other modes
- include design treatments aimed at slowing cyclists on the approach at crossings (as specified by Austroads)
- separate pedestrian crossings from bicycle crossings except where no other option is available, in which case shared options are preferred
- where pedestrians and cyclists are crossing together, provide wider kerb ramps and more footpath storage space at the kerbside dwell points and in any median refuges (as specified by Austroads). Cyclists should be required to dismount at such crossings
- corresponding kerb ramps on a crossing should be directly aligned to minimise changes of direction.
4.3.1.8 Staging

Protect for future increase in demand for paths and storage capacity wherever possible. Other considerations include:

- Prioritise investment to protect for future connections while catering now for existing bicycle paths.
- Where initial bicycle volumes may not justify investment in bicycle end-of-trip amenities, yet future volumes may be expected to potentially do so, it is important to design for the protection of the land requirements and expansion of infrastructure for future or extended amenities.
- The typical provision of bicycle storage is a single rail or rack is (1.7 metres x 0.6 metres). However, this dimension may change depending on the arrangement of rails.

4.3.1.9 Adjacent land uses

As per 4.1.3.4 Surrounding land uses, review nearby land uses and gauge potential bicycle related risks, impacts, requirements and demand that they may generate. In particular:

- identify any area with specific bicycle needs. For example:
  - businesses or services visited by large groups of cyclists
  - primary, secondary, special, and tertiary education facilities
  - popular recreational parks and bicycle amenities
- if there is likely to regularly be people with a mobility impairment, children or inebriated people using or passing by the stop or station, cyclists should be encouraged to dismount in shared areas and pedestrians should be cautioned to take extra care for cyclists
- advice and clarification on issues and current best practice in the application of bicycle standards and guidelines can be sought through TransLink and key stakeholders.

4.3.1.10 Hazards

Where possible, design bicycle paths to physically avoid proximity to, or creation of, hazards. In particular, for cyclists consider:

- sightlines and blind corners
- kerb design, quality and proximity to routes
- kerb drain placement and design
- type of landscaping placement and impact on pavements and kinetic envelope for cyclists
- railing and barrier design
- proximity of unforgiving structures to kinetic envelope—building corners, poles and sign edges etc.
- pavement design and quality—slip resistance, ridges/gaps and consistency
- placement and quality of coverings for service pits.

4.3.2 Bicycle demand analysis

It is important to identify likely bicycle demand profiles for bicycle access amenities. Policy and applicable standards will be used alongside any estimates and/or extrapolations to inform the development of bicycle routes and amenities leading to a stop or station. Consider off-site provision and active demand management of bicycle facilities if space is limited. As a guide, the appropriate amount of bicycle parking should be enough so that there is some spare during peak periods. Where space allows, expand bicycle parking progressively to ensure that demand is continuously met.
Applicable transport models can provide information about bicycle demand—however their inputs and assumptions should be carefully critiqued. Specialist bicycle demand forecasting advice can be sought from TransLink and other key stakeholders with relevant expertise. See Austroads (Appendix A) for further information about bicycle demand forecasting.

In analysing bicycle needs, the variables that should be considered include:

- the likely catchment:
  - a reasonable immediate ride-up catchment radius for all stops or stations with end-of-trip amenities is 2.5 kilometres or 10 minutes ride (whichever is less). In the case for premium stops and high passenger volume stations with end-of-trip facilities, up to 5 kilometres or 20 minutes ride can be expected
  - limited ride-up could be expected from up to 15 kilometres at high passenger volume stations where high demand bicycle storage with full amenities are available and there is a long distance commute to the nearest activity centre
  - these are impacted by:
    - the surrounding environment that the stop or station sits within—terrain, land use, traffic, safety
    - the permeability of the area—the actual distance travelled due to block size, presence or absence of mid-block paths or barriers
    - quality of bicycle connections—safety, amenity, ease of access, continuity
    - climate—the propensity to cycle and the average distance cycled may be less where heat or inclement weather is more regular

- the likely demographic of bicycle user types (refer to Austroads and Queensland Transport in Appendix A for guidance). This includes:
  - considering the potential demographic of the different types of cyclists likely to access the facility and extrapolate their differing needs accordingly
  - potential inclusion of bicycle provision on buses and trains—consider frequency and capacity
  - provision of end-of-trip amenities
  - bicycle activity generated by adjacent land uses
  - existing and future surrounding residential development (includes population density and dwelling density). Apply current mode-share and relevant targets to identify the potential demand requirements.

4.3.3 Supporting components

The scope for supporting components to be provided will be subject to the scale and functionality requirements of the public transport facility and any immediately adjacent land uses which may impact on the facility.

4.3.3.1 Signage and wayfinding

Signage and wayfinding for cyclists should be implemented at a scale that allows for on-bicycle navigation and information. Information specifically for cyclists that does not need to be communicated enroute should be collated and provided at an end-of-trip amenity.

Cyclists may need to access some signage targeted more so to pedestrians such as information signs or facility maps prior to accessing bicycle storage amenities. Provision should be made to allow them to do so without creating undue hazard for pedestrians, other cyclists or vehicles.

The signage plan for a stop or station should include any signage associated with supporting bicycle infrastructure amenities to be included. A review of off-site directional...
signage requirements associated with a stop or station should be undertaken and presented to relevant key stakeholders responsible for local bicycle infrastructure. Consultation should then proceed regarding the quality and extent of directional signage provision.

4.3.3.2 Amenity utilities

Amenity utilities for cyclists include items that are desirable for improving the experience of using the facility but that are generally not considered mandatory. All such components for cyclists should be concentrated around any designated end-of-trip amenities and placed so as to allow clear visibility without compromising pedestrian safety. This particularly includes not creating either physical protrusion or the incidental protrusion of persons accessing these amenities. The components are included in table 4.5.

Table 4.5 Amenity utilities for cycling infrastructure

<table>
<thead>
<tr>
<th>Amenity utility</th>
<th>Consideration requirement/notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gear storage</td>
<td>• Consider provision for gear storage at high demand bicycle amenities where bicycle lockers are not in exclusive use.</td>
</tr>
<tr>
<td>Shower amenities</td>
<td>• Consider for inclusion where high volumes of cyclists will use as an end-of-trip activity or prior to catching a public transport service which operate at high frequencies. • Consider the inclusion where agreement can be sought between TransLink and relevant key stakeholders with regard to provision, management and ongoing maintenance.</td>
</tr>
<tr>
<td>Shelter from rain, sun and wind</td>
<td>• Consider need for shelter at cyclist dwelling points such as end-of-trip amenities. • Consider extent of shelter provided based on likely use patterns. For example, extension of shelter above enclosure entry points where a cyclist may need to dismount and open a bag to access a key or pass-card. • Consider the use of lighting under bicycle enclosure for access during the evening period. • Consult TransLink for architectural design guidance.</td>
</tr>
<tr>
<td>Rubbish bins and drinking fountains</td>
<td>• Consider provision at end-of-trip amenities.</td>
</tr>
<tr>
<td>Seating</td>
<td>• At higher end-of-trip amenities for cyclists, provide seating for cyclists to change their shoes.</td>
</tr>
<tr>
<td>Vending machine</td>
<td>• Consider provision at higher end-of-trip amenities.</td>
</tr>
<tr>
<td>Non-public transport based information points—static, dynamic and interactive</td>
<td>• Consider opportunities for these at end-of-trip amenities to allow for dissemination of bicycle-related information by government and relevant bicycle reference groups. • Clearly establish installation, management, maintenance and usage conditions and arrangements before inclusion.</td>
</tr>
<tr>
<td>Advertising</td>
<td>• Consider provision at end-of-trip amenities where amenity and CPTED principles are not compromised and where adequate exposure is available to meet market expectation. This may be restricted to bicycle based services.</td>
</tr>
<tr>
<td>Emergency call points</td>
<td>• Consider the provision of emergency call points at (within and/or next to) end-of-trip amenities in case of security malfunction or other incidents. • Ensure electrical and communication connections are provided or allowed for if not immediately supplied.</td>
</tr>
</tbody>
</table>
4.3.4 Asset management

Where management arrangements will differ from current practices at bus or rail station bicycle end-of-trip amenities or those involving third parties, a summary of management arrangements should be prepared that clearly outlines responsibilities, exemptions, procedures and cost allocations associated with the operation of the end-of-trip amenities, particularly with respect to:

- access management for lockers and/or enclosure
  - key, combination or preferably access card
  - application and allocation—who is responsible and how
  - usage conditions, monitoring and enforcement
- operating costs/authorisation
  - source of maintenance and cleaning budget
  - asset manager responsible for utility/services costs—lighting, water, communications
- personal and property security
  - active and passive surveillance arrangements
  - level of corporate and personal responsibility for security
  - lost property arrangements and management implications.

4.3.5 Design considerations

All bicycle amenity infrastructure is to comply with applicable statutory requirements and Australian Standards. Specialist bicycle design advice should be sought when designing bicycle amenities. Advice on standards and current best practice can be sought through TransLink and from relevant government and third party stakeholders. Further reference for assisting the provision of bicycle infrastructure can be referred to in Appendix A.

The following is a summary of the requirements along with any TransLink-specific interpretations, which include:

- envelope of travel
  - the minimum clearance for the envelope of bicycle travel provided for a cyclist is 1 metre wide x 2.5 metres high and 1.75 metres long
- minimising inter-modal conflict. These include:
  - wherever reasonable, dedicated on and/or off-road path for cyclists are preferred
  - slow down of cyclists when approaching potential points of conflict—intersections, blind curves
  - provide adequate width—minimum 1.2-2 metres on road depending on speed, minimum 2.5 metres off-road and wherever possible, provide more
  - clearly sign where paths are to be specifically shared or exclusive
  - clearly identify any behavioural requirements that differ from the natural preferences (e.g. if cyclists are required to dismount)
  - clearly identify crossing arrangements (e.g. if cyclists must cross with pedestrians or separately)
  - bicycle parking should not endanger pedestrians (whether in use or not)—particularly those who are partially sighted or blind—or obstruct the flow of pedestrian movements
  - bicycle parking should not obstruct car doors from opening (where parking is allowed) or other structures such as seating, traffic signals, street lighting, bollards etc.
— bicycle paths should avoid interaction with kiss ‘n’ ride bays
  - where this is unavoidable sufficient width should be provided for cyclists to pass on the right of any vehicle using such a facility—refer to 4.5.6 Design considerations
  - cyclists should not be encouraged to proceed on the left of a kiss ‘n’ ride bay, whether on or off-road

• end-of-trip amenities. These include:
  — a minimum provision of suitable vacant space for a single bike rack or rail will be protected for at all new facilities
  — design of end-of-trip amenities requiring structures should not detract from the public environment and should be consistent with TransLink architectural theme
  — design of bicycle parking should support any type of bicycle without causing damage—both when the bicycle is parked or knocked accidentally
  — design of open bicycle parking should allow for both the front wheel and frame (and possible, back wheel) of the bicycle to be secured
  — minimise the need for cyclists to cross the paths of other modes when accessing end-of-trip amenities, particularly when moving to and from the platform waiting area
  — minimise the distance between the end-of-trip amenities and public transport boarding point consistent with its place as a preferred access mode (as per figure 4.1)
  — wherever possible, cyclists should be able to cycle to an end-of-trip amenity without dismounting. Where this is not possible, the distance required to be ridden should not be more than the allowable distance from the public transport stop or station depending on the type of bicycle storage (30 metres from a locker or enclosure, or 10 metres from a rack or rail) as specified by applicable Australian Standards
  — bicycle parking should be spaced appropriately so that cyclists are not obstructed when locking their bicycle
  — end-of-trip amenities and connecting paths should be specifically covered by security infrastructure (e.g. CCTV) with the ability to survey movements between platforms, bicycle storage and external entry/exit points
  — end-of-trip amenities should provide weather protection with particular regard to:
    - bicycles and gear stored within lockers or an enclosure should not be affected by rain water
    - floors must drain away from the storage area with no pooling of water within enclosure or lockers
  — lighting should meet applicable platform lighting standards

• paths, including:
  — changes in grade should be seamless and avoid exceeding excessive gradients
  — surface materials and finish should consider tyre traction in dry and wet weather
  — paths must be designed to avoid pooling of surface water and promote quick drainage during heavy rain events
  — appropriate hand rails should be provided at preferred bicycle crossing or other stopping points
  — crossover kerb ramps should be seamless
  — avoid obscuring sightlines approaching corners and intersections with other modes
  — lighting must meet applicable road lighting standards and consistent with any adjacent lighting provided for pedestrians or motorised vehicles
  — entry and exit paths should be clearly visible utilising passive and (where applicable) CCTV and security infrastructure
— vegetation should be planned and maintained to avoid the intrusion of plant matter into the envelope of movement for cyclists using a path
— avoid creating any unnecessary obstructions (such as, grates, grids, grills or pit covers) to the continuity of paths
— wherever possible, place utility service maintenance infrastructure, such as pits, where access to them does not require the interruption of flow for bicycle activity

- general, including:
  — considering the paving placement and design of TGSIs in relation to preferred bicycle routes— wherever possible, minimise any potential conflict in terms of reduced tyre traction and interaction between cyclists and people with a visual impairment.
4.4 Bus feeder infrastructure

4.4.1 Broad considerations

As per the TransLink access hierarchy (see figure 4.1) interchanging from other forms of public transport is a preferred access mode to stops and stations within the TransLink network as opposed to access by private motorised transport. Increased provision of interchanging opportunities specifically when combined with higher-frequency services can provide passengers with better opportunities for using the TransLink network, making it more attractive and convenient.

