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9.1 Introduction

9.1.1 Overview of the Rail station infrastructure chapter

The Rail station infrastructure chapter is a referenced component of the overarching *Public Transport Infrastructure Manual (PTIM)*.

This Rail station infrastructure chapter is to be used in conjunction with:

- ***PTIM, Background and application,*** which establishes the guidelines for application of the entire *PTIM*
- ***PTIM, Planning and design,*** which provides the overarching design guidelines and principles for public transport infrastructure across Queensland
- ***PTIM, Supporting access infrastructure,*** which details the supporting access infrastructure required to support public transport stops and stations
- ***PTIM, Branding, theming and signage,*** which provides branding, theming and signage that should be used for identifying coherent public transport infrastructure throughout Queensland

External to the *PTIM*, the following documents should be referred to when planning and designing new or upgraded rail stations:

- **Queensland Rail, *Station Design Manual,*** which details general and specific design requirements for new and upgraded rail stations across Queensland Rail's City Network.
- **Department of Transport and Main Roads (TMR), *Guide to Development in a Transport Environment: Rail***, which provides important information for those involved in the planning, design or delivery of development in the vicinity of railways in Queensland.

For information on further resources to support the planning and design of rail stations, including specifically the integration with other modes please refer to *PTIM, Background and application*.

9.1.2 Purpose and objectives

The Rail station infrastructure chapter will inform infrastructure design by providing a clear and consistent set of principles and guidelines for stations on the rail network.

It will ensure that a high standard of infrastructure is planned and delivered to meet the needs and objectives of the TransLink passenger transport system and passenger expectations. Ultimately, high-quality and consistent rail station infrastructure will provide customers with a transport system that is safe, convenient, coherent, functional and encourages passenger use.

The objectives of this chapter are to:

- ensure design incorporates a focus on achieving customer needs and enhancing their experience
- ensure a consistent approach to maximise customer access, convenience, safety, comfort, efficiency, reliability and accessibility
- ensure best practice infrastructure design is applied consistently across the rail network
- consolidate and standardise the existing guiding principles for the planning and design of rail station infrastructure
- provide an overview of available standards for rail station design
- detail TransLink's requirements for compliance with relevant standards and regulations
- ensure the delivery of quality, accessible and compliant rail stations
- to promote rail station design principles which achieve sustainability, inclusiveness and flexibility.

9.1.3 Roles and responsibilities

The roles and responsibilities of the key stakeholders for the planning and design of rail stations are described in Table 9.1. As shown, the planning, provision, management and operation of public transport is the core responsibility of the State government, with most responsibilities carried out by TransLink (a division of TMR).

TransLink will work in partnership with and assist the asset owner, Queensland Rail, and local governments to:

- reviewing the Chapter to ensure it remains up to date and relevant
- supporting and communicating the importance of customer focussed features of the Chapter to relevant stakeholders
- providing recommendations to ensure compliance with the Chapter.

Table 9.1:
Roles and responsibilities

Organisation	Key public transport responsibilities
TMR	• responsible for the coordination of transport services, infrastructure, management, transport policy and planning in Queensland • manages the Rail Transport Service Contract with Queensland Rail, on behalf of the State of Queensland. TransLink's role within TMR is to: • plan and design an accessible, efficient and connected passenger transport network that is simple for customers to identify, understand and use • be responsible for enhancing customers' experience, ticketing, public transport information and infrastructure. TransLink has State-wide responsibility for managing service contracts to deliver public transport services for: • trains, buses, ferries and light rail across South East Queensland • active transport, such as walking and cycling • taxi regulation • long distance rail, coaches and regional air services • buses in Cairns, Mackay, Toowoomba and Townsville • regional services • demand responsive transit.
Queensland Rail	• statutory authority established under the *Queensland Rail Transit Authority Act 2013 (Qld)* • under the *Transport Infrastructure Act 1994 (Qld)*, Queensland Rail performs the role of railway manager and railway operator. Queensland Rail has the following principal functions: • managing railways • delivers passenger and rail infrastructure services across the State funded through the Rail Transport Service Contract • responsible for upgrading and maintaining existing rail stations. Refer to the *Queensland Rail Transit Authority Act 2013 (Qld)* for further details.

9.2 Application of the Rail station infrastructure chapter

9.2.1 Intended audience

This chapter is intended for use by professionals in the transport planning and delivery industry. This generally involves, but is not limited to, designers, planners, engineers, architects, developers, contractors, private operators and others involved in the planning, design and delivery of rail station projects in Queensland. This may involve professionals charged with protecting the State's existing and future transport infrastructure assets.

9.2.2 Application of this chapter

This chapter must be used in conjunction with overarching applications of the *PTIM*.

This chapter details TransLink requirements for planning and design and should be referred to before starting to plan new rail stations or upgrades, including intermodal connections, neighbourhood and active transport connections, and safety improvements, to existing rail stations. This is particularly important where rail stations are affected by, or a catalyst for, urban development.

For existing sites, direct application of the approaches outlined in this chapter may not be feasible due to existing physical site constraints. The application of *PTIM* may therefore vary to achieve TMR's customer outcomes when undertaking an upgrade.

TransLink, in partnership with Queensland Rail, local governments and in collaboration with relevant stakeholders and delivery partners, shall be consulted on the design for new infrastructure and upgrade of existing rail stations.

9.2.3 Planning, legislation, policies and guidelines

TMR provides specific guidance through *Guide to Development in a Transport Environment: Rail (2015)* for those involved in the planning, design or delivery of development in the vicinity of railways in Queensland.

Queensland Rail is to be included in the detailed design process, with reference to its guideline *Station Design Manual*.

See *PTIM, Background and application* for specific detail on relevant planning references, and relevance to rail station infrastructure and rail corridors.

9.3 Principles of rail station infrastructure planning

9.3.1 What is the rail station precinct?

The rail station precinct comprises three distinct zones including:

1. **Local precinct:** where the rail station integrates with the surrounding land uses and street context.

   Rail stations should not sit in isolation to the community, they should be considered in the context of their surrounding precinct, including how they will be accessed by all transport modes. Rail stations, successfully integrated with the community, can create precincts that are attractive places for economic development and social interaction.

   The planning and design of rail station infrastructure should reflect the local precinct in which it resides. This includes connections to its cultural or heritage significance, the surrounding physical environment and integrate well with the adjacent land uses.

2. **Access and interchange:** location that passengers use to gain access to/from the rail station and transfer between other transport modes such as bikes, buses, taxis etc.

   Supporting access infrastructure is required to ensure passengers can interchange seamlessly between the rail station and different modes. Where accommodating customer transfers at street level, an unobstructed accessible route and close proximity of other modes to a rail station's entry and exits will improve the ease and comfort of these movements. For rail stations with concourses, ticketing areas and platforms underground, the location and design should ensure these are easily recognisable and identifiable as part of the public transport integrated network.

3. **Rail station:** where passengers dwell at a platform, use amenities, buy tickets, board and alight public transport vehicles etc.

   Once within the rail station, consideration of the "paid areas" as well as the "unpaid areas" is essential to aid in defining the spatial requirements to accommodate customer, and staff needs and the legibility of the passenger movements between these zones.

   The zones comprising the rail station precinct are illustrated in Figure 9.1.

