Contents

Chapter 3 – Supporting access infrastructure

3.1 Introduction

This section of the *PTIM* provides guidelines for delivering high quality, effective and efficient access infrastructure for public transport stops and stations within the TransLink network.

The first section discusses general principles for the planning and design of Supporting access infrastructure. Other sections provide guidelines specific to each key access mode:

- Walking – pedestrian access inside and outside of the immediate stop or station vicinity
- Cycling – on and off-road cycle infrastructure within the immediate stop or station vicinity
- Bus feeder – bus feeder access to service associated infrastructure
- Kiss 'n' ride – passenger set-down and pick-up infrastructure, and taxi access
- Taxi infrastructure
- Park 'n' ride – parking infrastructure for public transport commuters.

Delivery of infrastructure to access the public transport network will, in many cases, not be the responsibility of TransLink. For example, the provision of footpaths for walk-up access and cycle paths for cycle access is often the responsibility of local government.

Cooperative multi-agency planning is needed to create logical, coherent outcomes for communities and public transport passengers.

Where new public transport infrastructure is planned, consultation should take place with local government and property owners early in the planning phase to ensure integration with existing or planned community facilities.

3.1.1 Why is supporting access infrastructure important?

In order to use public transport, passengers need access to it. Supporting access infrastructure provides the key connection between the stop/station and the immediate surrounding environment. High quality 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.

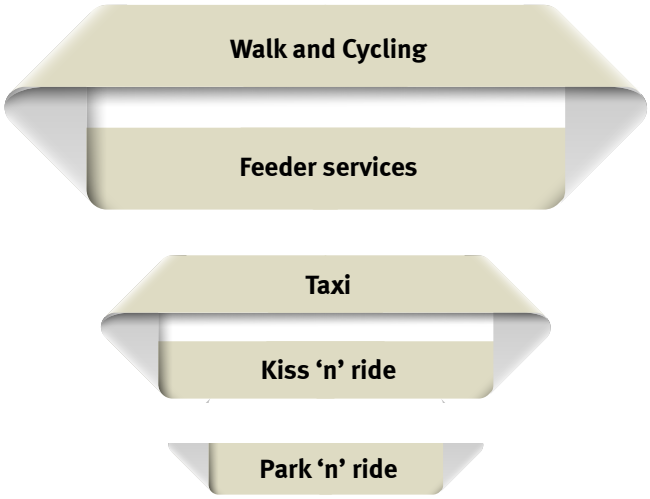
To ensure a quality journey for passengers, its design should be user-friendly and easily interfaced with the various access modes passengers may use (for example walking, cycling, driving). Access infrastructure should also be designed to minimise impacts on local communities while maximising community benefits.

3.1.2 TransLink policy and access hierarchy

TransLink's access hierarchy 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 3.1.

From an environmental and network operation viewpoint, walk-up and cycle access are the preferred modes for accessing the TransLink network, as illustrated in Figure 3.1. These access modes are followed in preference by bus feeder and kiss 'n' ride, with park 'n' ride generally being the least desirable mode. Supporting higher use of walk-up and cycle access minimises the need for excessive land requirements for parking at public transport stops and stations and reduces the amount of private vehicles on roads.

Figure 3.1 –
TransLink access hierarchy



3.2 Principles of supporting access infrastructure design

Infrastructure within the TransLink network should be planned and designed to ensure a seamless and connected journey for public transport users.

Planning for supporting access infrastructure should consider:

- integration with existing networks within surrounding land uses such as local government or privately-owned access paths, as well as shared passenger pick-up zones or bike storage facilities
- demand analysis (current and future)
- strategic design for potential future expansion
- other supporting components.

3.2.1 Integrating supporting access infrastructure

The role of access infrastructure is to support and enhance the ability of a public transport node to perform its role within the TransLink network and to allow convenient and efficient access to and from public transport services.

To achieve this effectively it requires:

- integration with TransLink facilities and local transport networks
- consideration of surrounding land uses
- cross-agency planning, provisions and asset management.

3.2.1.1 Network integration

The stop or station design intent is a critical factor in planning and configuring effective access infrastructure within the surrounding environment. Design intent can be requested from the infrastructure designer, and further guidance can be obtained from the overarching network hierarchy in the *PTIM* and the facility category as identified in the modal specific chapters.

Each access mode will require the application of site-specific integration techniques, however general principles for consideration are listed in Table 3.1.

Table 3.1:
Key principles for integration of Supporting Access Infrastructure

Principle	Consideration
Protecting the integrity of entry/exit points	• Managing congestion and inter-modal conflict at key access points. • Appropriately designed decision points at transition zones, with a focus on legibility and ease of navigation. • 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 site	• 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 micro-climate (shading, wind and solar access, air quality).

3.2.1.2 Cross-agency planning

It is essential to coordinate the integration of public transport infrastructure with surrounding access infrastructure. In many cases there will be a need or opportunity for shared multi-agency planning, provision and/or management to deal with overlaps in responsibility and land ownership. Cooperative planning should focus on acknowledging the individual needs and objectives in order to create logical, coherent outcomes for community and public transport passenger access.

When planning 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.

3.2.1.3 Surrounding land uses

Surrounding land uses – both existing and future - will influence the function of a public transport facility and thus the type, scale and extent of Supporting access infrastructure required. Planning should consider:

- 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, cycle storage and end-of-trip amenities
- opportunities for transport oriented development.

Considerations for a variety of land uses are expanded upon in Table 3.2.

Table 3.2:
Considerations for surrounding land uses

Land use context	Consideration
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 for example: – encourage intra-modal and multi-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, cycle, kiss 'n' ride and local traffic movements. • Protect centre economic development through collaborative strategies to prevent public transport passengers using centre parking as a commuter parking facility. • Protect appropriate and convenient space for cycle amenities and kiss 'n' ride.
Consolidated, highly-urbanised environment (such as inner suburban developments)	• Interesting, convenient and direct pedestrian connections will be essential to capture maximum public transport patronage from the higher density walk-up catchment. • Access to the TransLink network by cycling may be of less importance where a stop or station is close to the dominant regional activity centre – however cycle movement in the broader surrounding area is an important consideration. • Kiss 'n' ride may be difficult to accommodate where there is likely to be competition for available space and infrastructure. • Park 'n' ride is not suitable in key centres due to high land values and long-term economic development goals for key centres.

Land use context	Consideration
Low-density, suburban developments and local activity centre environments	• Direct, interesting and convenient pedestrian links will be important to capture maximum patronage from the moderate-density walk-up catchment. • Cycle connections and parking will be highly desirable. • Intra-modal and multi-modal interchange facilities will be encouraged where service routes intersect. • Bus feeder facilities will be encouraged at selected sub-regional and district level activity centres. • Provision for kiss 'n' ride will likely be important for encouraging multi-purpose household trips. • 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).
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. • Cycle 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. • Bus feeder services are required where there are high-frequency services with available carrying capacity.
Specific high-volume facilities	• Schools or major sporting facilities may need to cater for large volumes of people on a regular or irregular basis. • Public transport centres, long-haul bus stops or tourist destinations may need capacity for interchanging between coaches, mini-buses and taxis, and require a high level of signage and locality information.

3.2.1.4 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. Consult, regarding appropriate demand identification methodologies and data validity.

Demand forecasts should consider both existing and future planned land uses as this will affect the transport behaviour of public transport users and, therefore, influence the scale and scope of access infrastructure required.

For example, future commercial and residential development around a currently low-density or green-field public transport location may result in increased local pedestrian and cycle activity, and increased numbers of public transport users. While the demand is not current, there may be a need for more extensive access infrastructure in the future.