The arrangement and design of major bus to rail and bus to bus interchanges is covered in chapter 3 Station Planning and Design. Where less direct interchange opportunities are to be provided, apply the pedestrian design considerations (from section 4.2) along with the following principles.

4.4.1.1 Location

Generally, interchange facilities will be provided at transport network interchange nodes that are located at the convergence of many service routes with a HFP service and/or activity centre.

4.4.1.2 Demand forecasting

Strategic transport models will provide estimations of the level of expected interchanging at specific sites. These estimates should be reviewed in context with TransLink planning and network strategy.

4.4.2 Network considerations

Interchanging can occur anywhere where a passenger intentionally travels where two or more service routes intersect, however its attractiveness will be determined by how conducive the TransLink network and the physical infrastructure are towards creating a convenient journey. Network planning can contribute to promoting interchanging by:

- wherever possible, providing the most direct interchange opportunities within a single stop or station facility—preferably by simply accessing adjacent platforms or even without the need to change platforms
- coordinating the timetables for key services to minimise inter-journey wait times, while allowing for sufficient time for passengers to interchange between services while also maintaining reasonable service frequencies
- providing the highest reasonable frequency for cross-town and feeder services.
4.4.3 Design considerations

Guidance on stop design and configuration is provided in chapter 2 Bus Stop Planning and Design. The arrangement and design of major bus-rail and bus-bus interchanges is provided in chapter 3 Station Planning and Design.

Where there is anticipated to be a high demand for interchanging, additional passenger waiting capacity, along with the ability for seamless intra and inter-platform passenger movement should be provided in accordance with TransLink stop and station policy and guidelines.

Where less direct interchange opportunities are to be provided, apply the pedestrian design considerations and the following principles:

- maximise the convenience of the interchange movement by:
  - minimising the required walking distance
  - maintaining direct sightlines across the facility and services
  - providing continuous and seamless high-quality pedestrian connections within the facility
  - identifying the interchanging opportunity within facilities
  - providing route and timetable information for the corresponding facility
- arrange HFP and feeder services so that HFP services are given priority for direct and efficient access to a stop or station over feeder services in order to minimise dwell and travel times for HFP services.
4.5 Kiss ‘n’ ride infrastructure

Kiss ‘n’ ride is an important and popular access mode for the TransLink network and is preferred at stops and stations serving low-density residential areas where the level of public transport services is low. This includes private and taxi passenger pick-up and set-down. This section explains how to provide good kiss ‘n’ ride infrastructure that enhances access to stops and stations. It examines this in a broader context as well as in the specific context of appropriate infrastructure.

Kiss ‘n’ ride infrastructure primarily refers to:

- passenger set-down pick-up bays—shared or dedicated, kerbside or on-site (off-street). These can include:
  - longitudinal indented bays along a kerb-line
  - regular (non-indent) kerbside allocated as dedicated or shared (by time) passenger loading zone or very short-term parking
  - dedicated or shared differentially with allocated angle parking bays within a parking lot facility associated with a park ‘n’ ride or activity centre. For example very short-term (less than 10 minutes) parking
- associated pedestrian and vehicle waiting areas and supporting elements, including:
  - storage bays and overflow allowances for waiting (picking up) vehicles
  - waiting areas and amenity utilities for public transport passengers awaiting their ride
  - pedestrian access paths.

Kiss ‘n’ ride infrastructure should be considered in terms of:

- access from the road network around a stop or station
- interface between the stop or station and the kiss ‘n’ ride area
- the role of kiss ‘n’ ride as a key access point for people with a mobility impairment
- the difference between set-down and pick-up (i.e. waiting times)
- asset management.

4.5.1 Broad considerations

With reference to the applicable standards and guidelines for stop and stations, consider the following:

- the broader network
- network integration
- design integration
- internal network
- location
- need identification
- special provision for taxis
- staging
- adjacent land uses
- accessibility.

4.5.1.1 The broader network

A key success factor for any kiss ‘n’ ride facility is the convenience with which it can be accessed and egressed from. The need for convenience must also be balanced against the impact of the kiss ‘n’ ride operations with regard to safety and efficiency of other transport networks. As many kiss ‘n’ rides are provided as kerbside services, it is important to consider their interaction with users of adjacent roads, pedestrian paths and bicycle paths.
4.5.1.2 Network integration

The following considerations should be applied with respect to the integration of kiss ‘n’ ride with the broader transport network. These include:

- direct access to and from arterial, sub arterial and distributor roads is preferred
- unless avoidable, local streets should not be used for kiss ‘n’ ride access. If they must, the length of this use should be minimised and preferably contained to short sections that relate directly to the stop or station facility
- kiss ‘n’ ride activity should be accommodated within a formalised facility. Informal kiss ‘n’ ride activity should be discouraged, particularly where safety issues are likely to occur
- on-street kiss ‘n’ rides are acceptable where the ratio of traffic volume (kiss ‘n’ ride demand and passing traffic) and road capacity allows free flowing ingress and egress
- off-street or side street kiss ‘n’ ride access is preferred where the ratio between traffic volume (kiss ‘n’ ride demand and passing traffic) and road capacity prevents efficient and safe vehicle ingress and egress
- kerbside kiss ‘n’ rides should provide sufficient additional footpath space to avoid conflict with pedestrian movements
- kiss ‘n’ ride infrastructure should not interrupt, and minimise the need to cross, bicycle paths.

In most cases dedicated kiss ‘n’ ride facilities that are directly related to the stop or station will be provided where applicable. There may be a situation where a kiss ‘n’ ride facility is shared between a stop or station and an adjacent land use such as a shopping centre or education facility. In such situations it will be essential to ensure that sufficient capacity is provided and clear responsibilities for provision, maintenance and security are established.

Connections between kiss ‘n’ ride infrastructure and stop or station facilities should be accessible, direct and legible. Particular elements that need focus include:

- intra-modal conflict—entry from and egress to the road network
- inter-modal conflict—relationship with pedestrian, bicycle and public transport travel paths
- CPTED considerations.

4.5.1.3 Design integration

Kiss ‘n’ ride design integration will largely be about connecting the kiss ‘n’ ride facility with the internal pedestrian distribution networks of a stop or station.

- Identify the main directions of vehicle flow into and out of the stop or station facility area considering stop or station area entry arrangements, station design intents and the location of any other supporting access infrastructure such as bicycle amenities.
- Ensure that pedestrian access routes to the stop or station connect to the kiss ‘n’ ride facility, provide appropriate capacity, comply with applicable accessibility requirements and are easily recognisable.
- Ensure that public transport information is provided in adequate advance at kiss ‘n’ ride waiting areas and other decision points between the stop or station.
- Apply CPTED principles to maximise pedestrian safety.
- Wherever possible, segregate kiss ‘n’ ride bays and their through-lanes from other traffic to help control movement and limit the complexity of vehicle movements in the area. This can range from use of indented kerbside bays to separate access roads such as that illustrated in Appendix B (see Supporting access infrastructure principles).
• Promote safe and efficient movement by providing connections to and from the kiss ‘n’ ride that minimise inter-modal conflict and provide direct connection to platforms.

• Where there is need for cross vehicular (motorised or bicycle) traffic, kiss ‘n’ ride (including taxi waiting areas) should be located adjacent to or near pedestrian crossings. These crossings should provide direct access to the primary stop or station entry point.

• Where a kiss ‘n’ ride is located within a larger park ‘n’ ride site, the kiss ‘n’ ride will have priority for proximity to the stop or station entry points.

It may be necessary to compromise between proximity to the stop or station and convenience for vehicular access to the kiss ‘n’ ride area where there is conflict between the two. While pedestrian and traffic safety is paramount, a balanced solution should be sought as both are key determinants of attractiveness.

4.5.1.4 Internal network

A kiss ‘n’ ride generally consists of a public transport platform-like waiting area. Sufficient capacity should be provided within this area to cater for any through pedestrian movements (if colocated with footpath or other park ‘n’ ride sites) and for movement of embarking and disembarking passengers between vehicles, waiting areas and/or access paths to the stop or station.

4.5.1.5 Location

Kiss ‘n’ ride access should be considered for TransLink stops and stations outside of the inner city and in low-density residential areas. Kiss ‘n’ rides will typically be provided at stations outside of the Brisbane CBD and its immediate surrounds and where low levels of public transport services operate. Some HFP services and terminus stops will also provide a sufficiently attractive level of service to generate significant demand for kiss ‘n’ ride infrastructure.

Convenient kiss ‘n’ ride access will also be provided at stops or stations serving activity centres within residential areas, particularly those where stops or stations used for transferring will be located. This will assist with off-setting park ‘n’ ride demand against the need to maintain parking for businesses. Local parking supply management may be needed to supplement this strategy. In some instances, kiss ‘n’ ride infrastructure may be shared between land uses. This is the preferred arrangement for dedicated taxi ranks—however, general passenger set-down should not be combined if capacity conflicts are expected between peak demand periods for the stop or station and the activity centre.

4.5.1.6 Need identification

In most cases, kiss ‘n’ ride need identification will be included in park ‘n’ ride demand forecasting methodology. Kiss ‘n’ ride activity can be obtained from suitable travel survey data, while appropriate travel surveys capturing passenger drop-off activity should be conducted to gather an understanding for each individual site. Also, the use of micro simulation models, especially for complex park ‘n’ ride sites, can also be applied to understand the potential need for kiss ‘n’ ride.

Passenger pick-up can involve either the passenger having to wait, or the vehicle having to wait, due to uncertainty of travel time and arrival for both. Passenger set-down will generally involve the public transport passenger and the vehicle arriving and departing simultaneously.

Establishing the purpose and function of a public transport facility (with respect to surrounding land uses, demographics, trip purposes etc.) will determine the adequate need for kiss ‘n’ ride infrastructure. Consult TransLink for advice when identifying the need for kiss ‘n’ ride infrastructure at a particular stop or station.
Behaviour at kiss ‘n’ ride infrastructure in the morning peak period is different to behaviour in the evening peak period. For example, dwell times are longer during the evening peak when the majority of vehicles are picking up passengers—as opposed to dropping off during the morning. Design of kiss ‘n’ ride infrastructure needs to consider this.

Kiss ‘n’ rides (which also operate during off-peak periods)—such as a location adjacent to a shopping centre—will experience different traffic activity to a kiss ‘n’ ride predominantly used for public transport trips solely during peak periods.

Demand for space by taxis has a similar demand profile, however where a dedicated rank is provided taxis may stand after a set-down to wait for another fare— hence combining set-down and pick-up activity. While the availability of tools for estimating the level of taxi demand are limited, it can be that expected that this activity will be minimal at stops or stations except where services are operating after hours.

4.5.1.7 Special provision for taxis

Dedicated taxi ranks should be provided where demand for taxis by public transport passengers using the stop or station is expected to be high and there is likely to be conflict between taxi demand and general kiss ‘n’ ride demand. Where possible, dedicated taxi ranks should be shared or primarily associated with an adjacent land use such as an activity centre (for example, a shopping centre).

Consider the need to provide a taxi call point or public telephone for dedicated taxi ranks. It will be necessary to make provision for the connection to communications infrastructure.

4.5.1.8 Staging

Consider the potential changes in demand for kiss ‘n’ ride activity at the stop or station. If demand is likely to increase over time—and TransLink still considers it a priority—possible expansion of kiss ‘n’ ride capacity should be allowed for, either through lengthening longitudinal kerbside bays or providing additional specially allocated angle or perpendicular parking bays. Also consider the need to allow for the provision of peak queuing space that does not impact on other stop or station access modes or safe and efficient movement in the immediate area.