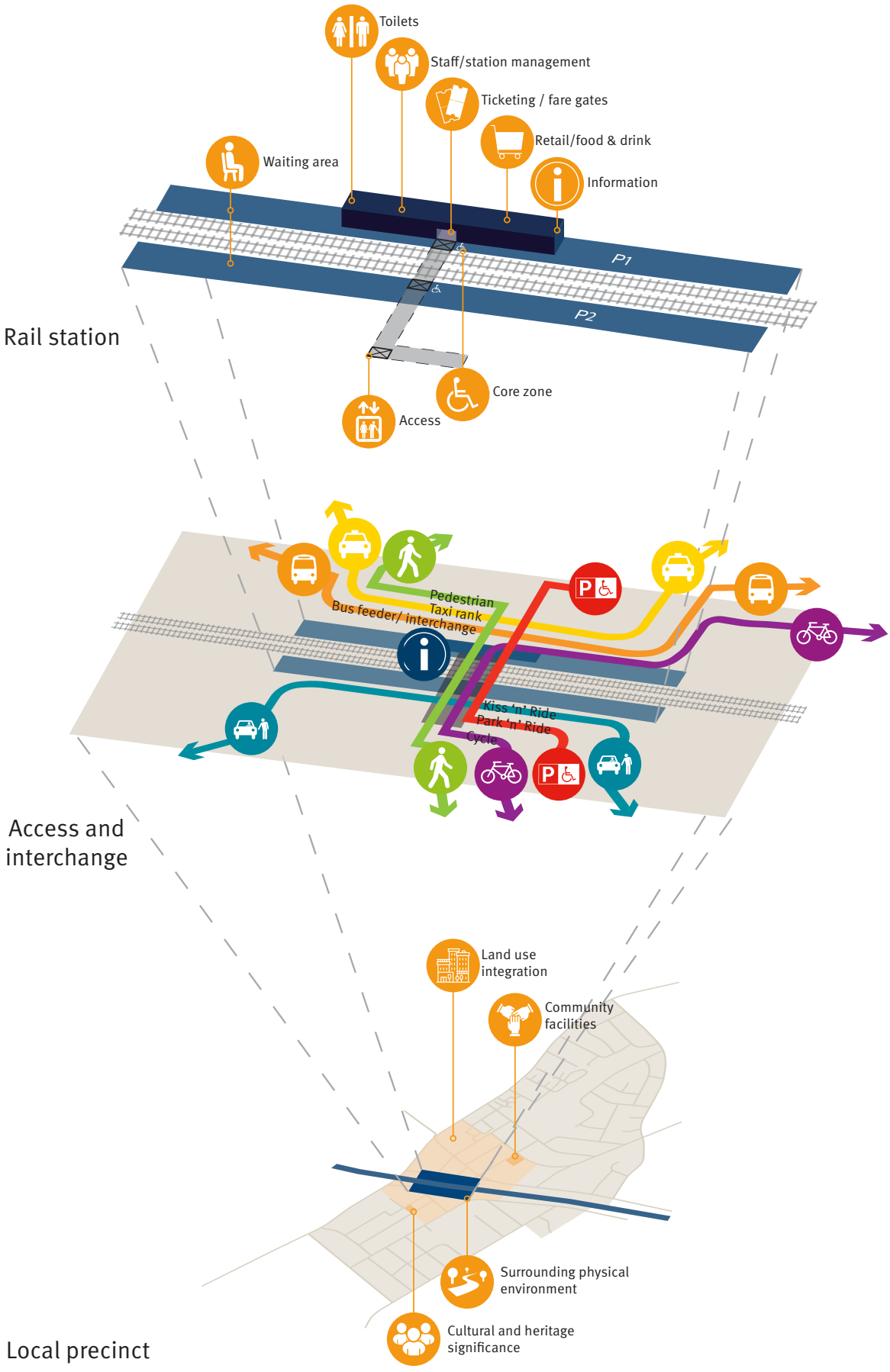
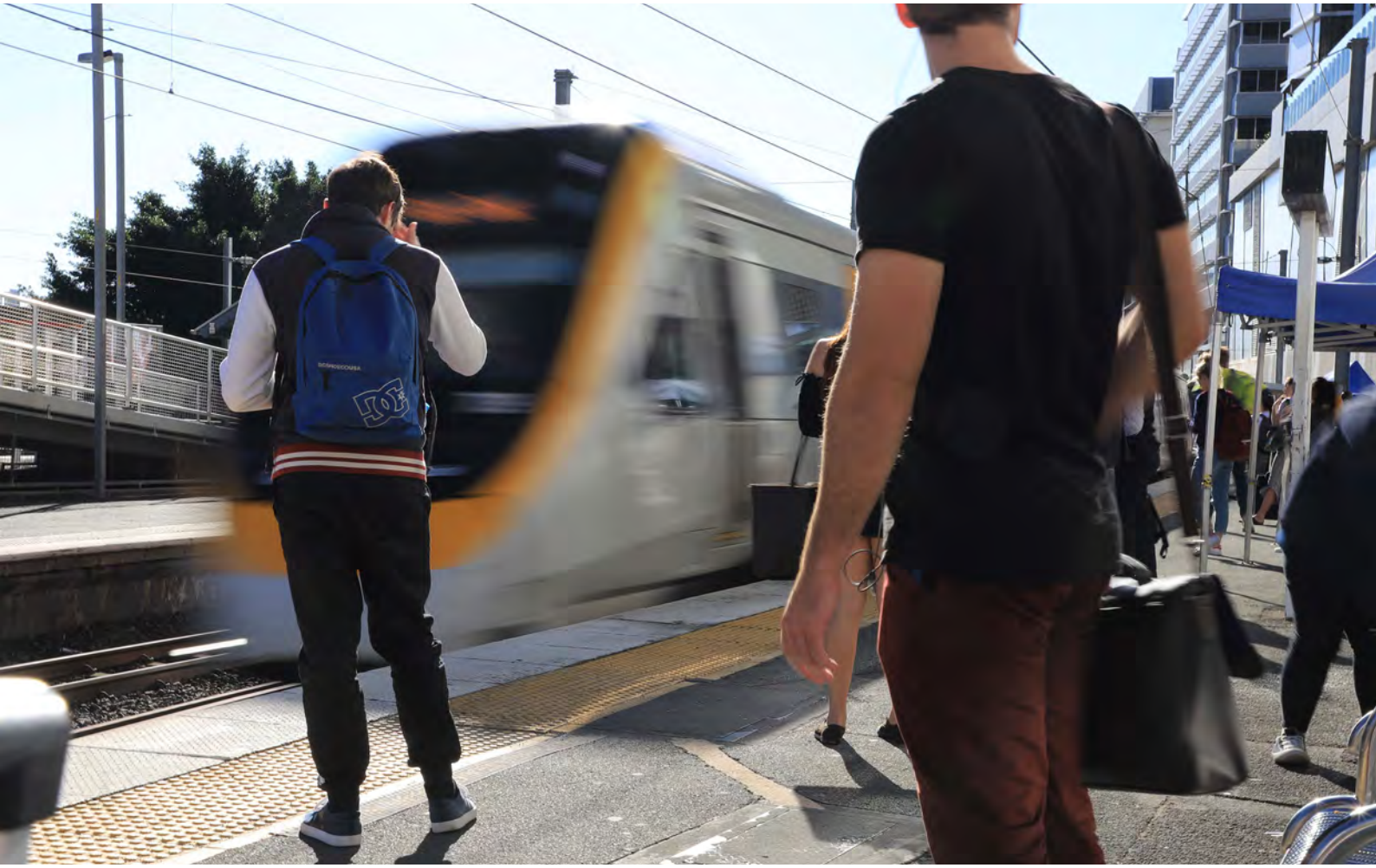


Figure 9.1 –
Rail station precinct

9.3.2 Rail station categories

The five categories of rail station provided by Queensland Rail *Station Design Manual*, are identified below, and for the purposes of the *PTIM* have been defined below in terms of the level of infrastructure and multi- modal connections:

1. **Premium** – key destination rail stations with multi train line and multi-modal connections, high level of facilities and finishes
2. **Interchange** – multi-train line and multi-modal connector rail stations for high priority services located in principal and major activity centres
3. **Commuter** –multi-modal access infrastructure including bus feeder, kiss 'n' ride and park 'n' ride, station designed to provide efficient peak commuter demand
4. **Local** –minimal rail station infrastructure and facilities with limited multi-modal connections
5. **Regional** - limited rail station infrastructure and facilities with multi-modal connections including long distance coach.



9.3.2.1 Premium

The key elements that define a premium or flagship rail station are described as follows:

	Description
Customer	commuters, off-peak, first-time, infrequent, long-distance, tourists, events persons with disability, travelling with children, travelling with luggage high patronage
Precinct	key destination place within metropolitan city centre, for example South Bank and Roma Street stations commercial (and retail) opportunities large residential communities clusters of knowledge, tourism, entertainment, health, creative and cultural activities
Operation	high frequency services intramodal interchange intermodal interchange 24 hour or first-to-last service staff presence

So that customers can get to their destinations using the rail network with minimum difficulty and stress, they can expect the following conditions when accessing a premium rail station:

Must haves

1. high quality, accessible, efficient and direct access to connecting modes and between platforms
2. legible, clear and consistent way-finding and information
3. timetable information for multiple lines and feeder connections
4. customer services and general information booths
5. ticket purchasing facilities / gates
6. passenger security

Desired

7. place making elements in the context of the local environment
8. convenient retail/food and drink shop/facilities
9. luggage storage
10. comfortable waiting areas

9.3.2.2 Interchange

The key elements used to describe an interchange rail station are:

	Description
Customer	commuters, off-peak, first-time, infrequent, long-distance, tourists, events persons with disability, travelling with children, travelling with luggage high patronage
Precinct	end-of-line destination/departure point principal and major activity centres, for example Helensvale, Caboolture and Springfield Central rail stations commercial and retail opportunities enhances connectivity for surrounding precincts
Operation	high frequency services intramodal interchange intermodal interchange may include 24 hour or first-to-last staff presence

Customers can expect the following conditions when accessing an interchange rail station:

Must haves

1. high quality, accessible, efficient and direct access to connecting modes and between platforms
2. minimal physical barriers to interchange
3. legible, clear and consistent way-finding and information for stop and interchange facilities
4. timetable information for multiple lines and feeder connections
5. customer services and general information booths
6. ticket purchasing facilities
7. passenger security

Desired

8. convenient retail/food and drink facilities
9. comfortable waiting areas

9.3.2.2 Commuter

The key elements that define a commuter rail station are described as follows:

	Description
Customer	commuters, off-peak, first-time, infrequent, tourists persons with disability, travelling with children higher patronage during peak periods
Precinct	local suburban catchment area commercial and retail opportunities district and neighbourhood activity centres, for example Albion and Newmarket rail stations enhances connectivity of local community
Operation	higher frequency of services during peak hour intermodal interchange weekday staff presence

Customers can expect the following conditions when accessing a commuter rail station:

Must haves

1. high quality, accessible, efficient and direct access to and within rail station
2. legible, clear and consistent way-finding and information for rail station
3. efficient ticket/gate access
4. timetable information for multiple lines and feeder connections
5. customer services and general information booths
6. ticket purchasing facilities
7. passenger security

Desired

8. convenient retail/food and drink facilities
9. comfortable waiting areas

9.3.2.4 Local

The key indicators of a local rail station are described as follows:

	Description
Customer	commuters, off-peak, first-time, infrequent, long-distance persons with disability, travelling with children, travelling with luggage low patronage
Precinct	suburban and regional areas neighbourhood and local activity centre, for example Mango Hill East, Wulkuraka and Ascot rail stations
Operation	low frequency weekday part-time staff presence or unattended

The conditions that customers expect at a local station are:

Must haves

1. high quality, accessible, efficient and direct access to and within rail station
2. legible, clear and consistent way-finding and information for rail station
3. timetable information
4. ticket purchasing facilities
5. passenger security

Desired

6. integration into local environment
7. convenient retail/food and drink facilities
8. comfortable waiting areas

9.3.2.5 Regional

The key indicators of a regional rail station are described as follows:

	Description
Customer	off-peak, first-time, infrequent, long-distance persons with disability, travelling with children, travelling with luggage low patronage
Precinct	regional centre, for example Townsville and Longreach rail stations remote and rural areas, for example Maryborough West
Operation	low frequency weekday part-time staff presence or unattended long distance rail services connections to long-distance coach services rail connection buses

Customer conditions that are expected at a regional station are:

Must haves

1. high quality, accessible, efficient and direct access to and within rail station
2. legible, clear and consistent way-finding and information for rail station
3. timetable information
4. ticket purchasing facilities
5. passenger security

Desired

6. integration into local environment
7. convenient retail/food and drink facilities
8. comfortable waiting areas

9.3.3 Rail services

The existing Queensland service categories and routes across the state are:

- Queensland Rail Travel network (long distance routes including coastal and outback services) and tourist trains [https://www.queenslandrailtravel.com.au/Planyourtrip/networkmap]
- Citytrain network (commuter services) [https://www.queenslandrail.com.au/forcustomers/stationsmaps/maps]

9.3.4 Who uses the rail service

TransLink customers using rail services across the rail network include frequent and infrequent users (for example, commuters/full-time workers, students, tourists, retirees, long distance travellers, and customers using the service for recreational purposes and events).

Customers may solely use rail stations for non-travelling purposes such as retail, cross-corridor access, meeting travelling users and other activities, and as such should be considered in the planning and design of a rail station and the rail station precinct. How TransLink customers access this mode of travel varies by location, adjacent land use, rail station facilities (e.g. mobility and accessibility) and trip purpose.