As with any forecasting, there are external factors – such as fuel and energy prices, climate change, and local issues (for example, employment locations and policy changes) – that may have major impacts on the demand for public transport. This uncertainty and the long timeframes involved in these demand forecasts means it may be prudent to protect additional space for future expansion rather than provide additional capacity up front.

Some transport models can provide information regarding demand for different access modes – however their inputs and assumptions should always be carefully understood and critiqued.

3.2.1.5 Operating environment

It is not only important to consider the operating environment for access infrastructure, but also integration with the operating environment of other public transport infrastructure. Providing certain amenities within supporting access infrastructure may help facilitate the role of the individual components, and may provide support to other facilities in the area.

Refer to the drawing in *Appendix 3-A* that illustrates the overarching design principles when using supporting access infrastructure.

Key operating environment considerations are outlined in Table 3.3.

Table 3.3:
Key operating environment considerations

Key consideration	Requirement description
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. • Suitable reporting, evidence gathering, response, repair and /or replacement procedures in the event of criminal activity against people or property. • Active and remote surveillance arrangements for the 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 speeds (including motorised and cycle), geometry, sightlines and crossing arrangements. • Physical hazards – trip, catch, bump and fall hazards along with sharp and jagged edges.

Key consideration	Requirement description
Amenity	• Provision of a comfortable, interesting, high-quality environment, including: – shelter and weather protection (including sun and rain) for access and waiting areas – seating, rubbish bins and information – high quality (visually-appealing) finishes that are durable, vandal resistant and easy to maintain – use of materials and finishings consistent with those in adjacent public transport facilities – 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	• Promote fully-accessible entrances and pedestrian movements. • Minimise walk distance between modes. • Design direct links that discourage shortcuts across gardens, kerbs, islands etc. • Avoid conflict between cars and cycles. • Differentiate vehicle path by destination – that is, separate cycles, kiss 'n' ride and park 'n' ride movements as early as possible before reaching facility entrance.

3.2.1.6 Accessibility

All infrastructure must meet the requirements of applicable disability and *Australian Standards*. Seek advice and clarification on issues and current best practice from TransLink and relevant accessibility reference stakeholders.

Key accessibility and disability access design considerations are dealt with in 3.3 – Pedestrian infrastructure.

3.2.2 Sustainable energy use and design

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

Design and delivery of public transport infrastructure will focus on sustainability through:

- facility design that is fit for purpose now and into the future, and adaptable to change
- contributing to attractive community spaces and a local sense of place
- commitment to a low environmental footprint and whole-of-life approach through all design, construction and maintenance activities
- increasing visibility of sustainable features, and undertaking a participatory approach to design to improve community awareness and support.

Details of TransLink sustainability requirements are included in Table 3.4.

Table 3.4:
Key environmental sustainability design considerations

Key sustainability consideration	Requirement where possible
Water management	• On-site rainwater collection and reuse. • On-site run-off treatment (that is scrubbing using permeable surfaces, detention basins and swales). • Local flooding mitigation and flow maintenance.
Resource minimisation	• Water – employ water-saving devices. • Energy – aim for energy-neutral infrastructure by minimising energy use and exploring generation opportunities (for example, solar for feeding back into electrical supply). • Materials – apply whole-of-life design approach (that is, 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 (that is 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 groundwater-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 integrate facilities with the surrounding environment to enhance economic viability and social benefits.

3.2.3 Supporting components

Appropriate signage and way-finding 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 or station and Supporting Access Infrastructure.

TransLink has guidelines for the development of signs provided at, or referring to, TransLink facilities, and for the use of visual elements such as logos, icons and colours. For further information refer to TransLink's *PTIM, Branding, Theming and Signage and Bus Network Infrastructure Signage Chapter.* These *PTIM* chapters do not identify specific enforceable regulatory signage such as 'no standing' or 'taxi' zones. These sign requirements should be applied as per general road signage.

The types of signage relevant to *Supporting access infrastructure* are outlined in Table 3.5.

Table 3.5:
Relevant signage for access infrastructure

Signage type	Guideline description
Identification	• Major facility identification signs should be visually distinctive and stand out in the surrounding environment. • Placement should be on major street frontages and entries. • They should clearly display the facility name, modes available from the facility and approved consistent logos.
Maps	• Maps are generally provided within the station information area and on bus stop markers – 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.
Directional signage	• 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 where opportunity allows.

Signage type	Guideline description
Regulatory, warning and prohibition signage	• Regulatory or warning signage should be suitable and visually discernible so as to catch attention without dominating or detracting from the aesthetics of the stop or station. • Standard TransLink warning and prohibition signs should be consistent in format and style with the *PTIM, Branding, Theming and Signage and Bus Network Infrastructure Signage Chapter*. • Regulatory signage may need to meet certain legal requirements to be enforceable. Refer to the appropriate guidelines and standards for placement and development of general road signs. • 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.
Information signs	• 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 *PTIM, Branding, Theming and Signage Chapter* and placed according to precedent and need, while adhering to the design imperatives for the operating environment.
Way-finding	• Way-finding is considered more than signage and includes: – non-text or map-based indicators such as arrows, colours and shapes – subtle indicators such as lighting, paving patterns and contrast, paths, shore lines, vistas, structures and themes in the built environment.

3.3 Pedestrian infrastructure

Walking is the preferred and most important mode of access to the TransLink network. Pedestrian access is integral to all public transport infrastructure and, as such, some level of pedestrian infrastructure will be required in all cases.

This section explains how to provide good pedestrian infrastructure to enhance access to TransLink stops and stations.

Pedestrian infrastructure primarily refers to the movement (that is, 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.

3.3.1 Integration

3.3.1.1 Network integration

As most passengers access public transport by walking, pedestrian connections are critical to having a successful public transport network. High passenger volume stations should become a pedestrian focal point within their local community with high-quality pedestrian access infrastructure.

Planning and design of public transport infrastructure should identify the main directions of pedestrian flow into and out of the stop or station and ensure local pedestrian networks and public transport infrastructure are well integrated.

Focus should always be on integrating with existing and anticipated future infrastructure. Connections should be accessible, convenient, direct and legible. Elements for consideration include:

- 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.

Pedestrian access infrastructure should be consistent with the adjacent stop or station area with a focus on accessibility, continuity and integration.

3.3.1.2 Adjacent land uses

As highlighted in the 3.2.1.3 – Surrounding land uses section, 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 vision impairments
  - primary, secondary, special, and tertiary education facilities
  - aged care facilities and hospitals
  - government offices and service centres
  - local, regional and state 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 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 service access.

3.3.2 Pedestrian demand analysis

It is important to identify likely pedestrian demand profiles for pedestrian access amenities.

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

- the size and nature of the likely catchment:
  - the reasonable walk-up catchment radius for a 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 (for example terrain, land use, traffic and safety)
    - the permeability of the area (for example the actual distance travelled due to block size, mid-block paths or barriers)
    - climate (for example 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. (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.)

Emphasis should be placed on catering for peak demand. Explore this by identifying and mapping all pedestrian patronage to, from and through the site. Consider:

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

Pedestrian capacity should be based on LOS classification ranges for pedestrian design (as per Fruin 1978, Pedestrian Planning and Design).

3.3.2.1 Staging

The demand analysis should be used to inform staging opportunities for the delivery of pedestrian access infrastructure, as well as protect for any land requirements to cater for future demand. Some of the key issues to consider include:

- prioritising investment to protect for future connections while immediately providing for existing paths
- future volumes that may require grade-separated pedestrian walkways
- ensuring the location of pedestrian walkways and permanent elements does not impede future plans to upgrade or expand public transport infrastructure.

3.3.3 Design considerations

Table 3.6 outlines some of the key design considerations related to pedestrian access based upon applicable standards and guidelines for pedestrian movement and accessibility.