Consider shared allocation arrangements on a physical or temporal basis if future demand is uncertain or likely to be seasonal or highly variable. For example, if a bay:

- is permanently shared between taxis and private passenger set-down
- is shared only at specific times and is dedicated to one use at other times
- changes its dedicated or shared allocation during specific time periods.
4.5.1.9 Adjacent land uses

As per 4.1.3.4 Surrounding land uses, review nearby land uses and gauge potential kiss ‘n’ ride related risks, impacts and needs that they may generate. In particular:

- identify any particular kiss ‘n’ ride activity needs associated with land uses in the relevant area which may impact on the public transport stop or station, such as:
  - childcare centres
  - primary, secondary, special, and tertiary education centres
  - large office and business activity centres
  - large retail and recreational activity centres
  - sporting facilities
- if there is likely to frequently be people with mobility impairments, children, or inebriated people using the stop or station or passing by, car drivers and pedestrians should be cautioned to take extra care near crossing points.

4.5.1.10 Accessibility

Examine the need for dedicated or shared kiss ‘n’ ride bays for people with disabilities. This could be dependent on several factors including but not exclusive to:

- location of the stop/station facility with respect to land use
- population demographics
- public transport services
- likely traffic dwell times etc.

All kiss ‘n’ ride infrastructure should meet the requirements for use by people with a disability as per the requirements for parking bays set out in applicable Australian Standards. 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 etc.

4.5.2 Kiss ‘n’ ride demand

While it is important to identify likely kiss ‘n’ ride demand profiles for kiss ‘n’ ride facilities, the provision of kiss ‘n’ ride facilities may not meet entire demand profiles in order to encourage the increase in patronage for non-motorised modes (as expressed in the access hierarchy—see figure 4.1).

Policy and strategy requirements will be used alongside any estimates and/or extrapolations to inform the development of kiss ‘n’ ride facilities. The most important consideration is to cater to likely peak demand and protect for future expansions in peak demand. Where space is at a premium, there may be other strategies available such as queue management and active management.

Further information about kiss ‘n’ ride demand forecasting can be obtained from TransLink.

The variables to consider when analysing the need for kiss ‘n’ ride infrastructure include:

- the reasonable kiss ‘n’ ride catchment based on:
  - the type of surrounding land use and development
  - location with respect to other public transport options and activity centre(s)
  - the surrounding traffic conditions
- the mix of potential kiss ‘n’ ride users and their differing needs
existing and future development intensity such as population density and dwelling
density—apply current mode-share and relevant targets to identify the task
activity generated by proximate land uses—for example a shopping or other activity
centre
mode share projections or broad target planning policies (which can be applied to
generate approximate volumes or future targets).

4.5.3 Supporting components

The scope for supporting components to be provided will be subject to the scale of the public
transport facility and strategic direction from TransLink.

4.5.3.1 Signage and wayfinding

Signage and wayfinding for kiss ‘n’ ride infrastructure should be implemented at a scale that
allows for in-vehicle navigation and information. All information relevant to the use of a kiss
‘n’ ride needs to be imparted on the approaching roadway. Any information about public
transport services should be provided at the kiss ‘n’ ride waiting area and or within the stop
or station area.

The signage plan for a stop or station should include any signage associated with supporting
kiss ‘n’ ride infrastructure to be included. Undertake a review of off-site directional signage
needs and present recommendations to the key stakeholders responsible for local road
infrastructure. Consultation should proceed regarding the quality and extent of directional
signage provision.

4.5.3.2 Amenity utilities

Amenity utilities for kiss ‘n’ ride users are items that can improve the experience of using the
facility but that are generally not specifically required. All such components for kiss ‘n’ ride
should be concentrated around the waiting area and positioned for clear visibility without
compromising pedestrian safety. Do not create physical protrusion or incidental conflict for
people accessing the facilities into pathways or other spaces. The components are included
in table 4.6.
Table 4.6 Amenity utilities for kiss ‘n’ ride infrastructure

<table>
<thead>
<tr>
<th>Amenity utility</th>
<th>Consideration requirement/notes</th>
</tr>
</thead>
</table>
| Shelter from rain, sun and wind | • Consider need for shelter at kiss ‘n’ ride waiting points based on available alternative shelter and exposure of location.  
• Consider extent of shelter provided based on likely usage—for example, extension of shelter where waiting numbers peak in the evening period.  
• Refer to TransLink for architectural design guidance. |
| Rubbish bins and drinking fountains | • Consider providing at waiting areas if alternatives are not available nearby. |
| Seating | • Consider providing seating for people waiting at kiss ‘n’ ride pick-up points.  
• Allow appropriate space for wheelchair parking.  
• Consider relationship with any shelter provided. Seating positions should be sheltered where capacity of covered waiting area would not be compromised. |
| Vending machines and other retail activities or outlets | • Consider providing near kiss ‘n’ ride infrastructure. |
| Non-public transport based information points—static, dynamic, interactive | • Consider opportunities at waiting areas to allow for dissemination of urgent information by government and public transport operators  
• Clearly establish installation, management, maintenance and use conditions and arrangements before inclusion. |
| Advertising | • Consider providing at waiting areas where amenity and CPTED principles are not compromised and where adequate exposure is available to meet market expectation. |
| Emergency call points | • Consider the location of emergency call points at waiting areas.  
• Ensure electrical and communication connections are provided or allowed for if not immediately supplied. |

4.5.4 Asset management

If management arrangements will differ from existing practice or involve third parties, prepare a summary to clearly outline responsibilities, exemptions, procedures and cost allocations associated with the management, operation and maintenance of the kiss ‘n’ ride infrastructure.

In most instances, the asset management schedules will be incorporated into any adjacent planned park ‘n’ ride infrastructure.

4.5.5 Design considerations

All kiss ‘n’ ride infrastructure is to be consistent with the applicable disability and Australian Standards and any other requirements outlined in supporting documents and references. Any exceptions will need to be consulted upon and agreed to with applicable stakeholders through TransLink. Refer to Appendix A for a list of applicable standards.

Seek specialist kiss ‘n’ ride and accessibility design advice when designing kiss ‘n’ ride facilities. TransLink can provide information about acceptable best practice.
 CHAPTER
Supporting Access Infrastructure

The following is a summary of applicable standards and TransLink-specific interpretations.

- **Envelope:**
  - parking bay envelope will vary depending on configuration. Any non-parallel bays will meet off-street parking standards as identified in Australian Standards
  - the minimum kerbside bay width and length is as specified in applicable Australian Standards (including fully accessible bays for people with disabilities)
  - the minimum height clearance is as per applicable Australian Standards
  - angle parking bay dimensions will require the specific physical dimensions as per applicable Australian Standards.

- **Minimising inter-modal conflict:**
  - slow vehicles entering and exiting a kiss ‘n’ ride facility when approaching potential points of conflict—intersections, blind curves, crossings
  - clearly identify crossing arrangements if kiss ‘n’ ride patrons are required to cross a carriageway of any sort
  - where a bicycle access path runs parallel at-grade with a kerbside (parallel) kiss ‘n’ ride bay, provide additional dedicated lane width to the right of the bay. On no account should cyclists be encouraged to proceed on the left of a kiss ‘n’ ride bay, on or off-road
  - bicycle paths should avoid interaction with kiss ‘n’ ride bays and for no reason should bicycle paths be led through shared zones for accessible kiss ‘n’ ride bays.

- **Paths and waiting amenities:**
  - the appropriate LOS provision for a waiting area consisting of hardstand area with a suitable slip-resistant finish (as per accessibility and architectural design requirements). This is in addition to a minimum pathway allowance
  - access pathways to stops or stations will meet the requirements outlined previously for pedestrian infrastructure
  - the pathway will extend the full length of the facility, providing access to the full length of all bays
  - where the carriageway and waiting area/circulation paths are at different grades, a minimum of specified additional width will be provided to accommodate kerb ramps as per applicable Australian Standards
  - kerb ramps must be provided at the front or rear of each bay length as per applicable disability and Australian Standards
  - shelter structure design at a kiss ‘n’ ride will be consistent with the applicable TransLink stop or station architecture guidelines and any nominated precedent
  - minimise the distance between the kiss ‘n’ ride and bus stopping positions consistent with its place as a preferred access mode. Where possible, walking distance between the public transport boarding point and kiss ‘n’ ride area should not be more than 150 metres for pedestrians
  - where applicable, kiss ‘n’ ride areas and connecting paths should be specifically covered by security camera infrastructure (e.g. CCTV) with the ability to survey movements between public transport platforms and a kiss ‘n’ ride
  - lighting should meet applicable platform lighting standards.

Consult TransLink for advice and application of kiss ‘n’ ride standards and guidelines.
4.6 Park ‘n’ ride infrastructure

Park ‘n’ ride is an important access mode for the TransLink network and is provided at stops and stations serving low-density residential areas where the level of public transport service is low. This section explains how to provide applicable park ‘n’ ride infrastructure that enhances access to stops and stations. It examines this in a broader context as well as in the specific context of appropriate infrastructure.

Park ‘n’ ride infrastructure primarily refers to:

- parking bays, shared or dedicated, kerbside or on-site (off-street) that are specifically allocated for public transport purpose. These can include:
  - indented parallel bay style provision along a kerb line
  - regular (non-indent) kerbside bays allocated as dedicated or shared (by time) for public transport parking
  - dedicated or shared angle parking bays within a dedicated parking lot associated with a park ‘n’ ride or adjacent activity centre
  - dedicated motorcycle parking areas
- associated supporting elements, including:
  - overflow capacity
  - vehicle access roads
  - amenity utilities
  - pedestrian access paths.

Park ‘n’ ride infrastructure considerations include:

- access from the road network around a station
- interface between the stop or station and the park ‘n’ ride infrastructure
- its role as the key access point for people with mobility impairments
- the profile of demand across an average timescale (e.g. day, week, and year)
- asset management.

4.6.1 Broad considerations

With reference to the applicable standards and guidelines for stop and stations, consider the following:

- the broader network
- network integration
- design integration
- internal network
- location
- need identification
- park ‘n’ hide
- land use integration
- staging
- adjacent land uses
- accessibility.
4.6.1.1 The broader network

A key success factor for any park ‘n’ ride is the convenience with which it can be accessed and egressed in relation to the origin and destination of the vehicle. The need for convenience must also be balanced against the impact of the park ‘n’ ride with regard to the safety and efficiency of users and other transport networks. It is important to consider the interaction of park ‘n’ ride infrastructure with adjacent roads, pedestrian paths and bicycle paths.

4.6.1.2 Network integration

The following considerations should be applied with respect to integration with the broader transport networks:

- direct access to and from arterial, sub arterial and distributor roads is preferred
- local streets should not be used for park ‘n’ ride access if avoidable. If they must, the physical length required for access of this use should be minimised and preferably contained to short sections that relate directly to the stop or station facility
- park ‘n’ ride activity should be accommodated within a formalised facility—informal park ‘n’ ride activity should be discouraged, particularly where safety, amenity and intrusion issues are likely to occur
- off-street location of park ‘n’ ride services is preferred
- the use of controlled movements at access points should be assessed where the ratio of traffic volume (park ‘n’ ride and passing traffic) and road capacity prevents efficient and safe vehicle ingress and egress
- where demand is likely to peak sharply, consider the impact of queuing at entry and exit points
- park ‘n’ ride entry points should minimise the interruption of pedestrian and bicycle movements. Where interaction is required and volumes for any or all of the modes are high, consider the use of controlled movements
- changes in traffic volumes may require upgrades to road infrastructure on streets feeding the site. This may include intersection upgrades, carriageway reconfigurations, traffic calming or resurfacing
- park ‘n’ ride sites should not interrupt, and minimise the need to cross, pedestrian and bicycle paths or lanes
- assess the impact of the park ‘n’ ride on route capacity and the implications for network planning in terms of the need for additional services and/or dedicated routes.

TransLink provides dedicated park ‘n’ ride infrastructure that is directly related to stops or stations in accordance with TransLink policy. There may be a situation where a park ‘n’ ride site is shared between a stop or station and an adjacent land use such as a shopping centre, education centre or other activity centre. In such situations it will be essential to ensure that the intended capacity is provided for all uses during peak times and clear responsibilities for provision, maintenance and security are established.

Connections to and from park ‘n’ ride sites should be accessible, direct and legible. Particular elements that need focus include:

- intra-modal conflict—access from and egress to the road network
- inter-modal conflict—relationship with pedestrian, bicycle and public transport travel paths
- CPTED principles.
4.6.1.3 Design integration

Consider connections to and from the road network and the integration with other movement networks associated with the locality and the stop or station. The design will also need to address the relationship of the park ‘n’ ride with the amenity of the immediate physical environment and any known future development planning.