9.3.5 Access

9.3.5.1 Accessibility and compliance

TransLink requires that the relevant standards and guidelines for disability access are followed, along with the engagement of relevant disability reference groups, where required. The legislative requirements of the Commonwealth *Disability Discrimination Act 1992 (DDA)* sets out the responsibilities of the Department with regards to access to public transport, with the specifics and details given in the *Disability Standards*:

- *Disability Standards for Accessible Public Transport 2002 (DSAPT* or *Transport Standards)*
- *Disability (Access to Premises – Buildings) Standards 2010 (Premises Standards)*

For new stations it is not enough that a rail station is compliant, or has compliant elements. The design of the rail station precinct should be accessible to all of its customers and accommodate them without the need for adaptation or specialised design.

When upgrading existing stations, minimising barriers to the provision of direct and equitable access should be pursued.

9.3.5.2 Universal design

Public transport infrastructure should consider universal design to support and enable a diverse range of customers to access and use the public transport network. The philosophy of universal rail station design considers the access outcomes for TransLink customers:

- the whole journey for the customer, regardless of preference or ability, to and through the rail station is continuously accessible
- customers have direct access to the rail network
- customers have confidence that the rail station will provide what they need for a seamless, continuous journey with no barriers to access.

TransLink also recognises the importance of providing appropriate accessibility for customers as part of their door-to-door journey. Enabling a customer to navigate a continuously accessible path as part of the 'Journey' helps to create an accessible network.

The Whole Journey: a guide for thinking beyond compliance to create accessible public transport journeys (Commonwealth of Australia, 2017) assists in enabling people with disability to genuinely participate in the community by promoting the importance of considering the accessibility of the whole of the passenger transport journey. TransLink sees this guide as a very important document and application of the principles presented in the guide will help to improve the accessibility of our customers' passenger transport journeys.

Key accessibility and disability access design considerations are described in *PTIM, Supporting access infrastructure* Section 3.3. The principles of universal design are provided in *PTIM, Background and application.*

Station precinct amenities and facilities are to be designed to cater for a range of different customers with different needs and level of experience. For example

Customers who use a wheelchair:

- provision of lifts and ramps
- accessible fare gate openings
- platform height allows for ease of access into train at core zone.[1]
- unisex accessible toilet

Customers who are elderly or use mobility aids:

- short distance from accessible bays or kiss 'n' drop facility to the rail station and platform
- hearing loops

Customers who are blind or have low vision

- remove hazards/obstacles from path
- uncluttered and open environment
- clear wayfinding through use of colour contrast and tactile ground surface indicators (TGSI)
- access to audible messaging of information .

Customers travelling with luggage:

- provision of lifts and ramps
- accessible fare gate openings
- platform height allows for ease of access into train at core zone
- clear information for onward journey
- luggage storage areas.

Customers who are unfamiliar with the rail station or have mental health or anxiety issues or cognitive impairment:

- clear lines of sight
- orientation of signage and progressive/relevant signage for navigation through station and onward journey to the wider precinct
- consistent wayfinding
- consistent look and feel across rail network.

[1] *The core zone is a designated and identifiable area on the platform that includes, but is not limited to, an assisted boarding point, priority seating area, lighting, emergency phone, next train information, and enhanced CCTV coverage. Core zones also provide shelter and are identifiable by blue and white striped markings.*

9.4 Rail station environment

9.4.1 Understanding existing and future customers

9.4.1.1 Customer outcomes

TMR is focussed on achieving the following customer outcomes:

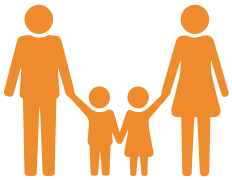
1. **Accessible, convenient transport:** access and use of the rail network should be accessible, convenient, direct and legible
2. **Safe journeys for all:** customers should feel comfortable and safe when using and accessing the rail network
3. **Seamless, personalised journeys:** rail stations are to be designed for the customer and need to be convenient and responsive to their individual needs and expectations. Rail stations to consider all modes of access to ensure a seamless interchange and journey for the customer
4. **Efficient, reliable and productive transport for people and goods:** ensures local access and integration with all modes is achieved and customers are able to move efficiently through the rail station. The station design balances in-service efficiency and on-time running with customer needs
5. **Sustainable, resilient and liveable communities:** providing a balance between movement and place can create vibrant places for the community. Rail stations should be designed as sustainable, long term assets that are fit-for-purpose now and into the future, and adaptable to change.

9.4.1.2 Customer needs

The expectations or needs of different customer types must be recognised and ideally validated for the location using customer research. As a minimum, all users, regardless of their ability or how frequently/infrequently they use the public transport network, customers require the following:

- short and direct paths to and within the station
- minimal barriers between the station and each access mode
- Crime Prevention Through Environmental Design (CPTED)/personal safety
- legible, clear and consistent wayfinding and information.

Table 9.2:
Customer expectations and needs

Customer type	Example(s)	Customer expectations or needs
Regular peak-hour commuters 	Customers who travel every business day to work or education frequently using the rail network and have strong familiarity with rail station and routes through/via development.	• legible/direct movement through rail station • efficient transfer between platforms • efficient ticket/gate access • convenient retail food and drink facilities • information on service disruptions and ability to access alternative modes • dependability of escalator/elevators.
Off-peak travellers 	May include retired passengers, university students, families travelling with children, employees working shift or outside of regular business hours.	• easy, accessible, legible access and interchange • comfortable waiting areas • infrastructure supporting lower service frequency (e.g. seating, shelter) • personal safety in unmanned locations.
Infrequent users/first-timers 	May include tourists, business travellers, parents travelling with children, Interstate guests visiting family (e.g. typically includes discretionary travellers). Customers might have luggage, prams or items unable to move easily.	• easy to navigate • direct access to taxi, kiss 'n' ride and park 'n' ride facilities • comfortable waiting areas including luggage facilities • ramps and lifts etc. to navigate level changes • convenient retail/food and drink facilities.

Customer type	Example(s)	Customer expectations or needs
Interchangers/transferring customers 	Regular peak-hour commuter switching between modes. Might need to accommodate customers impacted due to a service disruption, or alighted at wrong rail station.	• easy, legible interchange • multi-modal, real-time information and wayfinding • minimal physical barriers to interchange/ transferring between modes • relationship between modes minimises delay, diversions and need to cross roads.
People with a disability 	Customers who are deaf, hard of hearing, blind or have low vision, customers with cognitive disability, permanent or temporary mobility disabilities.	• system that ensures equitable and direct access • allow users to get to their destination with minimum difficulty or stress • direct access to lifts/escalators to platforms • direct access to core zone and assisted boarding point • direct access to amenities.
Station visitors/passers by 	May include non-travellers who use or pass through rail station/ interchange. e.g. Buying a magazine from the kiosk, passing through the rail station, meeting a relative or friend.	• Retail opportunities • Access to short term parking, kiss ‘n’ ride facilities • Real time information • Quality rail station amenity • Avoidance of obstructions, public transport infrastructure impeding movement routes • Comfortable waiting areas and meeting points.

The rail station needs to provide an appropriate mix of functional elements to meet the needs of these customers (refer Table 9.2) and reflect the site-specific requirements of the rail station while still aligning with consistent design standards. For example, a large inner city may have the following needs over a regional facility:

- greater passenger capacity
- consideration to passenger growth and peak travel times
- more lines utilising the rail station
- more multi-modal connections
- greater demand for non-travelling customers who move through the rail station i.e. transit-oriented development (TOD) and mixed-use developments
- maintenance and end-of-life replacement
- to address specific community complaints.

In addition to the customer's needs and expectations, service providers for the rail network also have requirements that will need to be considered when planning and designing a rail station. These are demonstrated in Table 9.3.

Table 9.3:
Stakeholder expectations and needs

Stakeholder type	Example(s)	Stakeholder expectations or needs
Property owner	Owner of land/development rights	• high quality design/visual outcome • rail station contributing to development outcomes • allowance for loading/servicing, or operational access (building maintenance statements may be required) • maintain economic feasibility of integrated commercial opportunities.
Service providers	Public transport operator	• allowance for loading/servicing, or operational/ maintenance access • future proofing for operational changes and construction access for future upgrades • facilities for staff • clear maintenance and other responsibilities identified where station components are integrated (for example, shared spaces, escalators, lifts, access roads etc.).

9.4.2 Understanding the site

This section provides guidance on the rail station environment considerations in the early planning and design phase. With each site having unique characteristics, a site-specific response needs to consider:

- understanding existing and future passenger demands
- the surrounding land uses
- integration with other modes
- land constraints.

The detailed design of rail stations should be based on the Queensland Rail publication, *Station Design Manual,* in conjunction with TransLink and key stakeholders.

9.4.2.1 Existing and future demands

The planning and design of rail stations should accommodate future growth and opportunities for the local and wider community. Demand analysis should be used to inform staging opportunities for the delivery of access infrastructure, as well as protect for any land requirements to cater for future customer demand.

Depending on the site consideration and long-term rail network plans, planning should consider provision for future expansion to increase capacity. Forecast patronage increases may potentially require public transport facilities to be able to accommodate additional future services (for example, new interchange services, higher frequency services, express services etc.).

The rail station precinct must have ample space and be appropriately designed to accommodate a range of passenger movements and the volume of anticipated passengers, including those waiting/dwelling, accessing public transport services (boarding/alighting), through movements and queuing.

Footpath space should cater for the anticipated pedestrian demands, movements and amenity, including congregation at surrounding intersections and around the entrances to the rail station.

Refer to Queensland Rail's *Station Design Manual* for specific design requirements and technical specifications of the platform, including the core zone, and access paths.

For further information in determining capacity and Levels of Service requirements refer to *PTIM, Planning and Design* and Queensland Rail *Station Design Manual*.

9.4.2.2 Integration with land use

As with other public passenger transport infrastructure, integration with land use is critical in supporting the following outcomes:

- adequately catering for customer needs
- ensuring essential community access to services
- supporting pedestrian and cycle movement networks
- contributing to reducing dependency on cars
- support economic development of communities.

Due to the mass transit role of trains, rail stations are often used as the backbone of public transport networks. Rail stations can be fed into by bus, light rail, ferry, and other private and public transport networks, providing an interconnected network for passengers.

Given that an established rail network is already in place for Queensland, the majority of works are expected to relate to upgrades of existing rail stations.

TransLink recognises that a major consideration for rail station infrastructure in the near future is likely to be the urban redevelopment around existing rail stations. As such, a key focus for the future should consider positive change of land use in precincts surrounding rail stations to complementary hub developments with a greater integration between different land uses. Many communities also have or develop strong connections with rail stations, reflecting the contribution and role the rail station and adjacent land uses offer (for example, community services, social interaction etc.).

Development surrounding rail stations should support access for all users to the public realm, increase street activation and passive surveillance of these spaces, and contribute to the vibrancy of the street. Additionally, where appropriate, development should provide high-quality lighting that reinforces daytime and night-time presence and surveillance.