Table 3.6:
Design considerations for pedestrian access infrastructure

Considerations	Guideline description
Access paths	• Applicable disability and *Australian Standards* must be complied with for: – doorways and gateways – stairs, lifts, ramps and landings – pavement surfaces and use of TGSI (subject to audit). • 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 (for example, lifts and escalators) should be provided, as appropriate, as per applicable *Australian Standards*. • Crossover (kerb) ramps should minimise changes of direction except where geometry (depth, width or sightlines) is constrained. • Choose path materials that 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 should 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.
Minimum path dimensions	• TransLink prefers a minimum path width of 1.8 metres. • Increase path width to accommodate handrails and barriers. • The minimum clearance from all infrastructure for a single wheelchair access is 1.2 metres. • 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.

Considerations	Guideline description
Handrails and barriers	• Add handrails and barriers near dangerous edges including roadways, cycle paths, carriageway escarpments, batter slopes and walls, steep gradients and steps and through underpasses or tunnels. • Conform to the design requirements of applicable *Disability* and *Australian Standards*.
Lighting	• Lighting levels are required to meet current regulation standards for public transport facilities, and be consistent with applicable *Disability* and *Australian Standards.* For details regarding lighting requirements refer to the appropriate requirements within *AS/NZ 1158.3.1 2005 – Lighting for roads and public spaces* and the *DSAPT*. • Lighting quality (colour and lux) at waiting points will be consistent with platform lighting and should be bright white light. • Lighting along paths will be bright white light with a luminance 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*.
Hazards	• Objects must not protrude into any path of pedestrian travel within the envelope of travel. • Allow a minimum clearance of 1.2 metres (desirable 1.5 metres) from all infrastructure for single wheelchair access and manoeuvring (for example around poles, street furniture and raised service pits). • Remove or redesign the placement of sharp or pointed objects. • Avoid placing grates, grids, grills, service pits or other interruptions to a pavement surface within a pedestrian pathway or paved area. • Where pits must be placed in the 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.

Considerations	Guideline description
Surveillance	• Consider the use of camera surveillance coverage for paths through all access infrastructure. • Design access paths to be highly visible at all times to promote passive surveillance. • Underpasses should be avoided. However, if absolutely necessary, an appropriate design solution with necessary surveillance treatments may be accepted with TransLink and key stakeholder consultation.
Landscape treatment	• Choose plants that are: – unlikely to intrude upon a path at ground level or interfere with path integrity or above and below ground services and utilities – unlikely to regularly shed material that may make a path slippery – unlikely to significantly block views between 0.5 and 2.5 metres above ground level – drought resistant – consistent with local flora (use local genetic populations in natural areas of significant ecological value). • Avoid plants that are: – toxic, highly allergenic or noxious weeds – known to produce thorns, barbs, stings or noxious secretions – known to attract dangerous fauna.
Other	• Applicable *Disability* and *Australian Standards* must be complied with for: – seating along pedestrian access routes – signage and information, including the use of braille and accessibility symbols.

3.3.3.1 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. The following principles should be considered in planning crossings:

- At-grade pedestrian crossings are favoured 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 volume 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 capacity at kerb-side or in median refuges.
- All at-grade pedestrian crossings will meet or exceed minimum engineering and accessibility design standards.
- Uncontrolled crossings such as zebra crossings and shared zones are preferred, 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, priority should be given to pedestrian movement to minimise waiting times within the signal period.
- Separate pedestrian crossings from cycle 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 also to Department of Transport and Main Roads (DTMR) *Manual of Uniform Traffic Control Devices, Part 10, Pedestrian Control and Protection* (MUTCD).

3.3.4 Supporting components

The scope of supporting components will be dependent on the scale and functionality requirements of the public transport facility, and adjacent land uses that may affect the facility.

3.3.4.1 Signage and way-finding

Pedestrian access signage should be incorporated into the signage plan for a stop or station. Requirements for off-site directional signage should be presented to the stakeholder/s responsible for local pedestrian infrastructure, for consultation on quality and extent of signage provision.

In general, signage and way-finding for pedestrians should be implemented at a human scale following the principles previously outlined in Table 3.5.

3.3.4.2 Amenities

Amenities 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. The components are included in Table 3.7.

Table 3.7:
Amenities for pedestrian infrastructure

Considerations	Guideline description
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 *PTIM, Bus Stop* and *Bus Station Infrastructure* chapters for shelter design guidance.
Seating	• Non-discretionary seating (for example, seating required to meet applicable guidelines and standards such as at accessibility rest points). • Discretionary seating (for example, 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 backrests and armrests, and should be constructed from durable, easily maintained materials that allow drainage from liquids. • Seating must comply with applicable *Disability and Australian Standards*.
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 separate recycling bins.
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 surveillance or active security to minimise likelihood of vandalism and abuse. • Clearly establish installation, maintenance and asset management requirements before inclusion.

Considerations	Guideline description
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. • Amenity and *CPTED* principles must not to be compromised. • Consider availability of adequate exposure necessary to meet market expectation and hence potential revenue generation.
Emergency call points	• Consider the provision of emergency call points at dwell points along extended paths. Monitoring arrangements need to be agreed in the early design stages. • Ensure electrical and communication connections are provided or allowed for if not immediately supplied.

3.4 Cycle infrastructure

Integrating cycling access with public transport dramatically increases the catchment areas of our services. The Queensland Cycle Strategy from TMR identifies 'Connect To' as a key priority: putting cycle links in place at key public transport stations and stops (up to five kilometres), supported by bicycle parking and end-of-trip facilities. This section explains how to provide good cycle infrastructure that enhances access to TransLink public transport infrastructure.

Cycle infrastructure in this section primarily refers to:

- Cycle routes which include:
  - off-road (that is, cycle, track, bike paths and associated elements)
  - on-road (that is, cycle lanes, shared lanes, signals, bike boxes – on-road refuges for cyclists provided at traffic lights or islands).
- End-of-trip amenities which include:
  - cycle storage – rails, racks, lockers, enclosures, centres
  - personal amenities – showers, change rooms, gear storage lockers
  - service centres.

For further guidance refer to Department of Transport and Main Road's *Technical Note 128: Selection and Design of Cycle Tracks*.

For the purposes of this chapter, 'high demand cycle storage' refers to a stop or station with high levels of cycle access and large-scale cycle 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 'cycle centres'.

Cycle infrastructure should be considered in terms of:

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

3.4.1 Integration

3.4.1.1 Network integration

It is a TransLink policy objective to promote cycle connections to the broader network within the immediate area of a stop or station. All interface points between local cycle networks and TransLink infrastructure must be functionally seamless and focus should always be on integrating with existing infrastructure.

TransLink infrastructure should respond to existing and planned cycle networks by providing access directly to points where a transport corridor or a key high-frequency services route intersects a major cycle path.

Cycle networks provided by external parties should respond to TransLink stops and stations according to the volume of cycle activity generated.

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 cycle lanterns (red and green cycle-crossing lights) and signals at controlled intersections
- kerb ramps – appropriate connection, shared or dedicated provision, quality, storage space, width and configuration
- 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 cycle amenities.

3.4.1.2 Adjacent land uses

As detailed in the previous section, 3.2.1.3 – Surrounding land uses, review nearby land uses and gauge potential cycle-related risks, impacts, requirements and demand that they may generate. In particular, identify any area with specific cycle needs for example:

- businesses or services visited by large groups of cyclists
- primary, secondary, special, and tertiary education facilities
- popular recreational parks and cycle amenities.

Surrounding uses, along with state and local government cycle network planning and policy, will have significant bearing on the scale, nature and location of end-of-trip amenities.