Consider the following:

- identify the main directions of vehicle flow into and out of the park ‘n’ ride site considering stop or station area entry arrangements, station design intents and the location of any other supporting access infrastructure such as bicycle and kiss ‘n’ ride infrastructure
- it is preferred that vehicle queues awaiting entrance to a park ‘n’ ride are oriented away from the immediate vicinity of the stop or station
- identify the need for operational requirements that could potentially share the site such as bus lay-bys and drivers amenities
- promote safety and efficiency of movement by providing connections to and from the park ‘n’ ride site to minimise inter-modal conflict and provide direct connection to public transport access
  - minimise the need for vehicles accessing the park ‘n’ ride to cross or share paths with cyclists and/or pedestrians
  - facilitate safe and direct pedestrian access to the stop or station
  - provide sufficient width on shared access paths for pedestrians
  - minimise the need for physical as opposed to spatial barriers between modes—i.e. avoid fences and barriers except where overall path corridor width is constrained
  - where there is the need for pedestrians to cross vehicular (motorised or bicycle) traffic, park ‘n’ ride entry and exit points to and from the stop or station should be located adjacent to or near pedestrian crossings that provide direct access to the primary stop or station entry point
- ensure that public transport information is provided in advance at transition points between the park ‘n’ ride and the stop or station
- apply CPTED principles to maximise pedestrian safety, visual integration and the use of security infrastructure (e.g. CCTV)
- wherever possible, segregate park ‘n’ ride access traffic from other stop or station traffic to help control movement and limit the complexity of vehicle movements in the area. An example of this is illustrated in Appendix B (see B3.2) where the park ‘n’ ride traffic separates from the kiss ‘n’ ride and bicycle traffic close to the entry from the road network
- kiss ‘n’ ride infrastructure will have priority for proximity to the station entry points. Park ‘n’ ride access to stop or station entry points will need to balance this.

It may be necessary to compromise between proximity and convenience of vehicle access and the availability and configuration of available land. Seek a balanced solution as both determine attractiveness—however pedestrian and traffic safety is always paramount.

4.6.1.4 Internal network

A park ‘n’ ride site generally consists of an at-grade area of dedicated parking bays. This can either be allocated kerbside parking spaces, or an off-street purpose built site with angle parking bays separated by circulation aisles. Most current off-street park ‘n’ rides are at-grade, however in some instances a site may be located with a multi-story structure.

Sufficient capacity should be provided to cater for movement of embarking and disembarking passengers between vehicles, waiting areas and/or access paths to the...
stop or station. Larger, or more expansive, facilities may also include separated pedestrian distribution paths and supporting amenities (e.g. toilets). Wherever possible, minimise the distance that pedestrians are required to use vehicle circulation aisles to move between parking bays and entry/exit points.

In some cases, it may be necessary to accommodate through-pedestrian movements where a major pedestrian access path intersects the park ‘n’ ride site. In such situations it is preferred that a dedicated pedestrian path is created with minimal interaction between vehicles and pedestrians exiting vehicles.

Other considerations include:

- safe and efficient distribution of vehicles between parking bays and internal road networks
- minimise directional conflict between vehicles on entry and exit paths as well as within internal distribution networks. Consider one-way or cul-de-sac aisles
- avoid the need for cyclists and pedestrians to use parking aisles for access to end-of-trip amenities
- ensure that pedestrian access routes between the stop or station and the park ‘n’ ride site provide appropriate capacity, meet applicable accessibility requirements and are easily recognisable
- design for pedestrian and vehicle access control with consideration of:
  - restrictions to operating hours
  - personal and property security
  - capacity management and possible introduction of parking fees
- design the circulation network for ease of manoeuvring and safety
- avoid sharp turns and maintain sightlines
- consider the visibility of objects such as poles, stop bars, hand-rails, barriers and sign posts.

4.6.1.5 Location

Location of park ‘n’ ride will conform with transLink policy for park ‘n’ ride provision in the TransLink network.

Generally, park ‘n’ ride is preferred at stations which are situated within a low-density residential catchment where the level of public transport services is considered low. Some high-frequency premium and terminus stops will also provide a sufficient level of service to warrant park ‘n’ ride infrastructure.

Park ‘n’ ride infrastructure may also be provided at stops or stations serving lesser activity centres within residential areas. In such instances there will be a need to off-set park ‘n’ ride supply against the need to maintain parking for businesses or other activity purposes. Local parking supply management may be needed to supplement this strategy and to control parking demand. In some instances, park ‘n’ ride sites may be shared between land uses. This is the preferred arrangement at sporting and recreational facilities where peak demands do not coincide with typical park ‘n’ ride peak demands. Despite this, park ‘n’ ride should not be combined if there are expected to be capacity conflicts between peak demand periods for the stop or station and the appropriate adjacent land use.
4.6.1.6 Need identification

Park ‘n’ ride demand forecasting can be modelled using most applicable tools. Most applicable models configured to simulate public transport demand will be able to allocate park ‘n’ ride demand based upon supply variables. TransLink will inform the need and scale of park ‘n’ ride infrastructure on the TransLink Network.

Generally, the type and scale of park ‘n’ ride infrastructure provided at TransLink stops and stations will primarily be based upon transport and land use policy, network strategy, available space and site development planning.

4.6.1.7 Park ‘n’ hide

Generally, it can be assumed that if park ‘n’ ride is provided at any stop or station with a reasonable level of service, it will be used. Past experience throughout SEQ is that park ‘n’ ride supply will generate an overflow of demand. This can lead to what is referred to as park ‘n’ hide, or park ‘n’ ride activity using non-designated spaces, usually occurring in local streets or in private or public parking spaces provided specifically for commercial activities. This has an impact on local residents and businesses in terms of access to their premises along with safety issues.

Where park ‘n’ ride is to be provided, consideration should be given to local parking management, both within the greater stop or station facility and the immediate local area. In developing a local parking management scheme consider a pedestrian’s willingness to walk between a park ‘n’ hide spot and a highly serviced stop or station. TransLink suggests that this can exceed a 400 metre walk.

4.6.1.8 Land use integration

A park ‘n’ ride can be a substantial land holding within a stop or station area. If a new park ‘n’ ride is to be developed, it should contribute to realising the long-term strategic planning intent for the immediate precinct. Accordingly, the design and configuration of the site should:

- protect for strategic planning intents for adjacent properties and the surrounding precinct
- where appropriate, directly integrate with (or at least support) any planned public infrastructure such as pedestrian and bicycle connections, open space, social infrastructure (education, health, community or other public buildings)
- protect for any statutory planning requirements for adjacent properties
- protect the amenity of the immediate stop or station facility
- avoid isolation from surrounding land uses.

If park ‘n’ ride is to be planned with surrounding development (such as office, commercial or other relevant activities), immediate priority should be given to creating developments with more street active frontages which are more pedestrian friendly as opposed to parking dominant (see figure 4.2 and 4.3). Other benefits include:

- more convenient access to possible commercial development pedestrians in neighbouring communities
- more convenient access for pedestrians accessing public transport stops or stations from the surrounding neighbourhood
- multi-purpose trips with possible employment trips combining with shopping trips
- greater safety around the park ‘n’ ride sites due to shared use of commercial development generating extended hour activity.
Figure 4.2 Desirable parking layout with development

Figure 4.3 Undesirable parking layout with development
A park ‘n’ ride site can potentially act as a catalyst for precincts identified for future development. In such situations it is important to plan for anticipated evolution of site to:

- maintain consistency with the changing precinct
- allow for catalyst development on publicly owned land (i.e. the park ‘n’ ride site)—this may replace the park ‘n’ ride if the long-term land use and surrounding development encourages greater urban consolidation around the public transport facility. An example of this is shown in figure 4.4.

To manage the long-term evolution of a park ‘n’ ride site, ensure that all development assessment requirements are clearly established upfront and are lodged with relevant referral authorities and follow relevant assessment processes.

**Figure 4.4** Consolidated commercial and residential development replacing park ‘n’ ride

### 4.6.1.9 Staging

A park ‘n’ ride development may be delivered in stages to suit various delivery mechanisms or potential for changes in park ‘n’ ride capacity supply and/or site configuration at the stop or station. If the site is planned to change over time, prepare a strategic staging plan to protect for these anticipated changes.

This may take the form of reconfiguration or expansion of park ‘n’ ride capacity either horizontally or vertically. Where horizontal expansion is planned:

- prepare a property procurement plan to ensure strategic land assembly
- clearly identify the future requirements under the development assessment process to protect the requirement and facilitate land assembly
- ensure that high quality pedestrian access to the stop or station are considered for provision
- assess the impact of the changes on surrounding local and internal traffic networks.

Where vertical expansion is planned:

- protect for a suitable column grid, footings and service utility connections based upon structural requirements for the number of levels that are to be constructed
- protect for vertical vehicle movement infrastructure (ramps) and ensure that they will be aligned with internal and/or external road networks
- protect for vertical person movement infrastructure (lifts, overpasses, stairs and escalators) and ensure that they will be aligned with stop or station pedestrian networks and design requirements
• assess and offset the impact of the additional infrastructure against long-term at-grade pedestrian and bicycle connections to the stop or station
• plan for the operation of the park ‘n’ ride during construction of stages.

Also consider the need to protect for the provision of limited peak activity spill-over parking that does not impact on other stop or station access modes, or safe and efficient movement in the immediate local area. It is important to manage the intermittent peaks in demand as a park ‘n’ ride approaches capacity or while being constructed.

If future demand is uncertain or likely to be highly variable then consider shared allocation arrangements on a physical or temporal basis, for example with:
• parking purposes for other land uses that have complimentary demand profiles
• other complimentary activities such as community markets
• informal parking
• operational facilities such as bus layover and stabling.

4.6.1.10 Adjacent land uses
As per 4.1.3.4 Surrounding land uses, review nearby land uses and gauge potential park ‘n’ ride related risks, impacts and needs that they may generate. In particular:
• identify any particular park ‘n’ ride activity needs, associated with land uses in areas which may impact on the public transport stop or station, such as:
  — childcare centres
  — primary, secondary, special, and tertiary education centres
  — large healthcare centres such as hospitals
  — office and business centres
  — retail or recreational facilities
  — sporting facilities
• if there is likely to frequently be people with mobility impairments, children or inebriated people using the stop or station or passing by; car drivers and pedestrians should be cautioned to take extra care near crossing points
• consider cultural heritage or environmental issues within a stop or station precinct. These may influence the scale and nature of park ‘n’ ride site.

4.6.1.11 Accessibility
All park ‘n’ ride infrastructure should meet the requirements for use by persons with a disability as per the standards for parking bays set out in applicable disability standards and Australian Standards.

The minimum provision for disabled parking at a park ‘n’ ride is 1-3 per cent of the total number of parking bays as specified in applicable disability standards (TransLink prefers 3 per cent be achieved). Examine the need for additional park ‘n’ ride bays for people with mobility impairments or other disabilities at locations where park ‘n’ ride demand is likely to approach or exceed capacity or where higher than average demand for park ‘n’ ride by people with mobility impairments or other disabilities might be expected (for example at a station serviced by routes linking to a major clinical or community health facility or other services for people with a disability).
4.6.2 Park ‘n’ ride demand

It is important to identify likely park ‘n’ ride demand profiles for park ‘n’ ride access requirements. There are a range of applicable tools and data available for forecasting park ‘n’ ride demand.

TransLink policy will be used alongside demand estimates to inform the development of park ‘n’ ride infrastructure at a stop or station. It will be important to establish the intended demand which is considered suitable for its function in the TransLink network. Where space is at a premium or demand can be offset, there may be other strategies available than simply providing more capacity such as active management, and supply management (e.g. parking fee, communication of capacity, additional supply off-site).

Model inputs and assumptions should always be carefully critiqued. Consult TransLink for further information about park ‘n’ ride demand forecasting.

The variables that should be considered include:

- the reasonable park ‘n’ ride catchment will be impacted by:
  - the surrounding topography—i.e. land use, traffic and safety
  - the demographics of immediate population catchment
  - the trip attraction and purpose of the immediate catchment
  - the ease and safety of vehicle access and quality of vehicular movements
  - climate—the tendency for park ‘n’ ride may be higher where heat or inclement weather is more regular
  - level of accessible public transport service
- the demographic make-up of potential park ‘n’ ride users and their differing needs—including disabled persons and motorcyclists
- existing and future development intensity such as population density and dwelling density—apply mode share and relevant targets
- parking activity generated by adjacent land uses
- mode share assumptions or broad target policy can be applied to generate approximate volumes or future targets.

TransLink will provide final advice on establishing park ‘n’ ride demand and determining need for infrastructure.

4.6.3 Supporting components

The scope for providing supporting components will be subject to the scale and functionality requirements of the public transport facility and any immediately adjacent land uses which may impact on the facility.

4.6.3.1 Signage and wayfinding

Signage and wayfinding for park ‘n’ ride should be implemented at a scale that allows for in-vehicle navigation and information. All information relevant to the use of a park ‘n’ ride needs to be imparted on the approaching roadway. Any information about public transport services, construction or maintenance activities should be collated and provided at suitable pedestrian dwell points within the park ‘n’ ride or within the stop or station facility.