Refer to *PTIM, Planning and design* for further detail regarding integration with land use, including TOD.

9.4.2.3 Integrations with other modes

Access connections to rail stations should be accessible, convenient, direct and legible.

Planning and design must consider how passengers will access the infrastructure with consideration to the TransLink access hierarchy presented in Figure 9.3, and incorporate appropriate access facilities and infrastructure. This includes pedestrian and cyclist facilities, interchange and bus feeders, taxi, kiss 'n' ride and park 'n' ride facilities.

The design should consider protecting the integrity of entry and exit points by:

- managing congestion and inter-modal conflict at key access points
- appropriately designing decision points at transition zones, with a focus on legibility and ease of navigation
- simplicity and economy of movement to, from and through the rail station and access infrastructure
- minimise barriers to appropriate movement along:
  - desired travel paths for design of new stations
  - primary travel path when upgrading existing stations.

Rail stations are to be designed so that they are easily identifiable as a station by customers. This is achieved through clearly defined entry and exit points, defining the rail station (or where applicable, interchange) boundaries and clearly demonstrating where access infrastructure links to the rail station from the surrounding built environment.

Design considerations should include provision of entry plazas, information areas, rail station concourse, ticket office or facility, and fare gates (where relevant to the size/scale of the rail station and its integration with other modes).

The design of rail stations should allow for seamless passenger movement between modes and services to encourage public transport use and to maximise the quality of the customer experience, in accordance with TransLink stop and station policy and guidelines.

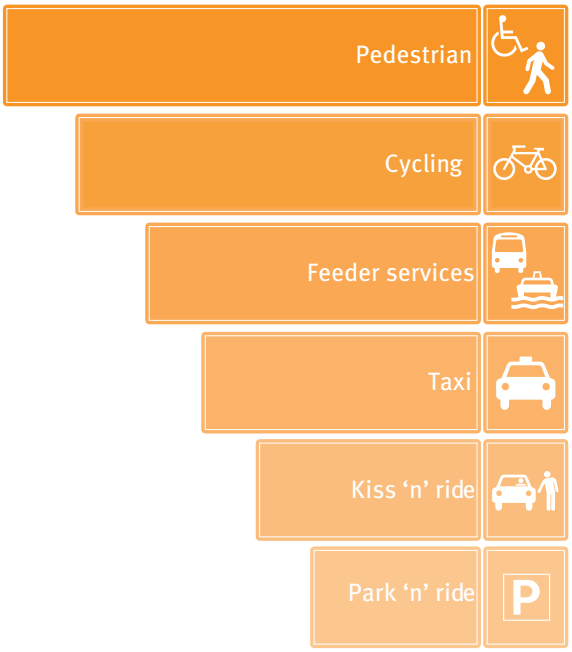


Figure 9.2 –
TransLink's access hierarchy

Pedestrians

Pedestrians should have clear and direct access to supporting infrastructure and surrounding facilities.

Pedestrian infrastructure should be considered in terms of:

- interface between the rail station and the wider pedestrian network
- pedestrian access through the rail station, including vertical circulation (i.e. stairs, ramps, lifts, escalators etc.) and grade-separation (to be integrated into the primary facility structure where possible to minimise passenger travel)
- existing and future pedestrian volumes and pedestrian paths of travel to/from adjacent land uses and attractors and events, using methods previously agreed with TransLink and key stakeholders
- provision of a safe and convenient path of travel to/from station (i.e. minimise conflict with other access modes and minimise need to cross roads).

Pedestrian demand assessment:

- is to be carried out to determine spatial requirements (for example, width of unobstructed paths and movement corridors at surface or below ground levels, design of rail stations paid/unpaid areas)
- may include access paths, vertical transport, corridor widths, gatelines, concourse sizing, run off requirements and location of ticketing facilities/retail uses etc.
- to consider desire lines, through movements, conflicts with other demand (particularly in mixed-use developments/ TOD) and how it interfaces with public transport passenger demand
- is to consider how underground transfer of passengers between rail services may result in a reduction in surface transfer pedestrian demand to other surface modes (i.e. bus, light rail etc.).

Refer to *PTIM, Planning and design*, Section 2.3.3.1 for further detail regarding demand analysis.

Micro-mobility

Design of rail stations should consider accommodating journey start and end trip solutions, including micro-mobility. Designated storage areas may be required around rail stations for docked and undocked micro-mobility/rideable technology.

Cycling

Integrating cycling access with public transport dramatically increases the catchment areas of the rail network.

When planning and designing cyclist infrastructure, the following should be considered:

- all interface points between local bicycle networks and TransLink infrastructure must be functionally seamless
- cycle infrastructure to integrate with existing infrastructure
- cycle connections must be direct, and legible with safe and convenient crossings
- minimise pedestrian access path conflict with cyclists
- specialist cycle design advice should be sought when designing cycle amenities including end-of-trip facilities.

Feeder services

Design of rail stations should consider nearby bus stops, light rail stops and feeder services to ensure that passengers can access the wider public transport network conveniently and safely and to their end destination.

For transferring and destination customers, bus stops should be close to the rail station entry/exit (ideally visible or within line of sight) and limit the need to cross roads.

Taxi facilities

As a key part of a balanced transport network, taxi facilities need to be integral to rail infrastructure. They are a key form of transport for those who cannot access other forms of public transport or drive independently. Taxi services ensure such passengers have access to other areas within their community when they need.

The design of taxi facilities within the rail station precinct must ensure passengers can transfer easily through the rail station and readily identify the taxi rank location upon exit.

Kiss ‘n’ ride

Passenger set-down facilities maximise access to the rail station for all users. Design of kiss ‘n’ ride infrastructure within the rail station precinct should:

- minimise potential for vehicle/pedestrian conflict
- provide accessible, direct and legible connections to rail station facilities
- not interrupt bicycle movements
- incorporate CPTED principles
- minimise the need to cross cycle paths.

Park ‘n’ ride

The integration between park ‘n’ ride infrastructure and rail stations is to consider the following:

- direct access to and from arterial, sub-arterial and distributer roads is preferred
- park ‘n’ ride should incorporate clear and legible wayfinding and signage to demonstrate that car parks are provided for public transport users
- customers are expecting more digital/real-time offerings from car park design. For example, incorporation of access control to existing park ‘n’ ride facilities or digital occupancy information for customers
- park ‘n’ ride access to minimise disruption to pedestrian and cycle movements
- vehicular demand may require upgrades to road infrastructure on streets feeding the site. This may include intersection upgrades, carriageway reconfigurations, traffic calming or resurfacing. Analysis should also consider impacts from school peak (and associated bus movements).

9.4.2.4 Land constraints

Design needs to consider land constraints in determining size, configuration and function of the infrastructure. Where land is available (for example greenfield sites) it should be preserved to provide for short and long-term demand. Consideration should also be made for the use of suitable brownfield sites particularly where land is the property of the State.

The location of the facility should ideally also consider on-street designs where the rail station forms part of the normal main street setting in a city or town centre, particularly where this offers significant operational benefits for customer and operator.

9.5 Functional design guidelines for rail stations

9.5.1 Sequence of movement

The layout of a transport facility should consider the sequence of public movement. Public movement is in response to the progressive sequence of actions and decision points along the path of travel from the entry to the boarding point on the platform, as illustrated in Figure 9.4.

The growth of integrated facilities can lead to conflicts between public and private spaces and the components needed to allow a clear movement sequence for travelling customers. The planning stage of a facility should acknowledge this conflict and aim to reconcile the different elements within an integrated facility, with clear signage and wayfinding, to allow for efficient public movement for both travelling and non-travelling customers.

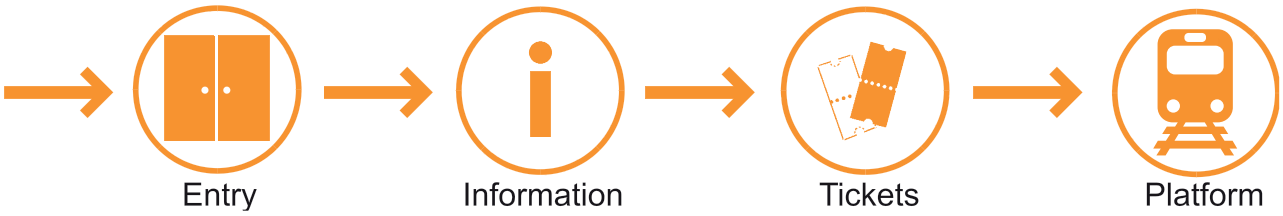


Figure 9.3 –
Sequence of movement

9.5.2 Circulation within rail stations

Table 9.4:
Circulation within rail stations

Type of circulation	Principles
Direct circulation	• route between entry and boarding points should be as direct as possible • minimise turns in the path of travel and avoid turns greater than 180 degrees • changes of level should be through continuous straight flights of stairs or ramps and, if appropriate, escalators or lifts. Further: • if turning is required, landings are to be provided with necessary room for appropriate separation and manoeuvring – stairs and underpasses circulating at 90-degree turns must adopt suitable measures to provide good sightlines for ascending and descending

Figure 9.4 –
Direct circulation

Cross-path circulation	• provide simple and clearly defined paths of travel that avoid conflict and maximise rail station capacity • paths of travel should be clearly established to meet the requirements of passengers on the dominant side of the pathway, away from the opposite flow path • avoid circulation systems that have people crossing the paths of others to access information, ticketing, amenities, platforms, ranks, seating,

Figure 9.5 –
Cross-path circulation

Type of circulation	Principles
Left-hand circulation	• dominant movement pattern of pedestrians is based on the majority of travel undertaken on the left-hand side • circulation within the facility (including around components and amenities) should follow this convention for predictability and efficiency.
Vertical circulation	• vertical circulation components such as stairs, ramps, lifts and escalators should be assembled relative to the platform type, length of platform and location of the platform core zone, and may require multiple vertical transport 'banks' along a busy platform • co-location of components on a platform assists with convenient placement of public information and navigation • all access components must comply with the relevant *Disability Standards* • best practice rail station design has demonstrated the need to provide run-off spaces away from escalators, lifts, and stairways (as well as ticket gatelines) to ensure a clear landing area is provided that allows passengers to orientate themselves; make decisions/act; and where needed provide a reservoir for queuing in the event of a system failure/ delay. The length of runoff required is dependent upon demand.
Changing direction	• changes in direction within circulation should only occur where there is sufficient space to allow passengers to maintain a sense of direction (use of transparent materials to enable views is preferable) • appropriate space should be provided at information and decision points for people to avoid conflict with the flow path of travel to ensure comfortable and efficient movement • as with vertical transport, best practice assessment has also demonstrated a need to provide for run-off spaces before any direction change.
Emergency evacuation circulation	• emergency evacuation considerations, including appropriate circulation paths, exits and assembly points, should cater for the maximum volume of people using the facility at any one time • effective signage and way-finding is a key consideration for public circulation in an emergency situation. This must be reviewed in the detailed design stage and receive approval by an emergency evacuation specialist • facilities which are structurally at-grade, elevated or below grade present different emergency and safety requirements that warrant project specific design investigation • integrated rail stations with adjacent private or public activities present complex emergency and safety requirements that warrant project specific design investigation • Note: The *Premises Standards* and the *National Construction Code* including the *Building Code of Australia* provide technical emergency and safety requirements for passenger transport facilities, as well as cross referencing to the relevant *Australian Standards* for design guidance.