High-demand cycle storage with end-of-trip amenities will generally be required for:

- high passenger volume stations located on or near major metropolitan cycle paths (on or off-road)
- principal and major activity centres. There are several factors to consider when trying to integrate end-of-trip amenities and major activity centres:
  - Cycle demand is often a mix of the activity centre and public transport based demand.
  - These demands can conflict and it may be better to locate commuter cycle storage away from the activity centre and closer to cycle paths. This can reduce spatial constraints and inter-modal conflict, but will require high-quality connection between the station, centre and amenities.
  - When demands are not in conflict, end-of-trip amenities may be shared providing there is available space and the ability to achieve functional partnering arrangements for delivery, maintenance and management.

General cycle storage will be required for stops and stations near a cycle path where demand is relatively moderate. The scale, nature and location will depend on demand profile and the level of security available. Where nearby land uses or public spaces provide better surveillance, these should be considered for the location of cycle storage, if agreement can be reached with the relevant stakeholders.

Sites near TransLink stops or stations that are earmarked for potential commercial operations should be identified to manage any potential conflicts with cycle infrastructure, while also capturing any opportunities for shared use.


Bicycle locker
Bicycle locker

3.4.2 Cycle demand analysis

To identify likely cycle demand profiles for a station or stop, undertake the following:

- identify links to nearby cycle paths and major cycle intersections.
- examine direct connections against paths offering the least resistance (that is, barriers), most convenience or most safety (including on and off-road). In particular consider:
  - existing and likely new planned paths
  - non-public transport based cycle paths that might pass the site
  - future cycle paths that may intersect with the site.
- identify and map actual, designated and future cycle routes to, from and past the site, in line with the department's Principal Cycle Network Plan.
- gauge the likely order of magnitude of cycle demand.

Estimates and/or extrapolations should be used alongside policy and applicable standards when determining what cycle access infrastructure is required. These policies are based upon expected or targeted peak demand and the desired shape of the cycle network.

In analysing cycle access infrastructure 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), while 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 cycle storage with full amenities is 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 cycle 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 cycle user types and the varying needs of different cyclists
  - potential inclusion of cycle provision on buses and trains – consider frequency and capacity
  - provision of end-of-trip amenities
  - cycle 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.

Refer to Austroads guidelines and the Department of Transport and Main Roads' *Technical Information for Cycling* for further information about cycle demand and forecasting.

3.4.2.1 Staging

Protect for future increase in demand for paths and storage capacity wherever possible. Where initial cycle volumes may not justify investment in cycle 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.

3.4.3 Design considerations

All stations, and some high passenger volume stops where major cycle paths are intersected, will require end-of-trip amenities ranging from cycle rails and racks to lockers, enclosures and possibly showering and associated amenities.

Key principles for design of cycle access infrastructure include:

- identifying the main directions of flow for cycle activity into and out of the stop or station facility area
- 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
- providing direct and convenient connections that do not require cyclists to dismount until reaching the amenity
- minimising inter-modal conflict (in particular, cycle access should not inhibit or conflict with pedestrian movements)
- need for bus layover depending on service pattern and operation.

Refer also to the *PTIM, Bus Stop and Bus Station Infrastructure* chapters.

Specialist cycle design advice should be sought when designing cycle amenities. Advice on standards and current best practice can be sought through TransLink, other relevant government stakeholders and the Department of Transport and Main Roads' *Technical Information for Cycling*.

Table 3.8 outlines some of the key design considerations and requirements for cycle access.

Table 3.8:
Design considerations for cycle access infrastructure

Consideration	Guideline description
Access paths	• Changes in grade should be seamless and avoid 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 handrails should be provided at preferred cycle crossing or other stopping points. • Crossover kerb ramps should be seamless. • Sightlines should not be obscured on approach to corners and intersections with other modes. • Entry and exit paths should be clearly visible utilising passive surveillance and security cameras (where applicable). • Vegetation should be planned and maintained to avoid the intrusion of plant matter into the envelope of movement for cyclists. • Avoid creating any unnecessary obstructions such as grates, grids, grills or pit covers. • Place utility service maintenance infrastructure, such as pits, in locations where access to them does not interrupt the flow of cycle activity.
Envelope of travel	• The minimum clearance for the envelope of cycle travel provided for a cyclist is 1 metre wide x 2.5 metres high and 1.75 metres long.

Consideration	Guideline description
Minimising inter-modal conflict	• Wherever reasonable, dedicated on and/or off-road paths for cyclists are preferred. • Include measures to slow cyclists when approaching potential points of conflict – for example intersections, blind curves. • Provide sufficient width – refer TMR Technical Note 133 Guidance on the widths of shared paths and separated bicycle paths. • Clearly sign where paths are to be specifically shared or exclusive. • Clearly identify any behavioural requirements that differ from the natural preferences (for example, if cyclists are required to dismount). • Clearly identify crossing arrangements (for example, if cyclists must cross with pedestrians or separately). • Cycle parking (whether in use or not) should not endanger pedestrians – particularly those who are partially sighted or blind – or obstruct the flow of pedestrian movements. • Cycle parking should not obstruct structures such as seating, traffic signals, street lighting, bollards and so on., or obstruct car doors from opening (where parking is allowed). • Cycle 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 – cyclists should be discouraged from passing on the left of a kiss 'n' ride bay, whether on or off-road.

Consideration	Guideline description
End-of-trip amenities	• The minimum provision of cycle storage is a single rack (1.7 metres x 0.6 metres). All new facilities should protect suitable vacant space for this provision. • Design cycle storage facilities based on location demand. This may include more individual bike rails, whether covered or not, than fully secure bike storage, or vice-versa. • Design of amenities requiring structures should be made of transparent materials to allow natural ventilation and passive surveillance, yet not detract from the public environment or TransLink's architectural theme. • Design of cycle parking should support any type of cycle without causing damage – both when the cycle is parked and if knocked accidentally. • Design of cycle parking should allow for both the front wheel and frame (and possibly the back wheel) of the cycle 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. • Wherever possible, cyclists should be able to cycle to an end-of-trip amenity without dismounting. • Cycle parking should be spaced appropriately so that cyclists are not obstructed when locking their cycle. • Amenities should provide weather protection: – cycles 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	• Lighting must meet applicable lighting standards and be consistent with any adjacent lighting provided for pedestrians or motorised vehicles. Refer to the appropriate requirements within *AS/NZ 1158.3.1 2005 – Lighting for roads and public spaces*.

Consideration	Guideline description
Hazards	• Physically avoid proximity to, or creation of, hazards. In particular, consider: – 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 design of TGSI – reduced tyre traction, interaction between cyclists and people with vision impairment – placement and quality of coverings for service pits. • If a stop or station is likely to be used regularly by people with mobility impairment, children, or inebriated people, implement measures that encourage cyclists to dismount in shared areas, and encourage pedestrians to exercise caution.

Consideration	Guideline description
Surveillance	• Amenities and connecting paths should be specifically covered by security camera infrastructure with the ability to survey movements between platforms, cycle storage and external entry/exit points. • Design of infrastructure and structures should be made of transparent materials to allow natural passive surveillance.
Other	• Require cyclists to dismount in any area where: – boarding or alighting occurs (for example at platforms) – pedestrian movement is either constrained or is clearly the dominant mode (for example through over/underpasses, ramps to platforms). • Provide for dismounted cyclists to move cycles to and from boarding and alighting points. • Discourage through cycle movements (non public transport-related) within the immediate stop or station area. • Consider off-site provision and active demand management of cycle facilities if space is limited.

3.4.3.1 Crossings

Pedestrian movement will always take precedence within shared parts of a stop, station or access infrastructure, and cyclists should be appropriately informed of this through signage. Cyclists will have priority on any designated cycle paths and, accordingly, pedestrians and motorists should be informed of this through appropriate signage.