The signage plan for a stop or station should include any signage associated with supporting park ‘n’ ride infrastructure to be included. A review of off-site directional signage needs associated with a stop or station should be undertaken and presented to the key stakeholders responsible for local road infrastructure. Consultation should then proceed regarding the quality and extent of directional signage provision.
4.6.3.2 Amenity utilities

Amenity utilities for park ‘n’ ride users include items that are desirable for improving the experience of using the facility but that are generally not considered an immediate necessity. All such components for park ‘n’ ride should be concentrated around the primary park ‘n’ ride entry point to/from the stop or station and placed so as to allow clear visibility without compromising pedestrian safety. This particularly includes not creating either physical protrusion or the incidental conflict for people accessing these facilities into pathways or other spaces. The components are included in table 4.7.

<table>
<thead>
<tr>
<th>Amenity utility</th>
<th>Consideration requirement/notes</th>
</tr>
</thead>
</table>
| Shelter from rain, sun and wind                     | • Consider the need for pedestrian shelters at designated waiting or pick up points and along walkways based upon available alternative shelter and exposure of location.  
  • Consider the need for shelter for vehicles where they may be exposed to harsh sun and extreme weather events.  
  • Refer to TransLink for architectural design guidance. |
| Rubbish bins and drinking fountains                 | • Consider provision at pedestrian dwell points if alternatives are not available nearby.       |
| Vending machines and other retail activity          | • Vending machines should not generally be provided in direct association with park ‘n’ ride infrastructure.  
  • Consider the provision of spaces suitable for complimentary commercial activity such as car washes, convenience shops, drycleaners mechanical services etc. |
| Non-public transport based information points—static, dynamic, interactive | • Consider opportunities for these at pedestrian dwell points to allow for dissemination of urgent information by government stakeholders and public transport operators.  
  • Clearly establish installation, asset management, maintenance and use conditions and arrangements before inclusion. |
| Advertising                                          | • Consider provision where amenity and CPTED principles are not compromised and where adequate exposure is available to meet market expectation. |
| Emergency call points                                | • Consider the location of emergency call points at the primary park ‘n’ ride entry point to/from the stop or station.  
  • Ensure electrical and communication connections are provided or protected for if not immediately supplied. |

4.6.4 Asset management

Where management arrangements will differ from existing practice for TransLink park ‘n’ rides or involve third parties, a summary of management arrangements should be prepared that clearly outlines responsibilities, exemptions, procedures and cost allocations associated with the management, operation and maintenance of the park ‘n’ ride site.

Wherever possible, minimise the maintenance needs and costs for components within a park ‘n’ ride structure. Consider the cost of daytime lighting, active security etc.
4.6.5 Design considerations

All park ‘n’ ride infrastructure is to be consistent with the standards and requirements outlined in the applicable disability standards, Australian Standards and any other relevant supporting documents and references. Any exceptions will need to be consulted upon and agreed to with TransLink and relevant stakeholders.

Standards for parking facilities:

- off-street car parking as per Australian Standards
- on-street car parking as per Australian Standards
- off-street parking for people with disabilities as per Australian Standards.

Specialist park ‘n’ ride and accessibility design advice should be sought when designing park ‘n’ ride facilities. Advice on standards and current best practice can be sought through TransLink and relevant government agencies.

The following is a summary of the requirements along with any TransLink specific interpretations.

- Envelope:
  - parking bay envelope will vary depending on configuration of provision. Any non-parallel bays will meet off-street parking standards as identified in Australian Standards
  - the minimum width and length for a kerbside park ‘n’ ride bay is as specified in applicable Australian Standards (including fully accessible bays for people with disabilities)
  - the minimum height clearance is as specified in applicable Australian Standards
  - angle parking bay dimensions will require the specific physical dimensions as per applicable Australian Standards.

- Minimising inter-modal conflict:
  - slow vehicles entering and exiting a park ‘n’ ride facility when approaching potential points of conflict—intersections, blind curves, crossings
  - clearly identify crossing arrangements if park ‘n’ ride patrons are required to cross a carriageway of any sort
  - where a bicycle access path runs parallel at-grade with park ‘n’ ride access road, provide an additional dedicated lane width
  - bicycle paths should avoid interaction with park ‘n’ ride aisles and for no reason should bicycle paths be led through shared zones for accessible park ‘n’ ride bays
  - TransLink has a preference for separation of vehicle entry and exit paths (as per Appendix B, see Supporting access infrastructure principles)
  - TransLink has a preference for the use of pedestrian to vehicle access paths between rows of parking bays (as illustrated in Appendix B, see Supporting access infrastructure principles)
  - where possible, utilise ramps and overpasses by taking advantage of site topology to avoid lift and stairs
  - access paths to stops or stations will meet the requirements outlined previously for pedestrian infrastructure
  - where parking bays and circulation paths are at different grades, additional path width will be provided to accommodate kerb ramps as per Australian Standards
  - kerb ramps will be provided near accessible bays as per applicable Australian Standards.
Access roads:
- Carriageway and bay surface materials will be designed for ease of cleaning and slip resistance in all weather conditions.
- Surfaces will be designed to avoid pooling or collection of detritus or other unwanted debris.
- Carriageways will be designed to withstand occasional limited use by heavy vehicles. Areas where this is not reasonable should be clearly signed or made inaccessible to such vehicles.
- Utilise plantings that are:
  - unlikely to interfere with carriageway or parking bay integrity
  - unlikely to interfere with above and below ground services and utilities
  - unlikely to regularly shed material that may make a carriageway slippery, damage vehicles or surface materials
  - unlikely to intrude upon a carriageway at ground level
  - unlikely to significantly block views between 0.5 and 2.5 metres above ground level
  - drought resistant
  - not toxic, highly allergenic or obnoxious weeds
  - not known to produce thorns, barbs, stings or noxious secretions
  - not generally known to broadly attract obnoxious or dangerous fauna
  - consistent with local flora and in natural areas of significant ecological value are from the local genetic populations.

Lighting:
- Lighting is to be provided at all pedestrian areas and roadways while lighting levels are required to meet the applicable regulation standards for public transport and parking facilities.
- Lighting along carriageways should meet applicable roadway lighting standards.
- Lighting along pedestrian circulation paths should be consistent with all other pedestrian paths.
- Minimise light spill from lighting using spill guards.
- Minimise light spill from headlights into adjacent residences and businesses that operate at night. Use plantings and carriageway geometry as the preferred treatment methods. Avoid glare screens except where other options are not available. Where glare screens are approved for use, ensure that they match the design theming and standards applied to the stop or station architecture.
- Consider lighting needs inside a multi-story park ‘n’ ride including:
  - Seasonal impacts on maintaining access for natural light
  - The impact on visual sightlines and reflectivity from headlights and down-lights.
- Refer to Appendix B for further details regarding lighting requirements at park ‘n’ rides.
• consider noise impacts on adjacent properties by:
  — minimising reverberation and vibration from vehicle and vocally-generated noise
  — avoiding surfaces that may cause wheel squeal or excessive noise
  — locating noisy operational equipment away from residential or business properties or sound-proofing the plant housing.

• General:
  — design the layout of the park ‘n’ ride to facilitate progressive filling of spaces in a way that avoids the need for re-circulation to search for vacant spaces
  — design shelter structures at park ‘n’ ride facilities to be consistent with the applicable TransLink stop or station architecture guidelines and any nominated precedent
  — where applicable, park ‘n’ ride facilities and connecting paths should be specifically covered by security infrastructure (e.g. CCTV) with the ability to survey movements between public transport platforms and the park ‘n’ ride
  — protect for the implementation of access control devices (gates) and payment/validation infrastructure at park ‘n’ ride entry points
  — design spaces for motorcycle parking in accordance with Australian Standards
  — stormwater drainage from parking areas should be captured and treated prior to release into local stormwater systems
  — structures should capture stormwater and rainfall for re-use on-site
  — utilise gentle vehicle ramps within multi-story car park structure, potentially through ramped floors within carpark to protect against the impact of lift failure.

Consult TransLink for advice and application of park ‘n’ ride standards and best practice guidelines.
CHAPTER

Branding, Theming and Signage
05

5.1 Introduction

This chapter contains the branding, theming and signage considerations required for TransLink infrastructure. The three components help customers identify an integrated system which brings together multiple individual public transport operators coordinated by TransLink.

5.2 Branding and theming

Consistent branding and theming helps customers to instantly recognise and understand the TransLink network.

For the purpose of this manual, branding refers to use of the TransLink logo, ellipse device and name style—and where applicable, the Queensland Government logo.

Theming refers to the specific design language created through the use of the TransLink infrastructure colour palette and architectural design features and finishes.

5.2.1 Branding on infrastructure

5.2.1.1 The TransLink brand

The TransLink logo comprises the ellipse device and the name in italicised font with TRANS reproduced in capitals followed by Link with a capital L only. The ellipse device is centred in front of the name and is twice the height of the lettering.

For major public transport infrastructure, a stylised version of the TransLink logo is used to maximise visibility in high traffic areas. The ellipse device is used together with the TransLink name style as shown below (see figure 5.1). The width of the ellipse device in light orange is equal to the width of the full TransLink logo in white. Refer to TransLink’s train and bus station signage manuals for full details regarding colour and dimensions for each signage type.

Figure 5.1 TransLink brand application for major infrastructure signage

The TransLink logo should always be created from original, digital artwork and must not be recreated or redrawn. Contact TransLink for original artwork.
5.2.1.2 The Queensland Government logo

The Queensland Government logo must be used alongside the TransLink logo on major public transport infrastructure signage owned in whole or in part by the Queensland Government.

The preferred representation of the Queensland Government logo to be full colour. When used with a mid tone or dark background, the text elements should be white. Refer to TransLink’s infrastructure signage manuals for full details regarding colour and dimensions for each signage type.

The Queensland Government logo should always be created from original, digital artwork and must not be recreated or redrawn. Contact TransLink Marketing for original artwork.

5.2.2 Infrastructure theming

Theming is concerned with projecting a consistent design language which is user-friendly, familiar and instils confidence in existing and potential passengers. Infrastructure theming assists customers to quickly identify certain facilities and helps remove confusion when several brands and labels are used.

TransLink’s infrastructure theme is characterised by a modern, high-quality, lightweight appearance and open structures with an approved colour palette. Using a standard selection of components and a colour palette can reduce ongoing maintenance and material costs, and generate savings with initial component procurement.

The TransLink infrastructure colour palette incorporates the use of minimal key colours, with natural tones, to represent a **bush to beach** theme which complements the SEQ natural environment. The aim is to achieve simplicity within the overall station environment, yet provide a common and sophisticated appearance that sits comfortably with the surrounding community. Figures 5.2 and 5.3 demonstrate how the bush to beach theme translates to the TransLink infrastructure colour palette and architectural design features.

The TransLink infrastructure colour palette is to be used for all public transport infrastructure investments across SEQ. Consult TransLink for guidance on the specific application of the TransLink infrastructure colour palette. (Table 5.1)
Figure 5.2 Bush to beach theme

Figure 5.3 TransLink infrastructure theme
It is intended that the base colour palette be used with an option of additional complimentary colours, artwork and plantings to create a modern and sophisticated station environment that can be easily maintained.