9.5.3 Identifiable station entry and exit

Entry and exit points are clearly defined and highly legible to customers.

Clearly defined entry and exit points are essential; not only providing points of access, but also defining the rail station/precinct boundaries and where access infrastructure needs to link to the station from the built environment.

Design considerations should include provision of entry plazas, information areas, stop/station concourse, ticket office or facility, and fare gates (where relevant to the size/scale of the station and its integration with other modes).

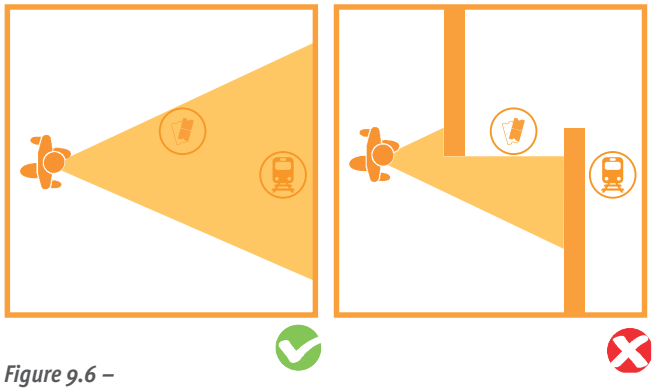


Figure 9.6 –
Identifiable entry/ facility

9.5.4 Safety and security

Safety and security of customers and other users of the station, particularly at night may see the need to consider in addition to appropriate lighting levels, well monitored waiting environments, and access paths to and from the station to supporting access infrastructure that offer sufficient active and passive surveillance.

9.5.4.1 Active surveillance

The safety and security measures employed to maximise actual and perceived safety for customers may consider the use of the following:

- security cameras in operational areas
- adequate lighting appropriate to the type/category of rail station
- visual monitoring of the station/precinct.

9.5.4.2 Passive surveillance

Infrastructure is designed to provide passive surveillance and deter undesirable behaviour.

The physical environment of public transport facilities must be designed to discourage the possibility of crime, property damage and anti-social behaviour associated with people gathering in public spaces. Creating defensible spaces that allow for surveillance from outside and within the facility will promote safe environments and will attract greater public use. Refer to the current version of the Queensland Government's *Crime Prevention Through Environmental Design* guidelines.

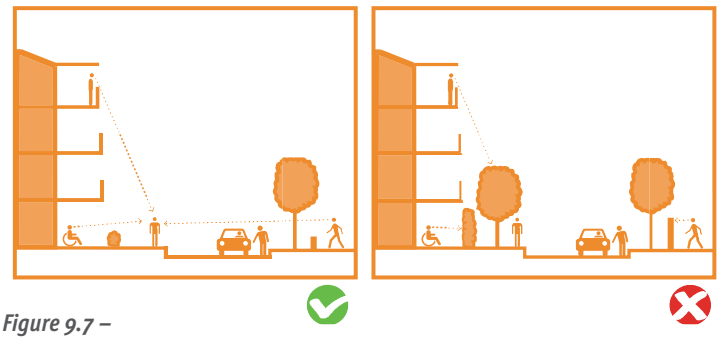


Figure 9.7 –
Passive surveillance example

9.5.4.3 Anti-social behaviour, graffiti deterrents and treatments

Components are durable and resistant to graffiti and vandalism.

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

Other options include specific design and arrangement of waiting areas and structures to maximise natural surveillance in order to minimise the incidence of graffiti and anti-social behaviour. In some instances, appropriate planting of vegetation may be used, adjacent to structures or walls, to prevent access by vandals. Furthermore, the moderate application of artwork that complements the terminal architecture and theming can also be used to deter graffiti.

9.5.5 Climatic comfort and weather protection

Resilience to weather and climate should be considered when planning and designing rail stations, with high-quality climatic comfort and weather protection for customers to be provided.

Sun and weather protection is to be provided. In developing the design of facilities and their access, the following should be considered:

- structures must provide sufficient physical width, length and height to achieve high-quality climatic comfort and weather protection for the anticipated number of passengers expected to occupy this space
- passengers should be provided with appropriate protection with enclosed or covered rail station access points, public information and decision points, seating and waiting areas, and boarding and alighting areas
- consideration must be given to the management of sun, wind, rain, heat (including heat spots particularly on platforms or waiting areas), glare and humidity.

An appropriate climate analysis should be included within the planning and design of rail stations to inform appropriate facility orientation and suitability for specific locations.

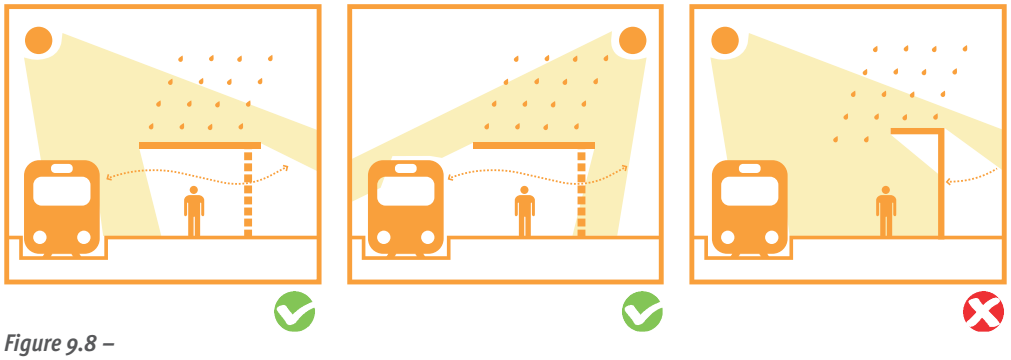


Figure 9.8 –
Climatic comfort and weather protection

9.5.6 Sustainable assets

Design and delivery of rail stations 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
- identification and implementation of ecologically sustainable development initiatives.

Refer to Queensland Rail's *Station Design Manual* for further details regarding Environmental Planning and Management Framework used to verify and validate environmental design outcomes.

Table 9.5:
Sustainable 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 through minimisation of energy use and generation opportunities (for example, solar for lighting and for feeding back into electrical supply) • materials - apply whole-of-life design approach—construction, operation, maintenance, cleaning, and decommissioning. Materials should favour renewables and recyclables • processes - avoid operational processes that generate waste, especially toxins and pollutants.
Habitat and physical environment	• protect habitat (that is, space, physical elements such as 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.

9.5.7 Cultural and heritage places

The *PTIM* recognises that there are numerous sites throughout the rail network which have cultural or heritage significance, and as such, liaison with the State and Queensland Rail shall be undertaken at all stages of planning, design and delivery of rail station infrastructure as outlined in Queensland Rail *Station Design Manual*. Refer also to *PTIM, Planning and design* for further details.

9.5.8 Functionality and simplicity

Maintain simplicity and provide a functional rail station design that minimises conflicts between users and ensure passengers can easily interpret and use the space/transport infrastructure.

The design of structures, platforms, concourses, waiting areas, seating, signage, pavements and other components must be incorporated within the overall design process to achieve highly functional rail station design outcomes.

The design should provide a legible and pleasant environment that is uncluttered and easy to understand and navigate.

9.5.9 Wayfinding and signage

Signage forms a major component of design to assist with navigation to and around rail stations.

Logical information, wayfinding signage and overall facility signage is important to achieving a consistent and recognisable public transport system.

Rail station design should incorporate signage and wayfinding:

- to ensure customers can easily recognise and find their way to rail stations, including fare machines and ticket offices
- where line-of-sight to nearest decision point can be achieved considering signage height, colour contrast and orientation
- for multi-modal integration, maps and landmark information of wider precinct
- using universal/international symbols and indicators.

For further details of TransLink's signage requirements, refer to the *PTIM, Branding, theming and signage*.

9.6 Specific considerations for rail stations

9.6.1 Rail station platforms

Once passengers are over the paid threshold of the rail station, the design needs to consider how customers will access and use the platform.

Platforms generally provide for inbound or outbound services, and should:

- consider functional paths of travel connecting multiple transport modes
- allow for appropriate and safe customer movement and waiting areas
- include a core zone
- when directed, allow for future implementation of platform screen doors at the boarding and alighting points (for example, at event stations and inner-city stations).

The location and sizing of platforms are to be determined and confirmed through liaison with TransLink and Queensland Rail.

There are three main types of rail station platforms which are summarised below and should be selected based on track configuration, local topography, rail station category, customer demand and customer needs in relation to the surrounding land uses/types.

Further information on platform design can be found in the Queensland Rail publication, *Station Design Manual*.

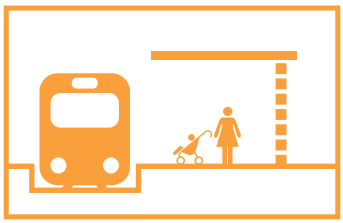


Figure 9.9 –
Single-side platform

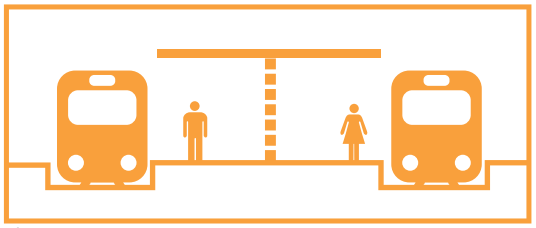


Figure 9.10 –
Island platform

Figure 9.11 –
Feeder interchange platform

Table 9.6:
Rail station platform type

Platform type	Description
Double-side platform(s) **Single-side platform**	• a platform(s) positioned to the side of a single or pair of rail tracks • good access/egress: – direct access from adjoining street or precinct, with opportunity for at-grade access • requires duplication of vertical transport for grade separated platforms
Island platform	• a single platform is positioned between two rail tracks • facilitates cross-platform transfers • acceptable access/egress: – requirement for track crossing or bridge overpass from adjoining street or precinct
Feeder interchange platform	• interchange between rail, bus and/or light rail networks • facilitates reduced transfer times between different modes • acceptable access/egress: – generally has a requirement for network crossing from adjoining street or precinct

9.6.2 Fare collection

The method of fare collection affects the operational capacity of rail station design. Automatic fare collection can be carried out through the incorporation of Stand Alone Card Interface Device (SACID), Add Value Vending Machine (AVVM) and fare gates. The provision of ticketing systems and ticket offices will be determined by rail station type, size, public comfort, level-of-service requirements, and revenue protection strategies. The facility layout must consider the appropriate location of the paid/unpaid threshold (position of fare collection barriers-gates) as part of ensuring sufficient and safe circulation and queuing of passengers particularly in peak operational periods.