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

- cycle crossings meet or exceed minimum engineering design standards (as specified by Austroads).
- infrastructure design avoids configurations that are likely to generate conflict between dominant cycle movements and other modes.
- design treatments aim to slow cyclists on the approach to crossings (as specified by Austroads).
- pedestrian crossings are separated from cycle crossings, where possible. If separation is not possible:
  - provide wider kerb ramps and more footpath space at the kerbside dwell points and in any median refuges (as specified by Austroads), and require cyclists to dismount at such crossings.
  - corresponding kerb ramps on a crossing should be directly aligned to minimise changes of direction.

3.4.4 Supporting components

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

3.4.4.1 Signage and way-finding

Signage and way-finding for cyclists should be implemented at a scale that allows for on-cycle navigation and information. Information specifically for cyclists, that does not need to be communicated en route, should be collated and provided at an end-of-trip amenity.

Cyclists may need to access some signage targeted more at pedestrians, such as information signs or facility maps, prior to accessing cycle 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 cycle infrastructure amenities. 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 cycle infrastructure. Consultation should then proceed regarding the quality and extent of directional signage provision.

Refer to Table 4.1 *PTIM, Branding, Theming and Signage* Chapter for guidance on signage.

3.4.4.2 Amenities

Amenities 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. The components are included in Table 3.9.

Table 3.9:
Amenity utilities for cycling infrastructure

Amenity utility	Consideration requirement/notes
Shelter from rain, sun and wind	• 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 access card. • Consider the use of lighting within cycle enclosures for access during the evening period.
Seating	• At higher demand for end-of-trip amenities for cyclists, provide seating for cyclists to change their shoes.
Rubbish bins and drinking fountains	• Consider provision at end-of-trip amenities.
Gear storage	• Consider provision for gear storage at high-demand cycle amenities where cycle lockers are not in exclusive use.
Shower amenities	• Consider for inclusion where high volumes of cyclists will use as an end-of-trip activity or prior to catching a public transport service that operates 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.
Vending machine	• Consider provision at higher demand for end-of-trip amenities.
Non public transport-based information points – static, dynamic and interactive	• Consider opportunities for these at end-of-trip amenities to allow for dissemination of cycle-related information by government and relevant cycle reference groups. • Clearly establish installation, management, maintenance and usage conditions and arrangements before inclusion.
Advertising	• 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 cycle-based services.
Emergency call points	• 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 conduits/connections are provided, or allowed for in future if not immediately supplied.

3.5 Bus feeder infrastructure

3.5.1 Network considerations

Interchanging can occur anywhere 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.

Increased provision of interchange opportunities, specifically when combined with higher-frequency services, can provide passengers with access to more destinations across the TransLink network.

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
- providing the highest reasonable frequency for cross-town and feeder services.

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

3.5.2 Demand analysis

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.

3.5.3 Design considerations

Where there is likely to be a high demand for interchanging, stops/stations should provide additional passenger waiting capacity, and seamless intra and inter-platform passenger movement, in accordance with TransLink stop and station policy and guidelines.

Where less direct interchange opportunities are to be provided, apply pedestrian design consideration to 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
- ensuring high-frequency services are given priority over feeder services for direct and efficient access to a stop or station, to minimise their dwell and travel times.

Bus access roads and bays should consider:

- appropriate design for constant heavy vehicle use and manoeuvring
- surface materials designed for ease of cleaning and slip resistance in all weather conditions
- surfaces designed to avoid pooling or collection of detritus or other unwanted debris.

3.6 Kiss ‘n’ ride infrastructure

Kiss ‘n’ ride is preferred at stops and stations serving low-density residential areas where the level of public transport service is low.

This section explains how to provide good kiss ‘n’ ride infrastructure including:

- 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 mobility impairment
- the difference between set-down and pick-up (that is, waiting times)

Table 3.10 provides an overview of kiss ‘n’ ride infrastructure.

Table 3.10:
Kiss ‘n’ ride key elements

Consideration	Guideline description
Passenger set-down and pick-up bays	These can be for private vehicles or taxis, shared or dedicated, kerbside or on-site (off-street) and could include: • indented bays along a kerb-line • regular (non-indented) kerbside bays designated as passenger loading zone or very short-term parking • 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.
Pedestrian and vehicle waiting areas	This can include: • storage bays and overflow allowances for waiting (pick-up) vehicles • waiting areas and amenity utilities for public transport passengers awaiting their ride • pedestrian access paths.

3.6.1 Integration

A key success factor for any kiss 'n' ride facility is the convenience with which it can be accessed and exited from. 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 cycle paths, particularly in relation to safety and efficiency.

The following considerations should be applied:

- **Access:** Direct vehicle access to and from arterial, sub-arterial and distributor roads is preferred. Connections between kiss 'n' ride infrastructure and stop or station facilities should be accessible, direct and legible, and incorporate *CPTED* principles.
- **Location:** 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. If using local streets is the only option, the length of this use should be minimised and preferably contained to short sections:
  - 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.
  - 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. Kerbside kiss 'n' rides should provide sufficient additional footpath space to avoid conflict with pedestrian movements.
- **Design:** Kiss 'n' ride infrastructure should not interrupt cycle movements, and should minimise the need to cross cycle paths.

Kiss 'n' ride access should be considered for:

- stops and stations outside of the inner city and in low-density residential areas
- some high frequency services and terminus stops with significant demand
- stops and stations serving activity centres within residential areas, particularly those used for interchanging.

3.6.1.1 *Adjacent land uses*

When planning kiss 'n' ride facilities, consideration should be given to any 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.

In most cases, dedicated kiss 'n' ride facilities will directly relate to a stop or station. However, in some cases, the infrastructure may be shared between land uses (for example, adjacent shopping centre or education facility). In such situations it will be essential to:

- provide sufficient capacity
- establish clear responsibilities for provision, maintenance and security
- consider local parking supply management to ensure parking for businesses is maintained.

If it is likely that peak demand periods for the stop or station and the activity centre will conflict, and thereby impact capacity, general passenger set-down should not be combined.

3.6.2 Kiss 'n' ride demand analysis

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.

Policy and strategy requirements will be used alongside any estimates and/or extrapolations to inform the development of kiss 'n' ride facilities. 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 centres
  - 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
- 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).

Travel surveys should be conducted to capture passenger drop-off and pick-up activity for each individual site for example:

- Behaviour at kiss 'n' ride infrastructure in the morning peak period is different to behaviour in the evening peak period. 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
- Kiss 'n' rides that also service an activity centre (for example a shopping centre) experience traffic activity outside the normal public transport peak periods
- Taxis setting down at dedicated ranks may wait for another fare, hence combining set-down and pick-up activity.

Design of kiss 'n' ride infrastructure needs to consider these variances.

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. Consult TransLink for advice when identifying the need for kiss 'n' ride infrastructure at a particular stop or station.

3.6.2.1 Staging

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 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.

3.6.3 Design considerations

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 and movement of embarking and disembarking passengers between vehicles, waiting areas and/or access paths to the stop or station.

Key principles to consider:

- **Flow direction:** Identify the main directions of vehicle flow into and out of the stop or station facility area considering entry arrangements and the location of other Supporting Access Infrastructure, such as cycle amenities.
- **Pedestrian movements:** 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.
- **Information:** 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.
- **Personal security:** Apply *CPTED* principles to maximise pedestrian safety.
- **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 (for example, indented kerbside bays, separate access roads):
  - 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 the need for cross-vehicular (motorised or cycle) 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.
- **Taxis:** Dedicated taxi facilities should be provided where passenger demand for taxis 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 facilities 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 facilities. It will be necessary to make provision for the connection to communications infrastructure.

3.6.3.1 Accessibility

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

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

Table 3.11 outlines some of the key design considerations and requirements for kiss 'n' ride access.