** or equally approved safety glass

- Toughened / laminated

### Additional Colour Options

** Primary corporate colour sample

<table>
<thead>
<tr>
<th>Colour Code</th>
<th>Colour Name</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>N38-007-359</td>
<td>Light Orange</td>
<td>Primary signage colour</td>
</tr>
<tr>
<td>N31-007-245</td>
<td>Mid-dark Grey</td>
<td>Primary facility colours</td>
</tr>
<tr>
<td>N25-001-045</td>
<td>BlackOPaque Vinyl</td>
<td>Ancillary colour</td>
</tr>
</tbody>
</table>

### Ancillary Colour Options

<table>
<thead>
<tr>
<th>Colour Code</th>
<th>Colour Name</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>G94-10283-90</td>
<td>Resene Rice</td>
<td>Doors and window frames</td>
</tr>
<tr>
<td>N65-003-154</td>
<td>Resene Cod</td>
<td>Supporting facilities; buildings (driver amenities, public toilets, retail kiosks, etc)</td>
</tr>
<tr>
<td>N39-008-260</td>
<td>Resene Tuna™</td>
<td>Primary corporate colour</td>
</tr>
</tbody>
</table>

### Other Special Colour Selection Options

- ** or equally approved colour sample for Queensland Rail

### Secondary Facility Colours

- ** or equally approved colour sample for Queensland Rail

### Ancillary Components and Parts

- ** or equally approved colour sample for Queensland Rail

### Primary Corporate Colour Sample

- ** or equally approved colour sample for Queensland Rail

### TransLink Infrastructure Colour Palette

- ** or equally approved colour sample for Queensland Rail

### Building Infrastructure Signage

- ** or equally approved colour sample for Queensland Rail

### Supporting Facilitites; Buildings

- ** or equally approved colour sample for Queensland Rail

### Structural Steelwork

- ** or equally approved colour sample for Queensland Rail

### Roller Shutters

- ** or equally approved colour sample for Queensland Rail

### Retaining Walls

- ** or equally approved colour sample for Queensland Rail

### TransLink Bus Stop Shelters

- ** or equally approved colour sample for Queensland Rail

### Woodland Grey

- ** or equally approved colour sample for Queensland Rail

### Dark Grey

- ** or equally approved colour sample for Queensland Rail

### Light Grey

- ** or equally approved colour sample for Queensland Rail

### Off White

- ** or equally approved colour sample for Queensland Rail

### Dark Metallic Grey

- ** or equally approved colour sample for Queensland Rail

### Green

- ** or equally approved colour sample for Queensland Rail

### Yellow

- ** or equally approved colour sample for Queensland Rail

### Charcoal

- ** or equally approved colour sample for Queensland Rail

### Grey

- ** or equally approved colour sample for Queensland Rail

### Solid PMS

- ** or equally approved colour sample for Queensland Rail

### Translink Infrastructure Colour Palette

- ** or equally approved colour sample for Queensland Rail

### Colour Name

- ** or equally approved colour sample for Queensland Rail

### Application and Use

- ** or equally approved colour sample for Queensland Rail

### Code

- ** or equally approved colour sample for Queensland Rail

### Material

- ** or equally approved colour sample for Queensland Rail

### Code

- ** or equally approved colour sample for Queensland Rail

### Product

- ** or equally approved colour sample for Queensland Rail

### Code

- ** or equally approved colour sample for Queensland Rail

### Building Infrastructure Signage

- ** or equally approved colour sample for Queensland Rail

### Supporting Facilitites; Buildings

- ** or equally approved colour sample for Queensland Rail

### Structural Steelwork

- ** or equally approved colour sample for Queensland Rail

### Roller Shutters

- ** or equally approved colour sample for Queensland Rail

### Retaining Walls

- ** or equally approved colour sample for Queensland Rail

### TransLink Bus Stop Shelters

- ** or equally approved colour sample for Queensland Rail

### Woodland Grey

- ** or equally approved colour sample for Queensland Rail

### Dark Grey

- ** or equally approved colour sample for Queensland Rail

### Light Grey

- ** or equally approved colour sample for Queensland Rail

### Off White

- ** or equally approved colour sample for Queensland Rail

### Dark Metallic Grey

- ** or equally approved colour sample for Queensland Rail

### Green

- ** or equally approved colour sample for Queensland Rail

### Yellow

- ** or equally approved colour sample for Queensland Rail

### Charcoal

- ** or equally approved colour sample for Queensland Rail

### Grey

- ** or equally approved colour sample for Queensland Rail

### Solid PMS

- ** or equally approved colour sample for Queensland Rail

### Code

- ** or equally approved colour sample for Queensland Rail

### Material

- ** or equally approved colour sample for Queensland Rail

### Code

- ** or equally approved colour sample for Queensland Rail

### Product

- ** or equally approved colour sample for Queensland Rail

### Code

- ** or equally approved colour sample for Queensland Rail

### Building Infrastructure Signage

- ** or equally approved colour sample for Queensland Rail

### Supporting Facilitites; Buildings

- ** or equally approved colour sample for Queensland Rail

### Structural Steelwork

- ** or equally approved colour sample for Queensland Rail

### Roller Shutters

- ** or equally approved colour sample for Queensland Rail

### Retaining Walls

- ** or equally approved colour sample for Queensland Rail

### TransLink Bus Stop Shelters

- ** or equally approved colour sample for Queensland Rail

### Woodland Grey

- ** or equally approved colour sample for Queensland Rail

### Dark Grey

- ** or equally approved colour sample for Queensland Rail

### Light Grey

- ** or equally approved colour sample for Queensland Rail

### Off White

- ** or equally approved colour sample for Queensland Rail

### Dark Metallic Grey

- ** or equally approved colour sample for Queensland Rail

### Green

- ** or equally approved colour sample for Queensland Rail

### Yellow

- ** or equally approved colour sample for Queensland Rail

### Charcoal

- ** or equally approved colour sample for Queensland Rail

### Grey

- ** or equally approved colour sample for Queensland Rail

### Solid PMS

- ** or equally approved colour sample for Queensland Rail

### Code

- ** or equally approved colour sample for Queensland Rail

### Material

- ** or equally approved colour sample for Queensland Rail

### Code

- ** or equally approved colour sample for Queensland Rail

### Product

- ** or equally approved colour sample for Queensland Rail

### Code

- ** or equally approved colour sample for Queensland Rail

### Building Infrastructure Signage

- ** or equally approved colour sample for Queensland Rail

### Supporting Facilitites; Buildings

- ** or equally approved colour sample for Queensland Rail

### Structural Steelwork

- ** or equally approved colour sample for Queensland Rail

### Roller Shutters

- ** or equally approved colour sample for Queensland Rail

### Retaining Walls

- ** or equally approved colour sample for Queensland Rail

### TransLink Bus Stop Shelters

- ** or equally approved colour sample for Queensland Rail

### Woodland Grey

- ** or equally approved colour sample for Queensland Rail

### Dark Grey

- ** or equally approved colour sample for Queensland Rail

### Light Grey

- ** or equally approved colour sample for Queensland Rail

### Off White

- ** or equally approved colour sample for Queensland Rail

### Dark Metallic Grey

- ** or equally approved colour sample for Queensland Rail

### Green

- ** or equally approved colour sample for Queensland Rail

### Yellow

- ** or equally approved colour sample for Queensland Rail

### Charcoal

- ** or equally approved colour sample for Queensland Rail

### Grey

- ** or equally approved colour sample for Queensland Rail

### Solid PMS

- ** or equally approved colour sample for Queensland Rail

### Code

- ** or equally approved colour sample for Queensland Rail

### Material

- ** or equally approved colour sample for Queensland Rail

### Code

- ** or equally approved colour sample for Queensland Rail

### Product

- ** or equally approved colour sample for Queensland Rail

### Code

- ** or equally approved colour sample for Queensland Rail

### Building Infrastructure Signage

- ** or equally approved colour sample for Queensland Rail

### Supporting Facilitites; Buildings

- ** or equally approved colour sample for Queensland Rail

### Structural Steelwork

- ** or equally approved colour sample for Queensland Rail

### Roller Shutters

- ** or equally approved colour sample for Queensland Rail

### Retaining Walls

- ** or equally approved colour sample for Queensland Rail

### TransLink Bus Stop Shelters

- ** or equally approved colour sample for Queensland Rail

### Woodland Grey

- ** or equally approved colour sample for Queensland Rail

### Dark Grey

- ** or equally approved colour sample for Queensland Rail

### Light Grey

- ** or equally approved colour sample for Queensland Rail

### Off White

- ** or equally approved colour sample for Queensland Rail

### Dark Metallic Grey

- ** or equally approved colour sample for Queensland Rail

### Green

- ** or equally approved colour sample for Queensland Rail

### Yellow

- ** or equally approved colour sample for Queensland Rail

### Charcoal

- ** or equally approved colour sample for Queensland Rail

### Grey

- ** or equally approved colour sample for Queensland Rail

### Solid PMS

- ** or equally approved colour sample for Queensland Rail

### Code

- ** or equally approved colour sample for Queensland Rail

### Material

- ** or equally approved colour sample for Queensland Rail

### Code

- ** or equally approved colour sample for Queensland Rail

### Product

- ** or equally approved colour sample for Queensland Rail

### Code

- ** or equally approved colour sample for Queensland Rail

### Building Infrastructure Signage

- ** or equally approved colour sample for Queensland Rail

### Supporting Facilitites; Buildings

- ** or equally approved colour sample for Queensland Rail

### Structural Steelwork

- ** or equally approved colour sample for Queensland Rail

### Roller Shutters

- ** or equally approved colour sample for Queensland Rail

### Retaining Walls

- ** or equally approved colour sample for Queensland Rail

### TransLink Bus Stop Shelters

- ** or equally approved colour sample for Queensland Rail

### Woodland Grey

- ** or equally approved colour sample for Queensland Rail

### Dark Grey

- ** or equally approved colour sample for Queensland Rail

### Light Grey

- ** or equally approved colour sample for Queensland Rail

### Off White

- ** or equally approved colour sample for Queensland Rail

### Dark Metallic Grey

- ** or equally approved colour sample for Queensland Rail

### Green

- ** or equally approved colour sample for Queensland Rail

### Yellow

- ** or equally approved colour sample for Queensland Rail

### Charcoal

- ** or equally approved colour sample for Queensland Rail

### Grey

- ** or equally approved colour sample for Queensland Rail

### Solid PMS

- ** or equally approved colour sample for Queensland Rail

### Code

- ** or equally approved colour sample for Queensland Rail

### Material

- ** or equally approved colour sample for Queensland Rail

### Code

- ** or equally approved colour sample for Queensland Rail

### Product

- ** or equally approved colour sample for Queensland Rail

### Code
5.3 Signage

5.3.1 Principles of signage

The following principles are considered important for effective signage of public transport infrastructure and services:

5.3.1.1 Identify

Major stop or station identification signs should:

- be visually distinctive
- clearly display an approved TransLink logo
- display the stop or station name
- display an icon depicting modes of travel available from the stop or station.

5.3.1.2 Orientate

The stop or station should provide directional information regarding public transport and supporting components, including:

- an information point explaining travel options (where services go and the type of services available)—where appropriate, this can include alternative transport such as taxis
- a locality map to help orientate the user
- visible wayfinding signage to direct the passenger to public transport services and other points of interest (e.g. ticketing, toilets)
- wayfinding signage for the surrounding local area (i.e. adjacent streets and places of interest)
- the direction of travel for services using the stop or station.

5.3.1.3 Explain

The stop or station should provide highly-visible and clear information about services, including:

- timetables clearly showing site-specific departure times with destination names
- route number/s of services using the stop or station, if applicable
- network map identifying all services using the stop or station
- stop name and number, if applicable
- contact details for public transport network information
- fare zone number where public transport is located, if applicable
- unique stop identifier for bus stop location purposes.
5.3.2 Bus stop signage

All bus stop identification signage within the TransLink network should be implemented as per this manual and comply with applicable Australian Standards. TransLink will supply the required bus stop signage highlighted in this chapter except for stop signage required in Brisbane City Council (BCC), in which case will be supplied by BCC. Figure 5.4 contains examples of TransLink bus stop signage. For further details on TransLink bus stop signage specification and guidelines, refer to Appendix B.

![Bus stop signage examples]

**Figure 5.4** TransLink bus stop signage

5.3.3 Station signage

TransLink has developed a clear and consistent signage suite to be applied to all public transport stations within the TransLink network.

The TransLink signage suite will be applied to new and existing stations in the TransLink network to provide a consistent look and feel, and further integrate public transport services for customers.

Signage must be included as part of the overall station design. The signage, station theming and colour palettes must complement each other to provide a sophisticated yet functional facility.

It is intended that the use of specialised professional signage design services be used for station design projects.
5.3.3.1 Station signage strategy

The TransLink station signage strategy builds on the approved colour palette to complement the overall station environment.

Resene *Trinidad* (bright orange), or approved equivalent, is used as the primary background colour for signs directing to and identifying public transport. This would cover the entire movement of catching a public transport service from the beginning with station facility ID sign, to platform boarding point.

Resene *Jon* (warm grey), or approved equivalent, is the secondary background colour used for all other messages. This represents signage for other station components excluding the actual act of catching a public transport service (for example, ticketing, toilets, information, cycling amenities, kiss ‘n’ ride, park ‘n’ ride etc.).

For appropriate application of infrastructure signage guidelines and standards, refer to the current TransLink Signage Manuals.

Figures 5.5–5.19 provide examples of signs to be used within TransLink’s station facilities.

![Figure 5.5 Major station ID sign (8m or 9m high)](image1)

![Figure 5.6 Major station ID sign (6m high)](image2)
Branding, Theming and Signage

Figure 5.7 Secondary station ID sign (Facility-mounted)

Figure 5.8 Secondary station ID sign (Post-mounted)

Figure 5.9 Secondary station ID sign (Roof-mounted)
Figure 5.10 Minor wayfinding and facility ID signs

Figure 5.11 Directional sign (Ceiling-mounted)
Figure 5.12 Directional sign (Wall-mounted)

Figure 5.13 Directional sign (Freestanding)

Figure 5.14 Information or timetable sign
Figure 5.15 Platform sign with real-time display

Figure 5.16 Ticket office signs

Figure 5.17 Platform bus station sign
Figure 5.18 Directional and information display sign

Figure 5.19 Wayfinding, platform and information display signs
Appendix A

Information resources and references

The applicable information resources and references include (but are not limited to):

A1 General policy reference materials:
- Connecting SEQ 2031: An Integrated Regional Transport Plan for South East Queensland
- South East Queensland Regional Plan 2009-2031
- TransLink Network Plan
- Regional and Local planning schemes and masterplans.