Liaison with TransLink shall be undertaken to identify the requirements for installation of ticketing infrastructure at the rail station. This is required to address existing and future ticketing infrastructure needs (including the ability to incorporate fare gates at a future date, and smart ticketing), and installation requirements (for example, power, conduits, cabling, connections, and so on). Final approval of the design and installation of ticketing infrastructure must be sought from TransLink.

Liaison with TransLink and other stakeholders will also be required to determine the appropriate assessment methodology and level of service for the operation of the ticket gates (e.g. static or dynamic assessment to best practice standards).

9.6.3 Arrangement of space

Customers enjoy free flowing movement within the rail station.

Rail stations can include public and private spaces. Public spaces form the pathway from the point of entry to the point of departure. Rail station elements such as concourses, underpasses and overbridges can also form part of the public walking and cycle movement network. The boundaries between private and public spaces within the rail station can be blurred and will require sensitive approaches to planning for circulation, waiting and accommodation of private and public activities. This may require promoting appropriate through pedestrian traffic where capacity, behavioural conflicts and the integrity of pre-paid ticketing zones can be managed.

Private spaces should not obstruct paths of travel, sightlines to points of entry, information and decision points, and waiting and seating areas. Private spaces can include:

- retail and commercial areas
- maintenance and management facility areas
- communications and electrical cupboards

9.6.4 Flexible design

The design of rail stations and associated infrastructure needs to consider current and future capacity requirements. Some of the key issues to consider include:

- prioritising investment to protect for future public transport connections
- consider additional kerbside space to accommodate additional/future public transport services
- design for development integration so that rail station capacity, operations and internal circulation requirements can be maintained or enhanced
- future passenger volumes may require grade-separated pedestrian walkways, separated entry/exit vehicle crossovers etc.
- ensuring the location of permanent elements does not impede plans to upgrade or expand rail stations or the rail network.

There are several emerging technologies that change Queenslanders' reliance on personal cars and offer more integrated mobility solutions.

These emerging technologies and trends offer choice and dynamic travel options which need to be considered when designing rail stations:

- incorporate proof-of-concept and other agile design approaches in a time of high change
- ensure rail stations are designed in an agile manner that ensures it will be suited for changed transport customer behaviours.

9.6.5 Asset management

Rail stations are major elements of passenger transport infrastructure and they need to be managed and maintained to be fit-for-purpose, providing consistent customer communication, service standard and sufficient operational conditions suitable for passenger comfort and safety.

The rail station components need to be maintained and managed on an ongoing basis to ensure the effective operation of a rail station. The framework for how a rail station will be managed after the delivery of infrastructure needs to be considered within the planning and design process.

Relevant operational stakeholders should be engaged in the planning and design process to ensure that the requirements of asset management by operators and/or owners have been considered.

All components of rail station infrastructure should use materials and finishings consistent and compatible with existing infrastructure of an approved standard. In

consultation with relevant operating and maintenance stakeholders, detailed maintenance manuals should be developed for all components and operation schedules within a rail station. These should be prepared as part of the rail station project.

For further details on asset management requirements refer to *PTIM, Planning and design*. For specific guidance with respect to rail stations, please refer to Queensland Rail publication *Station Design Manual*.

9.6.6 Rail station operations

Rail station design should not compromise the physical condition or operating performance of rail transport infrastructure and associated rail networks.

The following rail station operations can impact the design and layout of rail station infrastructure:

- **Frequency -** the peak and off-peak frequency of services needs to be considered
- **Hours of operation -** consider any additional requirements (i.e. lighting, security etc.) for rail stations whether they have 24/7 opening hours or first to last service hours of opening
- **Operational impacts -** mobility aids, wheelchairs, prams and bicycles increase boarding times and can impact operational capacity of rail stations and platforms. Additionally, insufficient pedestrian capacity or obstructions to pedestrian movements on platforms can affect on-time running
- **Rail replacement bus -** arrangements for replacement services during interruptions (e.g. planned maintenance, track closure, or unplanned disruption) or to supplement rail services
- **Event services -** during events, passenger demands can be high with a number of these being first-time visitors to the rail station. As such, the planning and design of rail stations that are envisaged to be used during events, should consider how comfort and security for passengers during peak event travel can be achieved; and ensure signage and wayfinding is clear and legible
- **Revenue protection -** fare collection equipment (for example, gatelines, SACID, AVVM) to be provided at entry/exit points to rail station. Location of fare collection equipment to consider passenger queuing and run-off.

Appendix 9-A

Design Considerations

The use of quality components (including materials and furnishing) will support effective rail station operation by:

- providing a comfortable and safe passenger environment
- delivering robust infrastructure that minimises the need for maintenance.

TransLink in partnership with Local Government and Queensland Rail shall be consulted on infrastructure component inclusions for each rail station. The correct level of design components making up a station will depend significantly on the role of the rail station in the TransLink network (that is, TransLink's hierarchy of rail stations).

Table 9.8 provides an overview of the requirements in choosing rail station components. All components must comply with the relevant *Disability Standards* to the maximum extent possible, *Australian Standards* and relevant building codes.

A detailed list of the standards and other references applicable to the components listed in Table 9.8 can be found in the *PTIM, Background and applicatio*n.

Table 9.8:
Design considerations for rail station components

Element	Consideration
Information and signage	
Signage and wayfinding	• station design must demonstrate consistency with TransLink and Queensland Rail design, branding and signage. Refer to *PTIM, Branding, theming and signage* and Queensland Rail's *Station Design Manual,* and ensure compliance with applicable *Disability Standards* and *Australian Standards* • incorporate signage and wayfinding: – to ensure that public transport information is provided in advance of decision points – to ensure customers can easily recognise and find their way to and within the station – to assist in aiding equitable access for all passengers, especially people with vision impairment • identify need for wider precinct wayfinding signage to enhance legibility of access to the station • consider signage height, colour contrast and orientation • consider use of universal / international symbols, icons and indicators • wayfinding may include non-text or map-based indicators and themes to assist people to travel in their preferred direction • physical infrastructure should be designed to be intuitive and minimise the need and reliance on extensive signage i.e. wayfinding can incorporate handrails, tapping rails, building or shore lines, path widths, lighting, paving patterns, arrows, vistas, colours, shapes and TGSIs • TGSIs: – warning TGSIs identify hazards such as stairs, change of direction, or gradients. For rail stations, TransLink requires warning TGSIs to be provided along the front of each platform edge and may be used to represent the yellow safety line. Contact TransLink for requirements – directional TGSIs are used as a walking guide to rail station platforms and may be used to show the most appropriate and desirable route of travel through a rail station. However, good facility design will provide other preferred alternatives such as the use of shore lines, and consistent and logical use of spaces – TGSIs must achieve or better the Disability Standard's minimum contrast required from the surrounding pavement surface colour – designs and layouts should be reviewed by specialist access personnel, as well as appropriate user groups, to achieve the most suitable outcome for each location – TGSI should not direct a passenger to obstructions.

Element	Consideration
Public transport information	• information amenities should be integrated within the design of the rail station structure and environment, and in locations that do not impede free flowing access paths and walkways • passenger transport information can consist of electronic kiosks and static or real-time displays. Information should be located in waiting areas and decision points within and on approach to the rail station. Information should include rail timetables, maps, services, special notices etc. with the message displayed appropriate for where the customer is within the precinct and relevant to where they are on their journey. For example, next service departure time displayed is directly related to the travel time required to walk to the platform for boarding • electronic information displays should face passengers and be positioned at a comfortable viewing angle and height. Designers will need to determine the most suitable quantities and locations for electronic displays • the location of information amenities must be considered early in the design phase to incorporate appropriate security surveillance and power and data requirements.
Station precinct	
Architecture	• while rail travel is typically more about the journey (and destination), it is important to consider the form, function and its relationship to the local community and wider precinct. Creation of an architectural landmark can promote sense of ownership, pride and joy to the community and users of the station • stations must not be designed to be purely functional • designers must attempt to create visual interest by integrating: – colour significant to the area – design elements from local flora and fauna – design elements highlighting site's cultural heritage and significance – the site's significance of place • station design should promote improved customer satisfaction.
Retail	• during design all opportunities to integrate or co-locate retail facilities must be explored in conjunction with TMR. These facilities must be designed so that they provide an enhanced user experience while prioritising public transport • retail facilities could be included where opportunity exists and be designed to provide an easily accessible and affordable shopping experience offering merchandise or services that users might require while traveling • facilities designed may range from space provision for future private investment or complete development with and opportunity to rent space for private operation • retail facilities may provide passive surveillance, activation and assistance while improving precinct safety • facilities may range from: – small news agent/coffee shop – small grocery store / mixed retail store – mixed-use development – Transit-Oriented Development (refer to *PTIM, Planning and design Appendix 2-A*).

Element	Consideration
Pavement and access	• Pedestrian pavements: – to be compliant with Austroads *Guide to Road Design* and *AS1428.1* – provide a consistent, attractive, durable, easily-maintained surface that is appropriately graded and sheltered – suitable for access, waiting and queuing, as well as accommodating the full range of furniture elements – integrate TGSIs and way-finding aids for persons with a vision impairment and comply with applicable *Disability Standards* – external access paths and links to and from the rail station should be reviewed and considered in the planning and design phase to ensure direct and equitable access for all users. • Crossings: – design should remove conflicts between pedestrians, general traffic and public transport vehicles, if any – at-grade pedestrian crossings are preferred where safety and relative priority can be maintained. Refer to TMR *Manual of Uniform Traffic Control Devices, Part 10, Pedestrian Control and Protection*, Austroads *Guide to Traffic Management*, and *Australian Standards* etc. for design requirements – uncontrolled crossings (i.e. zebra crossings and shared zones), are preferred except where safety or capacity concerns exist – traffic should be diverted or de-prioritised where there are pedestrian concentrations. Where controlled crossings are necessary, this can be achieved by giving priority to the pedestrian movement and minimising waiting times for pedestrians – refer to Austroads *Australasian Pedestrian Crossing Facility Selection Tool [v2.1.2]* to inform pedestrian crossing facility type – grade-separated crossings between platforms may be needed. Lifts or escalators are the preferred options, depending on access requirements. Where possible, the grade-separated structure should be integrated into the primary facility structure in order to minimise passenger travel. • Vehicle pavement design: – vehicular pavement design must accommodate the loads and turning movements associated with all vehicle types expected to access the rail station. Concrete rather than asphalt should be used to minimise maintenance – overall pavement finish options must be endorsed by Queensland Rail and relevant stakeholders. • Other: – footing details for platform shelters and other facility infrastructure, as well as all pavements, need to meet current regulations and standards and be approved by a certified engineer.