Table 3.11:
Design considerations for kiss 'n' ride access infrastructure

Consideration	Guideline description
Access paths and waiting amenities	• The provision of a waiting area consisting of a hardstand area with a suitable slip-resistant finish (as per accessibility and architectural design requirements). This is in addition to a minimum pathway allowance. Consideration to be given to appropriate LOS for this area. • Access pathways to stops or stations must 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, 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*. • Minimise the distance between the kiss 'n' ride and bus stopping positions. Where possible, walking distance between the public transport boarding point and kiss 'n' ride area should not be more than 150 metres for pedestrians.
Dimensions/envelope	• Parking bay envelope will vary depending on configuration. • Applicable *Australian Standards* apply for: – non-parallel bays (meet off-street parking standards) – minimum kerbside bay width and length (including fully accessible bays for people with disabilities) – minimum height clearance – angle parking bay dimensions (require specific physical dimensions).

Consideration	Guideline description
Lighting	• Lighting should meet applicable platform lighting standards. • Lighting levels are required to meet current regulation standards for public transport facilities. For details regarding lighting requirements refer to the appropriate requirements within *AS/NZ 1158.3.1 2005 – Lighting for roads and public spaces*.
Hazards/minimising inter-modal conflict	• Consideration of slow vehicles entering and exiting a kiss 'n' ride facility when approaching potential points of conflict (for example intersections, blind curves, crossings). • Clearly identify crossing arrangements if kiss 'n' ride patrons are required to cross a carriageway of any sort. • Where a cycle access path runs parallel at-grade with a kerbside 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. • Cycle paths should avoid interaction with kiss 'n' ride bays. • Under no circumstances should cycle paths be led through shared zones for accessible kiss 'n' ride bays.
Surveillance	• Where applicable, kiss 'n' ride areas and connecting paths should be specifically covered by security camera infrastructure (for example, CCTV) with the ability to survey movements between public transport platforms and a kiss 'n' ride area.

3.6.4 Supporting components

The scale of the public transport facility – and strategic direction from TransLink – will determine the scope for supporting components to be provided with kiss 'n' ride infrastructure.

3.6.4.1 Signage and way-finding

Signage and way-finding 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 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 or within the stop or station area.

Signage for kiss 'n' ride infrastructure should be incorporated into the overall stop or station signage plan. 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.

Refer to Table 4.1 *(Branding, Theming and Signage)* for guidance on signage.

3.6.4.2 Amenities

Amenities for kiss 'n' ride users are items that can improve the experience of using the facility however in practice 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. Components for consideration are listed in Table 3.12.

Table 3.12:
Amenities for kiss 'n' ride infrastructure

Amenity	Consideration requirement/notes
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.
Seating	• Consider providing seating for people waiting at kiss 'n' ride pick-up points. • Allow appropriate space for wheelchair parking. • Seating must comply with applicable *Disability and Australian Standards*. • Seating positions should be sheltered where capacity of covered waiting area would not be compromised.
Rubbish bins and drinking fountains	• Consider providing at waiting areas if alternatives are not available nearby.
Vending machines and other retail activities or outlets	• Consider providing near kiss 'n' ride infrastructure. • Clearly establish installation, management, maintenance and usage conditions and arrangements before inclusion.
Non public transport-based information points – static, dynamic, interactive	• Consider opportunities at waiting areas to allow for dissemination of passenger notification information. • 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 allow for in future if not immediately supplied.

3.7 Park ‘n’ ride infrastructure

Park ‘n’ ride 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, including:

- 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 (for example, day, week and year)
- asset management.

Table 3.13 provides an overview of park ‘n’ ride infrastructure.

Table 3.13:
Park ‘n’ ride key elements

Consideration	Guideline description
Parking bays (shared or dedicated)	These can be located kerbside or on-site (off-street) and are specifically allocated for public transport purpose. These can include: • indented parallel-bay style provision along a kerb line • regular (non-indented) 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.
Supporting elements	This can include: • overflow capacity • vehicle access roads • amenity utilities • pedestrian and cycle access paths.

3.7.1 Integration

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. It is important to consider the interaction of park 'n' ride infrastructure with adjacent roads, pedestrian paths and cycle paths, in terms of safety and efficiency for all users.

The following considerations should be applied with respect to integration:

- **Access:** Direct access to and from arterial, sub arterial and distributor roads 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.
- **Location:** 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.
  - 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 e minimised and preferably contained to short sections that relate directly to the stop or station facility.
- **Design:** Park 'n' ride entry points should minimise the interruption of pedestrian and cycle movements. Where interaction is required and volumes for any or all of the modes are high, consider the use of controlled movements. Park 'n' ride sites should not interrupt, and minimise the need to cross, pedestrian and cycle paths or lanes.
- **Demand considerations:** 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.
- **Public transport patronage:** 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.
- **Direct and legible connections:** Particular elements that need focus include:
  - intra-modal conflict – access from and egress to the road network
  - multi-modal conflict – relationship with pedestrian, cycle and public transport travel paths
  - *CPTED* principles.

3.7.1.1 Adjacent land uses

The planning and design phase should review nearby land uses and gauge potential park 'n' ride related risks, impacts and needs that they may generate. This should identify any particular park 'n' ride needs associated with land uses that 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.

3.7.1.2 Location of facility

Park 'n' ride locations will be determined by government policy and strategies. Potential applications include:

- stations within a low-density residential catchment where the level of public transport services is considered low
- some high-frequency premium and terminus stops
- shared arrangements with sporting and recreational facilities where peak demands do not coincide with typical park 'n' ride peak demands.
- stops or stations serving lesser activity centres within residential areas.

Past experience across South East Queensland is that park 'n' ride supply will generate an overflow of demand. This can lead to what is referred to as hide 'n' ride – using private or public parking spaces provided specifically for commercial activities, or parking in non-designated spaces, usually local streets.

Experience suggests passengers are willing to walk more than 400m from a hide 'n' ride spot to a highly-serviced stop or station. This has an impact on local residents and businesses both in terms of access to their premises and safety. Local parking supply management may be needed to ensure sufficient parking is maintained for businesses and other local activity purposes. This is a local government responsibility, so project teams will need to collaborate with local governments to develop a solution.

3.7.1.3 Strategic planning

If a new park 'n' ride is to be developed, it should contribute to 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 cycle 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.

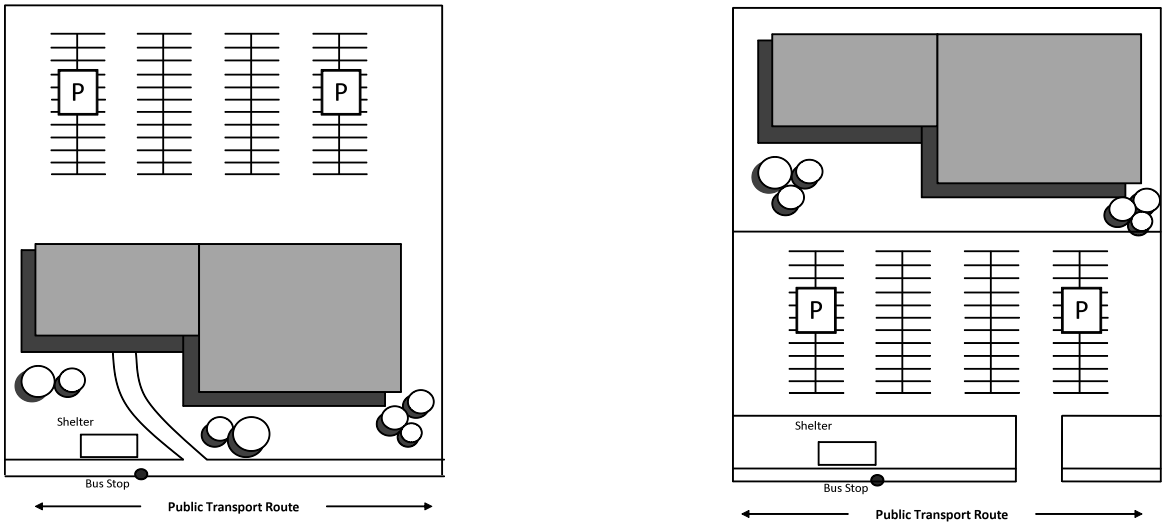


Figure 3.2 –
Design of park 'n' ride facilities

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 street active frontages, which are more pedestrian friendly, as opposed to parking dominant frontages (see Figure 3.2).