A2 General manuals and standard reference materials:
- Austroads Standards Australia
- Department of Main Roads’ Manual of Uniform Traffic Control Devices (MUTCD)*
- Department of Transport and Main Roads’ Road Planning and Design Manual: A guide to Queensland practice
- Queensland Government’s Transit Oriented development: guide for practitioners in Queensland
- Queensland Rail Stations Design Guide
- Queensland Transport and Main Roads Busway Planning and Design Manual*
- Standards Australia
- The Building Code of Australia (BCA)
- TransLink Infrastructure Signage Manual
- TransLink Transit Authority’s Corporate Identity Manual

A3 General legislation:
- Anti Discrimination Act 1991 (ADA)
- Disability Standards for Accessible Public Transport 2002 (DSAPT) as part of the Disability Discrimination Act 1994 (DDA)
- Environmental Protection Act 1994
- Environmental Protection and Biodiversity Conservation Act 1999
- Integrated Planning Act 1997
- National Greenhouse and Energy Reporting Act 2007
- Nature Conservation Act 1992
- Transport Infrastructure Act 1994
- Transport Operations (Road Use Management) Act 1995
- Transport Operations (TransLink Transit Authority) Act 2008
- Transport Planning and Coordination Act 1994
A4 General public transport accessibility:

- Disability Standards for Accessible Public Transport 2002
- Australian Standards and Australian Design Rules applicable to accessibility
- Australian Standard 1428.1 Supplement 1—Design for access and mobility. Part 1: General requirements for access—Buildings—Commentary (Supplement to AS1428.1—1993), 1993
- Australian Standard 1428.4—Design and Access and Mobility—Part 4: Tactile ground surface indicators for the orientation of people with vision impairment, 2002
- Australian Standard 2899.1—Public Information Symbol Signs—Part 1: General information signs, 1986
- Australian Design Rule 58—Requirements for Omnibuses designed for hire and reward, 2006

A5 Pedestrian access:

- Department of Main Roads (2006) Pedestrian Safety and Accessibility Audit Tools
- Department of Main Roads Road Planning and Design Manual Chapter 5: Traffic Parameters and Human Factors
- Australian/New Zealand Standard 1680.2.1—Interior and workplace lighting—Specific applications—Circulation spaces and other general areas, 2008
- Australian Standard 1742.10—Manual of uniform traffic control devices—Pedestrian control and protection, 1990
- Australian/New Zealand Standard 3661.2—Slip resistance of pedestrian surfaces—Guide to the reduction of slip hazards, 1994
- Australian/New Zealand Standard 4586—Slip resistance classification of new pedestrian surface materials, 2004
- Australian/New Zealand Standard 4663—Slip resistance measurement of existing pedestrian surfaces, 2004
- Austroads (2006), Pedestrian-Cyclist Conflict Minimisation on Shared Paths and Footpaths, Publication No. AP-R287/06
A6 Bicycle access:

- Australian Bicycle Council, Cycling Resource Centre
- Department of Main Roads, Queensland Cycle Network Directional Signage Guidelines
- Department of Main Roads, Manual of Uniform Traffic Control Devices (MUTCD), Part 9—Bicycle Facilities
- Queensland Transport, Queensland Transport Technical Information for Cycling
- Australian Standard 2890.3—Parking Facilities—Bicycle parking facilities, 1993

A7 Parking access:

- Australian/New Zealand Standard 1158.3.1—Lighting for roads and public spaces—Pedestrian area (Category P) lighting—Performance and design requirements, 2005
- Australian Standard 1158.4—The lighting of urban roads and other public thoroughfares—Supplementary lighting at pedestrian crossings, 1987
- Australian Standard 1742.11—Manual of uniform traffic control device—Parking controls, 1999
- Australian Standard 2890.1—Parking facilities—Off-street car parking, 2004
- Australian Standard 2890.5—Parking facilities—On-street parking, 1993
- Australian Design Rules 14021—Parking facilities—Off-street parking for people with disabilities (currently draft form), to become AS2890.6 Parking facilities—Off-street parking for people with disabilities

*Note: In March 2009, Queensland Transport and Department of Main Roads merged to form the Department of Transport and Main Roads. The resources referenced in this document are current as of time of publication.
Appendix B

Technical notes

B1 Bus stop technical notes

B1.1 Lighting requirements for bus shelters

Lighting is to be provided at all bus stops requiring shelters. Lighting levels are required to meet the current regulation standards for public transport facilities and signage.

Typical recommended lighting requirements for bus stop shelter infrastructure are to meet the applicable lighting subcategory P6 as per Australian Standards (AS/NZ 1158.3.1 2005—Lighting for roads and public spaces—Pedestrian area (Category P) lighting—Performance and design requirements). This subcategory with be dependent on the site-specific location of infrastructure.

TransLink and key stakeholders should be consulted when determining appropriate lighting levels for bus stop shelter infrastructure.

B1.2 Bus stop layout and construction details

The following section contains standard drawings for bus stop layout and construction details.
TRANSLINK FLAG SIGN WITH TIMETABLE DISPLAY CASES.

FROM KERB FACE TO POST C.L. ALLOW 0.75m.

BUS STOP SEATS SHOULD INCLUDE 1750mm (END CAPPED) ANODISED ALUMINIUM BATTENS WITH AN ARMREST CENTRALLY PLACED. SEAT SHOULD BE BOLTED TO HARDSTAND AREA, MADE FROM EASILY MAINTAINED MATERIALS AND AUSTRALIAN STANDARDS APPROVED. SEAT TO BE APPROVED BY TRANSLINK.

BUS STOP BIN SHOULD BE AN ALUMINIUM 80 LITRE CIRCULAR CONSTRUCTION (SMALL SLOT PERFORATIONS) WHICH CAN BE EASILY MAINTAINED. BIN SHOULD INCLUDE A GALVANISED STEEL LINER AND A BIRD PROOF LID WITH ASH OPTION. BIN SHOULD BE PREFERABLY SILVER IN COLOUR AND APPROVED BY TRANSLINK.

WHERE BUS STOPS ARE LOCATED ALONG BICYCLE ROUTES SHARED ACCESS PATHS SHOULD BE APPLIED AS PER LOCAL AUTHORITY REQUIREMENTS.

NOTES:

LEGEND:

M/S

REGULAR STOP

BUS STOP GUIDELINES
BUS STOP GUIDELINES

REGULAR STOP

1. TRANSLINK FLAG SIGN WITH TIMETABLE DISPLAY CASES. FROM KERB FACE TO POST C.L. ALLOW 0.75m.

2. BUS STOP SEATS SHOULD INCLUDE 1750mm (END CAPPED) ANODISED ALUMINIUM BATTENS WITH AN ARMREST CENTRALLY PLACED. SEAT SHOULD BE BOLTED TO HARDSTAND AREA, MADE FROM EASILY MAINTAINED MATERIALS AND AUSTRALIAN STANDARDS APPROVED. SEAT TO BE APPROVED BY TRANSLINK.

3. BUS STOP BIN SHOULD BE AN ALUMINIUM 80 LITRE CIRCULAR CONSTRUCTION (SMALL SLOT PERFORATIONS) WHICH CAN BE EASILY MAINTAINED. BIN SHOULD INCLUDE A GALVANISED STEEL LINER AND A BIRD PROOF LID WITH ASH OPTION. BIN SHOULD BE PREFERABLY SILVER IN COLOUR AND APPROVED BY TRANSLINK.

4. WHERE BUS STOPS ARE LOCATED ALONG BICYCLE ROUTES SHARED ACCESS PATHS SHOULD BE APPLIED AS PER LOCAL AUTHORITY REQUIREMENTS.
Bus Stop Guidelines

Intermediate Stop

Bus Stop Bin should be an aluminium 80 litre circular construction (small slot perforations) which can be easily maintained. Bin should include a galvanised steel liner and a bird proof lid with ash option. Bin should preferably silver in colour and approved by Translink.

Where bus stops are located along bicycle routes shared access paths should be applied as per local authority requirements.

Notes:
BUS STOP GUIDELINES

YELLOW BUS ZONE MARKINGS AS PER REGULATIONS (IF REQUIRED)

PREFERRED: 1 BUS = 25.0     2 BUSES = 35.0

Bus stop bin should be an aluminium 80 litre circular construction (small slot perforations) which can be easily maintained. Bin should include a galvanised steel liner and a bird proof lid with ash option. Bin should preferably silver in colour and approved by Translink.

Where bus stops are located along bicycle routes shared access paths should be applied as per local authority requirements.

(Approx. 2m)

Notes:

Intermediate Stop

Legend:

Notice:
LENGTH TO SUIT QUANTITY AND TYPE OF BUSES USING STOP (LENGTH MAY VARY FOR ARCTIC BUSES)

BUS STOP BIN SHOULD BE AN ALUMINIUM 80 LITRE CIRCULAR CONSTRUCTION (SMALL SLOT PERFORATIONS) WHICH CAN BE EASILY MAINTAINED. BIN SHOULD INCLUDE A GALVANISED STEEL LINER AND A BIRD PROOF LID WITH ASH OPTION. BIN SHOULD BE PREFERABLY SILVER IN COLOUR AND APPROVED BY TRANSLINK.

YELLOW BUS ZONE MARKINGS AS PER REGULATIONS (IF REQUIRED)

WHERE BUS STOPS ARE LOCATED ALONG BICYCLE ROUTES SHARED ACCESS PATHS SHOULD BE APPLIED AS PER LOCAL AUTHORITY REQUIREMENTS.

2m PREFERRED HOWEVER FOR FLEXIBILITY WHEN DETERMINING SHELTER FOOTING LOCATIONS AND APPROPRIATE ACCESS FOR PEDESTRIAN VOLUMES UP TO 6m MAY BE USED (APPROX. 2m)
## Bus Bay Length Requirements

**Rigid Bus**
- **Preferred Length to Accommodate One Bus Type of Operation (More than one bus)**
  - 5m
  - 12m

**Additional Length to Be Added to Each Additional Bus Length**
- 12.5m
- 25m
- 27m
- 30m

### Notes:
- **Noose to Tail Operation for 12.5m Rigid Bus**
- **Independent Operation for 12.5m Rigid Bus**
- **Noose to Tail Operation for 18m Articulated Bus**
- **Independent Operation for 18m Articulated Bus**

### Bus Bay Length Requirements

<table>
<thead>
<tr>
<th>Type</th>
<th>Bay Length (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus 1</td>
<td>18m (or bus length)</td>
</tr>
<tr>
<td>Bus 2</td>
<td>12.5m (or bus length)</td>
</tr>
</tbody>
</table>

**Bus Stop Area**

- **Face of Kerb**
  - 5.0
  - 12.0

**Bus Stop Gradient or Falls**

- 3.0
- 37.0
- 41.0
- 48.0

**Bus Bay Lengths**
- Also applicable for on-road bus stops and bus stations.

### Notes:
- Where bus stops are located along bicycle routes, shared access paths should be applied as per road authority requirements.
- Bus stop gradients or falls should comply with relevant standards.

---

**Example:**

- BUS 1:
  - 18m (or bus length)
  - 5.0

- BUS 2:
  - 12.5m (or bus length)
  - 12.0

---

**Scale:**

- 1:20

**Revision:**

- 9.3.2011

---

**Bus Bay Length Requirements**

- To suit variety and type of buses using bay
- Refer to Table below to determine bay length to suit quantity and type of buses using stop

---

**Table:**

<table>
<thead>
<tr>
<th>Type</th>
<th>Bay Length (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>INT</td>
<td>12.0</td>
</tr>
<tr>
<td>BUS 1</td>
<td>18m (or bus length)</td>
</tr>
<tr>
<td>BUS 2</td>
<td>12.5m (or bus length)</td>
</tr>
</tbody>
</table>

---

**Face of Kerb**

- 5.0
- 12.0

---

**Bus Stop Gradient or Falls**

- 3.0
- 37.0
- 41.0
- 48.0
Tactile Ground Surface Indicators

Apply Tactile Ground Surface Indicators to pavement as per manufacturer's specifications.
400 series cut as required.

As per manufacturer's specification and disability standards

80L circular litter bin with small slot perforation, galvanised steel liner, bird proof lid with ash option

Steel frame with clear anodised aluminium battens 1750mm long with end caps and arm rests.