Element	Consideration
Materials and furnishings	• common visual appearance by aligning structures, pavement, signage way-finding and other infrastructure with the TransLink branding and theme (or as agreed with stakeholders) • design elements to be tailored to meet site-specific operational and functional requirements within the overarching TransLink theme • components are high quality, durable, easy to use and maintain • modular and consistent facility components are used to facilitate future maintenance and expansion of infrastructure • materials (such as steel) for structure supports and beams should emulate a lightweight appearance to achieve a modern, open and safe environment. • comply with all applicable standards and regulations including *Australian Standards* and the *National Construction Code* • approved by Queensland Rail and relevant stakeholders.
Handrails, balustrades and fencing	• Handrails: – handrails are generally used in conjunction with ramps, stairs and walkways – can be used as a form of support and way-finding aid that is compliant with relevant standards – a grabrail or handrail must be provided at fixed locations where passengers are required to pay fares, for example, AVVM and ticket window • Balustrades and fencing: – provide vital separation between people and hazards where access is not permitted – Fencing can provide a discreet barrier between hazards to promote safe alternative access routes via dedicated overpasses. Fencing can also be used to protect and secure Queensland Rail assets including the rail corridor and restricted areas – fencing should be used at a minimum, and only installed where necessary while still able to promote an open station layout – provide a visually attractive, semi-transparent, and functional system, and be constructed from materials that are robust, contemporary and easily maintained – consult Queensland Rail *Station Design Manual* for detail regarding fencing requirements at rail stations • all handrails, balustrades and fencing are to comply with applicable *Disability Standards* and *Australian Standards*

Element	Consideration
Access and interchange	
Supporting access facilities	• **Walking**: when designing pedestrian infrastructure, reference to *Austroads, Australian Standards, National Construction Code, Disability Standards* and *PTIM, Supporting access infrastructure*, Section 3.3 Pedestrian infrastructure should be made. • **Cycling**: refer to *PTIM, Supporting access infrastructure* for further detail regarding cycle infrastructure. Refer to Austroads guidelines and the TMR Technical Information for Cycling for further information about cycle demand and forecasting. Specialist cycle design advice should be sought when designing cycle amenities including end-of-trip facilities. Advice on standards and current best practice can be sought through TransLink, other relevant government stakeholders and the TMR Technical Information for Cycling. • **Bus stop and interchange**: design of rail stations should consider nearby bus stops and bus feeder services to ensure that passengers can access this public transport infrastructure conveniently and safely. For transferring and destination customers, bus stops should be close to where they want to go and limit the need to cross roads. Refer to *PTIM, Bus stop infrastructure* for detail on designing bus stops. • **Taxi**: as a key part of a balanced transport network, taxi facilities need to be integral to rail stations. The primary integration issue is to insure passengers can transfer easily through the rail station and readily identify the taxi facility location upon exiting public transport facilities. Refer to *PTIM, Taxi facilities* for detail on designing and incorporating taxi facilities. • **Personalised Public Transport (PPT): [placeholder]** • **Kiss 'n' ride:** direct vehicle access to and from arterial, sub-arterial and distributor roads is preferred. Connections between kiss 'n' ride infrastructure and rail station facilities should be accessible, direct and legible, and incorporate CPTED principles. 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. Kiss 'n' ride infrastructure should not interrupt cycle movements, and should minimise the need to cross cycle paths. Refer to *PTIM, Supporting access infrastructure* for further detail regarding passenger set-down infrastructure. • **Park 'n' ride**: refer to *PTIM, Park 'n' ride infrastructure* for further detail regarding the planning and design of park 'n' ride facilities. Well-designed park 'n' ride facilities can improve access and customer reach to the rail network. • **Other access requirements**: requirements for service and emergency vehicles should also be considered. Refer to Queensland Rail, *Station Design Manual* for Queensland Rail service vehicle requirements.

Element	Consideration
Cycle storage	• secure cycle storage and amenities are to be included in the design and layout of all rail stations. These facilities must be scalable and accommodate future demand as required • secure cycle storage facilities and cycle rails should be close to rail station platforms for a safe and easy transfer to passenger transport • cycle storage must be located in a visually-prominent position within or immediately adjacent to the rail station environment, to allow passive surveillance • materials used for these facilities should be secure, transparent, durable, easily cleaned and resistant to vandalism or abuse • the amount of cycle storage provided will be determined by the size and location of the facility and availability of adjoining cycle access paths • cycle storage/enclosure may be required on either side of the rail corridor • consideration should be given to providing appropriate electrical conduits for lighting and in preparation for electronic card access and other future electronic requirements. • For further details on cycle storage facilities and amenities, refer to the *PTIM*, *Supporting access infrastructure,* Austroads *Cycling aspects of Austroads Guides,* TMR *Supplement Traffic and Road Use Management Volume 1, Manual of Uniform Traffic Control Devices* and technical notes. • Liaison with TMR and Queensland Rail should be carried out to confirm type and location of facilities. Cycle enclosures, if included, shall be designed in accordance with Queensland Rail *Station Design Manual.*
Station and platform	
Automatic Fare Collection equipment	• TransLink will provide and install electronic ticketing system (ETS)/ Automatic Fare Collection (AFC) equipment and is responsible for: the provision, installation, testing and commissioning of AFC equipment • ticketing amenities should be integrated within the design of the rail station structure and environment, and in locations that are easily accessible and visible, and do not impede free flowing access paths and walkways • the location of ticketing amenities must be considered early in the design phase to incorporate appropriate security surveillance and power and data requirements • fare machines issue TransLink's integrated transport fares/tickets for use on buses, trains, light rail and ferries: – Add Value Vending Machine (AVVM) - A self-serve electric ticketing fare machine consisting of a touch screen display, card reader and cash payment options, used to purchase paper tickets or perform a limited range of go card functions including displaying the card balance, transaction history, or adding value to the go card – Stand Alone Card Interface Device (SACID) – An electronic device (usually placed at the entry/exit and key decision points of rail stations) used by passengers to validate a go card at the commencement and end of their trip so that their trip fare can be calculated • locate AVVMs and SACIDs close to entrance points or nominated boarding points taking into consideration the sequence of movement and paid/unpaid areas, and maintaining a safe distance from any stairs or ramps. Locate AFC clear of other obstructions on the platform to maintain visible connectivity and access along the path of travel

Element	Consideration
Automatic Fare Collection equipment (continued)	• SACIDs are to be located: – away from platform access ramps to ensure there is a level queuing area for customers – clear of boarding and alighting queuing areas • locate AVVMs near the Help Point, within CCTV coverage and underneath canopy / shelter to provide weather protection for customers • a grabrail or handrail must be provided at fixed locations where passengers are required to pay fares, including AVVMs and ticket window • when fare gates are to be provided, they are to be located to control, in a single line, all customer flows at all entry and exit points within a rail station precinct. Design to consider a suitable location of a gate attendant so they have visual oversight along the length of the barrier line • should fare gates be installed on overpasses, subways or on platforms, consider space, capacity and queuing requirements • location of fare gates should also consider adequate provision of space for passenger run-on and run-off • the ticket office allows customers to purchase paper tickets, purchase / validate electronic go cards and provides a customer service function • liaison with TransLink shall be undertaken to identify the number, type and location of ticketing infrastructure needed based on current and forecast demand. TransLink will also provide the requirements for installation of ticketing infrastructure at the rail station. This is essential to address ticketing infrastructure needs, and installation requirements (for example, power, conduits, cabling, connections, and so on). Final approval of the design and installation of ticketing infrastructure must be sought from TransLink.
Public toilets	• inclusion of public toilets will depend on the rail station location, level-of-service, staffing arrangements, asset management and passenger comfort and safety • toilet amenities must meet *Disability Standards* and *Australian Standards* • toilets should be located in visible and practical, yet discreet, locations and include security requirements • inclusion of toilet amenities must consider construction and installation requirements within rail station design, such as plumbing and drainage.
Staff amenities / cleaning room	• depending on the rail station, staff amenities (kitchen and toilets) may need to be provided. Consultation with Queensland Rail is required to ascertain the need and requirements for these staff and operational facilities • refer to Queensland Rail's *Station Design Manual* for specific design requirements of these rail station components.

Element	Consideration
Stairs and escalators	• escalators and stairs should not conflict with the direction of established horizontal pedestrian flow for those entering or leaving the flow of vertical travel. • Stairs – use where grade-separated treatments are necessary for access or movement within a rail station (such as over rail lines) – should provide simple and safe transition between levels and comply with all applicable design standards (the proportion of treads to risers, landings, slip resistance, TGSIs, colour contrasts and hand rails/balustrades) – typically accompanied by ramps/escalators/lifts for compliance, when required – TransLink prefers design to accommodate LOS C based on pedestrian flow during peak periods, allowing for both ascending and descending movement. • Escalators – alternative to stairs for rail stations operating with consistently high volumes of passengers during peak periods, or rail stations that feature high levels of grade separation – should be co-located with stairs to offer passengers both options – if the option of including bi-directional escalators is not available (due to site constraints or rail station capacity volumes not being sufficient), escalator travel should be given preference towards ascending passengers or the dominant peak flow – escalator width should be sufficient for passengers to queue in a single file by simply standing, while still allowing pedestrians who wish to walk (in the travel direction) to pass with minimal obstruction – escalators must comply with applicable structural Building Standards and should be consistent with the overall rail station architectural design.
Ramp	• comply with applicable Building and *Disability Standards*, with adherence to the particular construction details shown in the *Australian Standards* and *National Construction Code*
Lifts and over/ underpasses	• some rail stations will need a lift and over/underpass structures to connect platforms. The number and size of lifts will need to be determined with consideration to likely pedestrian demands • minimum LOS C during peak is preferred for over/underpass walkways • LOS D acceptable for lifts during peak periods • comply with applicable *Disability Standards* and *Australian Standards* • should appear to be of a lightweight modern structure, transparent to ensure passive surveillance, durable, easily cleaned (such as stainless steel finish) • be consistent with the overall look and feel of the rail station • design of lift areas should also consider adequate provision of space for passenger run-on and run-off • design of lifts should consider a through-lift alignment that does not require passengers with a mobility aid to turn around to exit lift.