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 the site to:

- maintain consistency with the changing precinct
- allow for development on publicly-owned land (that is, the park 'n' ride site).

An example of this is shown in Figure 3.3.

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

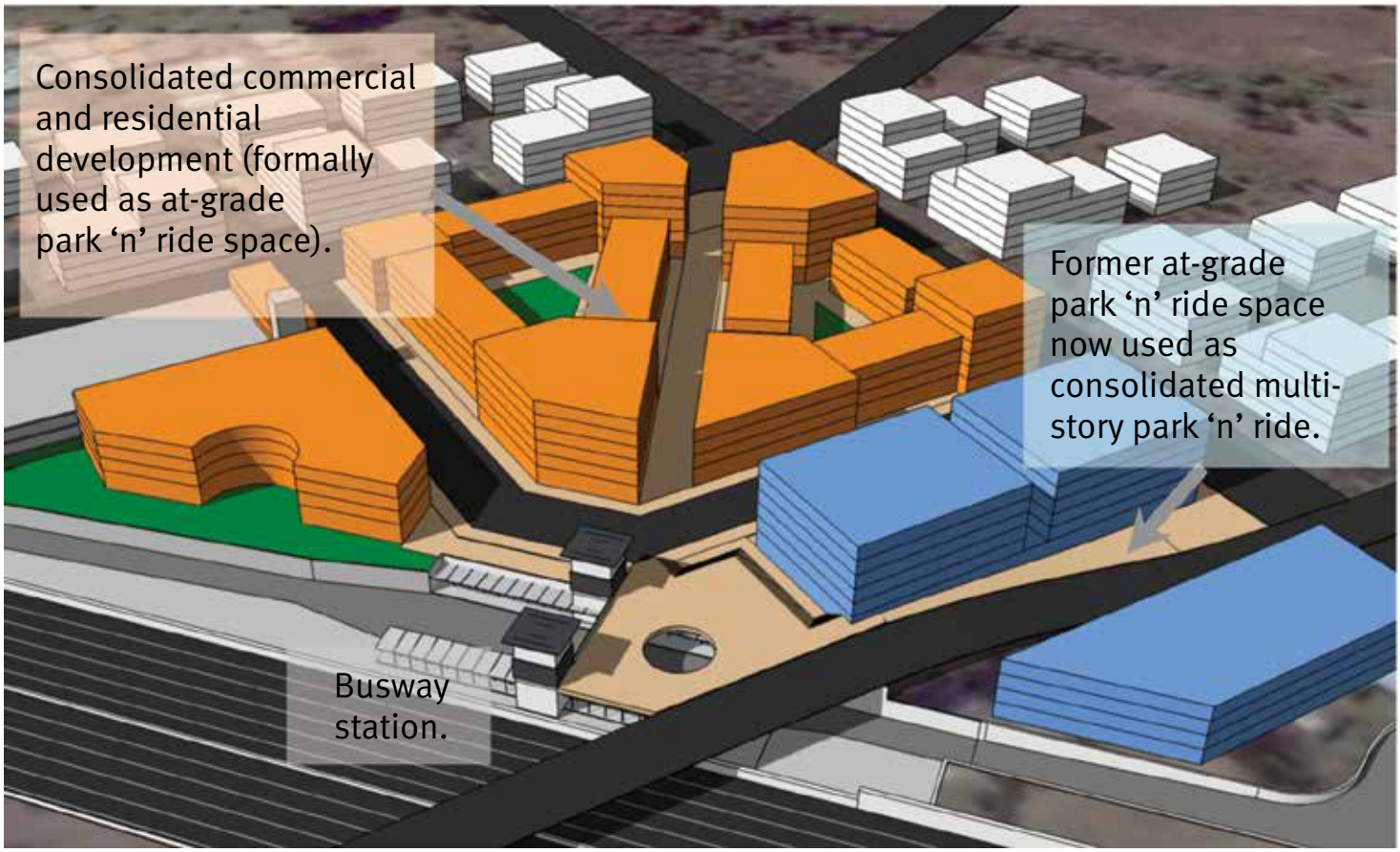


Figure 3.3 –
Consolidated commercial and residential replacing park 'n' ride

3.7.2 Park 'n' ride demand analysis

Park 'n' ride demand forecasting can be modelled using a range of applicable tools. Variables for consideration include:

- the reasonable park 'n' ride catchment. This will be impacted by:
  - the surrounding topography – that is, 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 people with disabilities 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 determining need for park 'n' ride infrastructure. Generally, the type and scale of park 'n' ride infrastructure will primarily be based upon transport and land use policy, network strategy, available space and site development planning.

3.7.2.1 Staging

A park 'n' ride development may be delivered in stages to suit various delivery mechanisms or potential for changes in capacity 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.

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 is provided
- 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 cycle connections to the stop or station
- plan for the operation of the park 'n' ride during construction stages.

It is also important to manage the intermittent peaks in demand as a park 'n' ride approaches capacity or while being constructed. Consider options for spill-over parking that does not impact other stop or station access modes, or affect safe and efficient movements in the immediate local area.

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 complementary demand profiles
- other complementary activities such as community markets
- informal parking
- operational facilities such as bus layover and stabling.

3.7.3 Design considerations

The design will 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 entry arrangements and the location of any other access infrastructure (for example cycle and kiss 'n' ride).
- Design for one-way or cul-de-sac aisles to minimise directional conflict and design the circulation network for ease of manoeuvring and safety.
- Provide designs such that vehicle 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 layovers and drivers amenities.
- Promote safety and efficiency of movement:
  - minimise the need for vehicles accessing the park 'n' ride to cross or share paths with cyclists and/or pedestrians.
  - avoid the need for cyclists and pedestrians to use parking aisles for access to end-of-trip amenities.
  - 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 barriers between modes – that is avoid fences and barriers except where overall path corridor width is constrained.
  - where there is the need for pedestrians to cross vehicular (motorised or cycle) traffic, park 'n' ride entry and exit points should be located adjacent to or near pedestrian crossings that provide direct access to the primary stop or station entry point.
  - avoid sharp turns and maintain sightlines (consider the visibility of objects such as poles, stop bars, handrails, barriers and sign posts).
- 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 (for example, security cameras).
- 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 the *PTIM, Supporting Access Infrastructure*, *Appendix 3-A* where 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.
- If people with mobility impairments, children or inebriated people are likely to frequently pass by or use the stop or station, caution car drivers and pedestrians to take extra care near crossing points.

3.7.3.1 Accessibility

Specialist park 'n' ride and accessibility design advice should be sought when designing park 'n' ride facilities. Park 'n' ride access should meet the applicable *Australian Standards* for parking bays for use by people with a disability.

Examine the need for additional park 'n' ride bays for people with mobility impairments or other disabilities where:

- demand is likely to approach or exceed capacity
- higher than average demand might be expected (for example, a station serviced by routes that link to major clinical or community health facilities, or services for people with a disability).

All park 'n' ride infrastructure is to be consistent with the applicable *Disability* and *Australian Standards* and any other documented requirements. Any exceptions require consultation and agreement with applicable stakeholders, through TransLink.

Table 3.14 provides a summary of specific design requirements for park 'n' ride infrastructure.