Or approved equivalent.

(Hazard & Directional)

Black (Preferred)

Colour to be endorsed by TransLink
B1.3 Bus stop furniture

**Bus stop seating**

TransLink bus stop seating:

- must comply with applicable disability and Australian Standards
- must be approved for use by TransLink
- should preferably be of a silver appearance, however other contrasting colours may be used subject to approval
- should be easily maintained, durable and vandal resistant
- should be able to be bolted to hardstand (concrete) areas
- should include armrest at each end as a minimum
- should include the TransLink logo, if located at premium stops or higher within the TransLink network.

**Bus stop bin**

TransLink bus stop bins:

- must comply with applicable Australian Standards
- must be approved for use by TransLink
- should contain an aluminium exterior
- should contain a galvanised steel liner
- should hold approximately 80 litres, be of a circular shape and preferably contain small slot perforations
- should feature a bird-proof design and include an ash tray option
- should be easily maintained, durable and vandal resistant
- should be able to be bolted to hardstand (concrete) areas.
**Bus stop drinking fountain**

Bus stop drinking fountain:

- must comply with applicable Australian Standards
- must be accessible for people with disabilities
- should be easily maintained, durable and vandal resistant
- should be able to be installed to hardstand (concrete) areas
- should preferably be of a silver appearance, however other contrasting colours may be used subject to approval.

**Bus stop shelter**

TransLink currently has standing offer arrangements for the supply and installation of shelters. Refer to Bus Stop Shelter Technical Drawings for standards. For further information about TransLink shelter supply and requirements, contact TransLink on 3167 4000.
B2 Station technical notes

B2.1 Lighting requirements for stations

Lighting is to be provided at all pedestrian areas and roadways. Lighting levels are required to meet the current regulation standards for public transport facilities and signage.

Typical recommended lighting requirements for bus station infrastructure are to meet the applicable lighting subcategory P7 as per Australian Standards (AS/NZ 1158.3.1—Lighting for roads and public spaces—Pedestrian area (Category P) lighting—Performance and design requirements). This subcategory will be dependent on the site-specific location of infrastructure.

The typical recommended design for internal lighting requirements for bus stations is to feature a maintained illuminance as per Australian Standards (AS/NZS 1680.2.1—Interior and workplace lighting—Specific applications—Circulation spaces and other general areas).

For lighting requirements at rail stations, refer to the Queensland Rail Stations Design Guide.

TransLink and key stakeholders should be consulted when determining appropriate lighting levels for station infrastructure.

B2.2 Station infrastructure components

Introduction

This section provides detailed design examples for components of station infrastructure. The specifications of the components shown in this section represent existing good practice designs as identified by TransLink. The specifications shown in this section should be interpreted as a guide only and site-specific attention is to be given to individual stations with regard to requirements and constraints. Contact TransLink for design direction prior to design commencement, to determine specific locational design requirements.
1. COLOURS AS PER TRANSLINK’S INFRASTRUCTURE COLOUR PALETTE.
2. COMPONENTS TO COMPLY WITH APPLICABLE DISABILITY STANDARDS.
3. COMPONENTS TO USE CPTED PRINCIPLES (WHERE APPLICABLE).
4. PAVEMENT TO BE SLIP AND STAIN RESISTANT.
5. INSTALL APPROPRIATE CONDUITS FOR POWER AND DATA (INCLUDING LIGHTING & SECURITY CAMERAS).
6. OPTION FOR ALTERNATIVE CONFIGURATION WHERE APPROPRIATE.
7. WC AREA MUST BE SEPARATED FROM LUNCH ROOM BY AIRLOCK.
B3 Supporting access infrastructure

B3.1 Lighting requirements for park ‘n’ rides

Lighting is to be provided at all pedestrian areas and roadways while lighting levels are required to meet the current regulation standards for public transport and parking facilities.

Typical recommended lighting requirements for park ‘n’ ride infrastructure (with open sky areas) are to meet the applicable lighting subcategory P11a as per Australian Standards (AS/NZ 1158.3.1 — Lighting for roads and public spaces — Pedestrian area (Category P) lighting — Performance and design requirements). This subcategory with be dependent on the site-specific location of infrastructure.

The typical recommended design for internal lighting requirements for park ‘n’ rides are to feature a maintained illuminance as per Australian Standards (AS/NZS 1680.2.1 — Interior and workplace lighting — Specific applications — Circulation spaces and other general areas).

TransLink and key stakeholders should be consulted when determining appropriate lighting levels for park ‘n’ ride infrastructure.

B3.2 Supporting access infrastructure components

This section provides design examples of supporting access infrastructure components and layout.
B4 Branding, theming and signage

B4.1 Bus stop signage requirements

The following section contains standard drawings for bus stop signage requirements.
Bus Stop - Flag Sign

For Graphics Details refer to T L 0014

Construction Specifications:

Post:
Materials: 50NB steel post, C350 grade, 2.9mm wall thickness, hot dip galvanised, deform base to prevent rotation. It should have a 100mm wide yellow engineers grade vinyl band to encircle the post 600mm from GL.

Post colours must have a luminance contrast with the background of not less than 30% to comply with the 'Disability Standards for Accessible Public Transport.

Sign Plate:
Materials: The sign plate should be made from 1.6mm aluminium. Finishes: The sign face should be double sided and made from white on reflective stock (pre-cut material is not acceptable). An over coat of anti-graffiti (film or finish) is to be applied to seal sign.

Note: Colours on this page may differ in appearance from those selected in artwork for final output.

Location Plan:

Location Plan:

Bus stop and perpendicular to the traffic lane or kerb. The bus stop post should be located minimum 750mm back from the kerb face or clear of the outer edge of the road shoulder. The post is to be located closest to the road with the sign away from the road.

Construction Details:

Footing:
To sit proud of GL in grassed areas. 2100 minimum.

End cap.

Installation:
Footing size: 300mm Dia. with depth (L) according to strength of soil.

Concrete Specification:
Concrete poured directly against auger hole unless approved otherwise. Mechanically vibrate full depth of concrete.

Concrete Max. water/cement ratio Min. cement content Max. Aggregate
N25 to AS36000.55 250kg/m3 20mm

Slump
80mm

Deform base to prevent rotation.

Face of kerb.

100mm wide reflective (class 2) yellow band encircling the post

Position for one (1) A4 timetable cases

Position for two (2) A4 timetable cases

Selection of foundation type and strength category to be approved by engineer

Foundation:
Concrete

Primary Version: has a blue header and footer plate (A) with white behind stop name. This should be used for bus stops within the TransLink network, outside of the Brisbane City Council region.

Note: The Brisbane City Council version has a full white background with blue text, logos and icons. The zone circle and line are green as per this version, with 3mm blue lines on top and below of the wording 'bus stop'.

Location Plan:

Bus Stop Sign Post Details - Drawing 2005.192.1 (for other options)

Selection of foundation type and strength category to be approved by engineer

Concrete

Max. water/cement ratio
Min. cement content
Max. Aggregate
N25 to AS36000.55
250kg/m3 20mm

Slump
80mm

For footing size and concrete specification see installation note.

Elevation

L (see note: Installation)
750mm

Deform base to prevent rotation.

Galvanised security bolt

Installation method for 'Temporary Bus Stop Flag' only

Metal wedge driven into soil. Insertion depth and connection to comply with manufacturer's specification for soil type and wind load.

Street Naming Sign Bracket

30mm wide
450
300
40
Galvanised

Security bolt

Bus Stop - Flag Screen

Bus Stop - Flag Screen

Bus Stop - Flag Screen

Bus Stop - Flag Screen
Bus Stop - J Pole Sign

For Graphics Details refer - TL0018

Construction Specifications:

- **Post:**
  - Materials: 50NB steel post, C350 grade, 2.9mm wall thickness, deformed base to prevent rotation.
  - Spot weld 4 steel lugs to inside edge of curve to support head plate.
  - Finishes: Post hot dip galvanised and powder-coated in white (PMS White). It should have a 100mm wide yellow engineers grade vinyl band to encircle the post 600mm from GL.
  - Posts may be painted when used in areas of high civic design standards or when used in situations with many other signs eg. at interchanges. Local councils may apply to paint post a different colour to meet local design guidelines. Post colours must have a luminance contrast with the background of at least 30% to comply with the Disability Standards for Accessible Public Transport.

- **Sign Plate:**
  - Materials: The head plate should be made from 1.6mm aluminium.
  - Finishes: The head plate should be double sided and made from a suitable grade of aluminium. An overcoat of anti-graffiti (film or finish) is to be applied to seal sign.

- **Installation:**
  - Footing size: 300mm Dia. with depth (L) according to strength of soil.
  - Unless otherwise noted all dimensions in millimetres preferred to scaling. Contractor to confirm all dimensions and details on site for all sign types prior to manufacture.

Note: Colours on this page may differ in appearance from those selected in artwork for final output.

---

**Concrete Specification:**

- Concrete Max. water/cement ratio
- Min. cement content
- Max. Aggregate

Refer: Bus Stop Sign Post Details - Drawing 2005.192.1 (for other options)

Selection of foundation type and strength category to be approved by engineer.
Inverted Version: has a white head plate with white behind stop name. It should only be used to identify city express or route only stops that are part of the TransLink network. A white support post (B) should be used.

Primary Version: has a blue head plate with the name of the TransLink network. A yellow support post (A) should be used.

On kerbed roads, signs should be located minimum 750mm back from the face of the kerb. Where mountable or semi-mountable kerbs are used, the minimum clearance should be minimum 650mm from top of kerb. On unkerbed roads, signs should be minimum 750mm clear of the outer edge of the shoulder.

Note: Colours on this page may differ in appearance from those selected in artwork for final output.
Bus Stop - Blade Sign

Blade "A" 440 x 2400 (with two central panels 1000mm high x 440mm wide)
Blade "B" 440 x 2400 (with two central panels 650mm high x 440mm wide)

Notes:
1. * Font is Helvetica 55 Roman.
2. # Font is Helvetica 65 Roman.
3. Sign to be on a 1.0mm thick aluminium plate, single sided.
4. Colour legend:
   - Text height shown is for capitals.

Location Plan:
The sign should be located at the departure end of the bus stop and perpendicular to the traffic lane or kerb.
On kerbed roads, a clearance of 600mm minimum (820mm to post CL) is required from face of kerb to sign.

Construction Specifications:
- Post:
  - Materials: 65NB steel post, C350 grade, 3.2mm wall thickness, hot dip galvanized, deform base to prevent rotation.
- Installation:
  - Footing size: 300mm Dia. with depth (L) according to strength of soil.

Concrete Specification:
- Concrete poured directly against auger hole unless approved otherwise. Mechanically vibrate full depth of concrete.

Concrete:
- Max. water/cement ratio
- Min. cement content
- Max. aggregate
- Slump

N25 to AS3600

0.55
3
250kg/m²
20mm
80mm
600mm
900mm
Selection of foundation type and strength category requires engineers approval.
Refer: Bus Stop Sign Post Details - Drawing 2005.192.1 (for other options)

Paved surfaces are to be removed and replaced over footing and made good.

Bus Shelter
Locate Bus Stop Sign here

RPL
Kerb
2000mm
600mm
10m
20m
Road
Bus Shelter
Appendix C

Bus route infrastructure

Traffic calming devices along bus routes

The TransLink Transit Authority’s view is that traffic calming devices should not be used along TransLink bus routes. TransLink is committed to providing an environmentally sustainable, comfortable and safe experience for passengers and considers traffic calming devices to be in conflict with these objectives.

Traffic calming is not supported by TransLink for the following reasons:

- risk to passenger safety and comfort from buses negotiating traffic calming devices (e.g. injuries to passengers (both seated and standing) received from vertical deflections caused by speed humps and injuries for passengers experiencing horizontal deflections when buses negotiate roundabouts or chicanes)
- injuries and discomfort to drivers from repeatedly negotiating traffic calming devices along bus routes for prolonged periods (especially when there is a high frequency of traffic calming devices along a bus route)
- delays for passenger journey times and decrease in service efficiency due to buses having to negotiate traffic calming devices
- the potential increase in noise and air pollution for local residents due to buses having to decelerate and accelerate more than smaller vehicles when negotiating traffic calming devices.
- increase in vehicle maintenance and fuel consumption from buses negotiating traffic calming devices (e.g. accelerated wear and tear problems caused from speed humps impacts and scrubbing of tires).

TransLink acknowledges that every area is different and the potential need for traffic calming devices must be determined as a site-specific case for neighbourhood streets. Additionally, TransLink does not support the use of traffic calming devices for through streets in new residential developments, especially those which may feature neighbourhood bus routes in the future.

In the case where they are absolutely necessary, TransLink should be consulted on the design and type of device used along existing and proposed bus routes.