Element	Consideration
Platform	• platform design should be uncluttered and sized to suit demand, pedestrian access and circulation requirements, seating needs and operational needs • design of station platform to consider the potential for future implementation of screen doors • refer to Queensland Rail *Station Design Manual* for detail regarding the design of rail station platforms.
Core zone and priority waiting	The core zone is a designated area on rail station platforms that include, but is not limited to, priority seating area, an assisted boarding point, emergency phone and service information. Refer to Queensland Rail *Station Design Manual* for specific design requirements for core zones and priority waiting areas at rail stations.
Shelters	• shelters and all facility structures should project a consistent design language that: – appears modern, light and spacious – is of a high quality and standard – is reflective of the Queensland sub-tropical climate – is reflective of TransLink's infrastructure theming and architectural design. • structures at platforms must be cantilevered to provide an unobstructed kerb-line (free from posts or other structural supports) and can be single or double-sided cantilever, depending on platform layout • structures must provide complete weather protection during all parts of the day to minimise head island effect on platforms and to improve customer waiting experience • passenger information displays, signage and way-finding can be attached to the cantilevered structure providing they do not obscure sightlines (including CCTV sightlines) • shelter structures should include high-quality finishes with modern, durable, and easily maintained materials that are reflective of the overall rail station environment and climatic conditions (that is, sun, rain, natural light and airflow) • the following areas to be sheltered and under cover: – all fare gate infrastructure other than SACIDs – core zone as defined in PTIM, Rail station infrastructure Section 9.3.5 – circulation space in front of the ticket counter and AVVM – circulation space in front of each lift door linking through to the boarding point – path of travel from platform access to core zone. • liaise with Queensland Rail on the design and specification of existing rail station shelters that are currently installed and in use throughout the rail network.

Element	Consideration
Seating and lean rails	• must be provided in quantities reflective of the expected waiting times and levels of anticipated patronage for the rail station • seating should be provided at all allocated waiting areas without impeding free flowing access paths and walkways (i.e. set back from the path of travel by 500mm) • seating and lean rails should be provided on platforms where passengers can easily see approaching rail services, typically where there is complete weather protection and where the environment is safe and well lit. They are typically positioned facing the conveyance and either at the rear of the single-sided platform and shelter or in the centre of a double-sided platform and shelter • seats should be designed as per *AS 1428.5,* include backrests and armrests and be constructed from durable, easily cleaned and maintained materials that allow drainage from liquids • all furniture must offer appropriate contrast in colour with the immediate background • lean rails provide passengers with a convenient waiting option by allowing passengers to perch or lean, rather than be seated, when waiting for brief periods or where waiting space is limited • liaise with Queensland Rail on the design and specification of seating at rail stations and platforms.
Bins	• bins are generally located close to waiting or congregation areas, seating, information displays, boarding points, cycle storage areas, and rail station entries and exits • use of bins at high passenger volume rail stations, such as CBD and regional facilities, may warrant careful consideration due to potential security risks • bins at particular rail stations should be designed to allow for detection of suspicious objects. They may be constructed from materials with an open gauge to provide transparency (with a transparent clear plastic liner) that is easy to maintain • bin design should aim to be vandal-proof, water-proof and bird-proof. The provision of recycling bins may also be an option and should be considered during the facility detailed design phase • recycle bins may be incorporated adjacent to general waste bins to promote recycling, with appropriate recycling collection arrangements in place.
Drinking fountains	• appropriate water supply and drainage to the drink fountain required • they are generally located close to waiting or congregation areas, seating, information displays, cycle storage areas, and rail station entries and exits • drinking fountains should be constructed from materials that are easy to maintain, and should include stainless steel water catchment and drainage. Furthermore, they must be designed to be accessible for people with disabilities.
Shopping trolley bays / storage	• where rail stations co-exist with shopping centres or other retail outlets, there may be the requirement to include appropriate, discreet, and easy to maintain shopping trolley bays or storage within or close to the facility • an agreement from the retail outlet to collect shopping trolleys on a regular basis is also required.

Element	Consideration
Safety and security	
Intelligent Transport Systems (ITS)	• ITS functionality should be considered for all public transport facilities within the context of the broader TransLink network and include security cameras, real-time information, public address systems, incident management systems, and monitoring and communications systems • ITS hardware and connection points are typically located in a communications room within the overall facility. These ITS or communications control rooms may adjoin other facilities within the rail station, such as toilets or storerooms. They should be located in discreet locations within the facility environment and not impede public spaces or free flowing pedestrian access to the rail station • design of the facility must not attract attention • the specific installation (including power, conduits and security) and asset management schedule requirements for the inclusion of the ITS at each facility should be investigated on a site-specific basis prior to detailed design • refer to Queensland Rail, *Station Design Manual* for design and installation requirements of ITS within the rail station environment.
Public address system	• a public address system should be integrated into the design of all rail station facilities. The aim is to provide a robust, functional and visually discreet system that can provide communicative information and be linked to the security system for warning in the event of an emergency • the public address system is to be clearly audible throughout the passenger waiting areas. Loudspeakers for the system should be distributed appropriately throughout the rail station, including the core zone, and may be wall or ceiling mounted, depending on acoustic requirements. Speaker units should be mounted at an appropriate distance away from direct reach, or sit flush with rail station structures, to minimise potential vandalism and damage • the possibility of background noise affecting the audibility of the address system should be treated with appropriate acoustic absorption techniques. Loudspeakers for the system should be distributed appropriately throughout the rail station • hearing augmentation or hearing loops should be included and linked with the public address and emergency systems to assist persons with hearing impairments. These are to be located at ticket office, core zone, internal waiting areas and as per *AS 1428.5*.

Element	Consideration
Security	• security infrastructure refers to security cameras (CCTV) and other items used for the creation of safe and well-monitored waiting environments • details on the specifications and management schedules for these systems will be established by Queensland Rail. • appropriate construction and installation requirements must be considered when planning for the inclusion of security infrastructure. The use of signage informing people of the presence of security infrastructure within a facility can further enhance personal safety, and highlight the perceived risk of detection to potential offenders • security help points are typically located in the core zone. Ultimately, the location of all these elements should be the subject of rail station specific design, as each site is likely to have a range of differing sightlines and movement patterns. • counter-terrorism design considerations should be explored where possible on a site-specific basis, depending on rail station location, level-of-service and potential security risk. Where applicable, rail station design should strive towards universal standards for security and counter-terrorism measures. Liaise with the Emergency Management and Transport Security division in the Department for advice on including security and counter-terrorism measures at the earliest phase in the rail station planning.
Lighting	• ambient lighting is to be provided for a safe, comfortable and functional rail station • feature lighting may highlight architectural features • for day-time use, consider translucent materials to allow natural lighting • for night-time, bright white artificial lighting should ensure a safe and visually attractive environment • high quality light fixtures and fittings should be robust, tamper-proof, discreet and complement the rail station environment • use of common fixtures will improve maintenance and lower ongoing costs • provide lighting on pedestrian areas, roadways and rail station information • refer to Queensland Rail *Station Design Manual and AS/NZS 1158.3.1* for minimum lighting requirements • for additional disability compliance lighting requirements refer to *Disability Standards for Accessible Public Transport* (2002).
Graffiti deterrents and treatments	• all infrastructure components—furniture, lighting equipment, timetable and information devices, walls, floors, ceilings, balustrades, glass panels, screens, elevators, escalators and other components—coming into contact with passengers must be resistant to acts of vandalism and graffiti. This may involve components being applied with anti-graffiti coatings or constructed from non-porous graffiti-resistant materials • the design and arrangement of platforms and structures should maximise natural surveillance in order to minimise the incidence of graffiti and anti-social behaviour • in some instances, vegetation may be planted adjacent to structures or walls to prevent access by vandals • the use of appropriate colours or artwork that complements the rail station architecture and theming can also deter graffiti.

Element	Consideration
Animal and pest problems	• within the rail station there must be minimal horizontal ledges, overhangs, or concealed spaces where birds and animals are tempted to perch, nest and pollute the rail station facility • if cavities and horizontal surfaces are unavoidable, then appropriate measures are to be used to prevent animals and pests congregating and/or nesting. This can include designing ledges of structures to be angled (approximately 45 degrees or greater) to make it uncomfortable for birds to perch.
Optional enhancements	
Commercial opportunities	• commercial opportunities are typically developed and operated by external companies under an agreed arrangement • the placement of commercial opportunities needs to consider the active transport requirements of the station which should have first priority • it may be appropriate to incorporate: – vending machines, self-serve kiosks – commercial advertising – shared cycle, micro-mobility devices etc. • endorsement of commercial facilities is required prior to detailed design to make allowance for space, power, data and conduits for installation.
Landscape treatment	• landscape treatment is to be incorporated (where appropriate) to complement the rail station architecture, enhance the identification of a particular location, and integrate the facility with the surrounding environment. It is preferred that plantings used for landscaping are: – drought resistant – consistent with the surrounding natural environment (for example, local fora) – unlikely to intrude upon the integrity of the rail station environment – unlikely to interfere with above and below ground services and utilities – not toxic, highly allergenic or noxious weeds – not known to produce thorns, barbs, stings or noxious secretions – not inhibiting sightlines, passive surveillance or allowing for potential offenders to hide. • integrate subsoil and surface drainage with the landscape design.

Element	Consideration
Ancillary services	• key ancillary services can include vending machines, ATMs and other third-party services not directly concerning passenger transport • should be located in convenient locations, but not impede a passenger's ability to access and move through the rail station • inclusion and location of these services will depend on agreement with third-party stakeholders, rail station asset management and rail station designers, and will be determined on a site-specific basis • consideration should be given to the consolidation of ancillary services to reduce visual clutter and to provide a more integrated service for passengers. Generally, these facilities are positioned close to other passenger services such as fare machines, information displays and emergency call points • materials used for ancillary services should be consistent with other passenger facilities to achieve a visually integrated suite of services. Ancillary services should be considered early in the detailed design phase to incorporate relevant security, monitoring, power and data requirements.
Other enhancements	• artwork can enhance a rail station identity and cultural significance of a place, and should be investigated where appropriate • public art should not conflict with rail station architecture, colour schemes, branding and access requirements • wireless internet access options and connections may be investigated and incorporated • the facility owner and/or asset manager, along with relevant stakeholders, should endorse all enhancements prior to the detailed design stage of the facility.