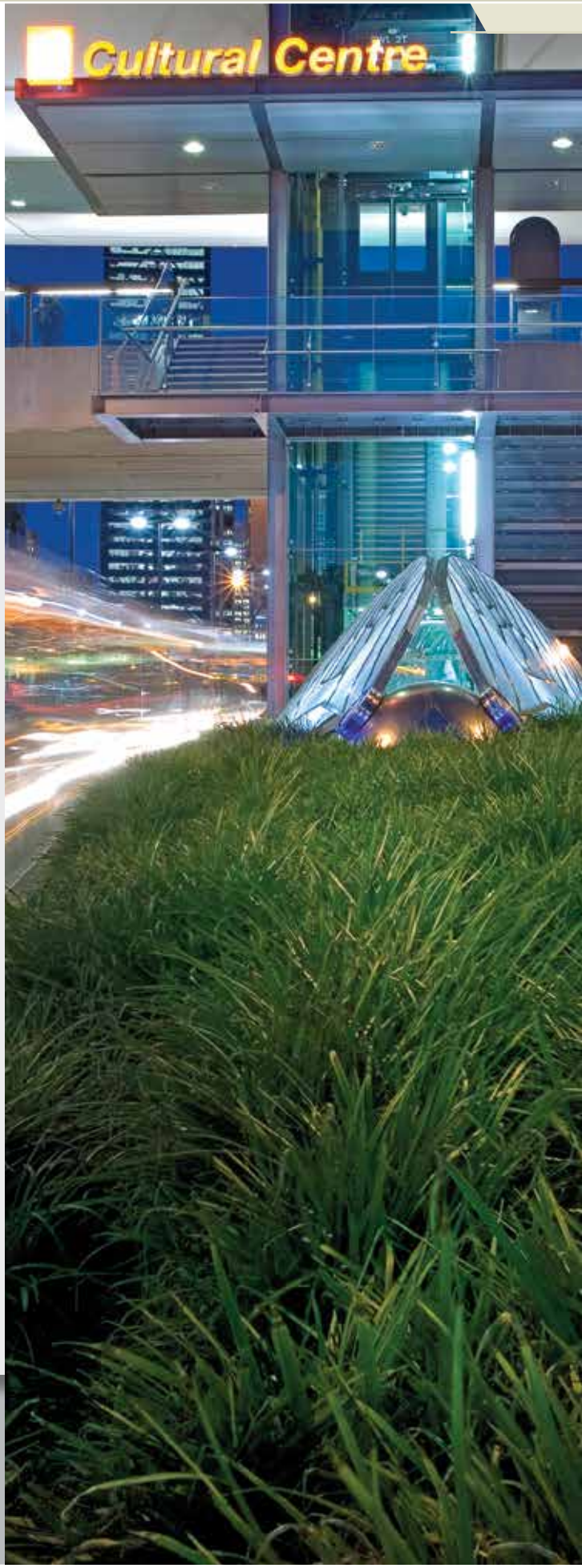
Table 3.14:
Design considerations for park 'n' ride infrastructure

Considerations	Guideline description
Access roads and car parks	• Carriageway and car park 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.
Access paths (pedestrian)	• Where possible, take advantage of site topology to incorporate ramps and overpasses rather than lifts and stairs. • Access paths to stops or stations should meet the requirements outlined previously for pedestrian infrastructure. • Where parking bays and circulation paths are at different grades, additional path width should be provided to accommodate kerb ramps, as per *Australian Standards*. • Kerb ramps should be provided near accessible bays as per applicable *Australian Standards*.

Considerations	Guideline description
Dimensions/envelope for parking	• Parking bay size or envelope will vary depending on configuration. • Applicable *Australian Standards* apply for: – non-parallel bays to meet off-street parking standards – minimum width and length for a kerbside park 'n' ride bay (including fully accessible bays for people with disabilities) – minimum height clearance – angle parking bay dimensions (require specific physical dimensions).
Minimising inter-modal conflict	• Consideration of slow vehicles entering and exiting a park 'n' ride facility when approaching potential points of conflict (for example, intersections, blind curves, crossings). • Clearly identify crossing arrangements if park 'n' ride patrons are required to cross a carriageway of any sort. • Where a cycle access path runs parallel at-grade with a park 'n' ride access road, provide additional dedicated lane width. • Cycle paths should avoid interaction with park 'n' ride aisles. – under no circumstances should cycle paths be led through shared zones for accessible park 'n' ride bays. • TransLink prefers the separation of vehicle entry and exit paths. • TransLink prefers that pedestrian access paths to private vehicles be located between parking bay rows.

Considerations	Guideline description
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 to neighbouring properties by using spill guards. • Minimise light spill from headlights into adjacent properties 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-storey park 'n' ride including: – seasonal impacts on maintaining access for natural light – the impact on visual sightlines and reflectivity from headlights and down-lights. • Lighting levels are required to meet current regulation standards for public transport facilities. Refer to the appropriate *Australian Standards* application within *AS/NZ 1158.3.1 2005 – Lighting for roads and public spaces*.
Surveillance	• Park 'n' ride facilities and connecting paths should be specifically covered by security infrastructure (for example security cameras) with the ability to survey movements between public transport platforms and the park 'n' ride.

Considerations	Guideline description
Landscape Treatment	• Choose plants that are: – unlikely to interfere with carriageway or parking bay integrity or intrude upon a carriageway at ground level – unlikely to interfere with above and below ground services and utilities – unlikely to regularly shed material that may make a carriageway slippery, or damage vehicles or surface materials – unlikely to significantly block views between 0.5 and 2.5 metres above ground level – drought-resistant – consistent with local flora (use local genetic populations in natural areas of significant ecological value). • Avoid plants that are: – toxic, highly allergenic or noxious weeds – known to produce thorns, barbs, stings or noxious secretions – known to attract dangerous fauna.
Noise	• Minimise reverberation and vibration from vehicle and vocally-generated noise. • Avoid surfaces that may cause wheel squeal or excessive noise. • Locate noisy operational equipment away from adjacent residential or business properties, or sound-proof 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. • Protect for the future implementation of access control devices (such as boom 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-storey car park structures, potentially through ramped floors, to protect against the impact of lift failure.



3.7.3.2 Asset management

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 (for example, consider the cost of daytime lighting and active security).

3.7.4 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.

3.7.4.1 Signage and way-finding

Signage and way-finding 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, maintenance or other work activities should be collated and provided at suitable pedestrian dwell points within either the park 'n' ride or the stop/station facility.

Signage for park 'n' ride infrastructure should be incorporated into the overall signage plan for a stop or station. An assessment of need or off-site directional signage 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.

Refer to Table 4.1 *PTIM, Branding, Theming and Signage* chapter for guidance on signage.

3.7.4.2 Amenities

Amenities 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.
The components are included in Table 3.15.

Table 3.15:
Amenities for park 'n' ride infrastructure

Amenity	Consideration requirement/notes
Shelter from rain, sun and wind	• Consider the need for shelter for vehicles where they may be exposed to harsh sun and extreme weather events. • Consider the need for shelter for vehicles for people with disabilities who may need additional time to enter or exit their vehicles.
Rubbish bins and drinking fountains	• Consider provision at pedestrian dwell points if alternatives are not available nearby.
Vending machines and other retail activities or outlets	• Vending machines should not generally be provided in direct association with park 'n' ride infrastructure. • Consider the provision of spaces suitable for complementary commercial activity such as car washes, convenience shops, drycleaners, mechanical services etc.

Amenity	Consideration requirement/notes
Non public transport-based information points – static, dynamic, interactive	• Consider opportunities at dwell points to allow for dissemination of passenger notification information. • 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 in future if not immediately supplied.

Appendix 3-A

This drawing provides design examples of access infrastructure components and layout.