



BaT project

Chapter 13

Landscape and visual amenity



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13. Landscape and visual amenity

13.1 Introduction

The purpose of this chapter is to assess potential impacts of the Project on landscape character and visual amenity. It provides an overview of existing landscape character and visual amenity values within the study corridor and assesses the Project's impact on these values. In particular, it describes and illustrates the impacts on major views, viewsheds, outlooks and features contributing to landscape character and visual amenity. Strategies to manage potential impacts are also recommended, where required.

This chapter addresses section 10.6 of the Terms of Reference (ToR).

13.1.1 Methodology

The study area for this assessment includes the study corridor defined in **Chapter 1 – Introduction** as well as land outside of the study corridor that has the potential to experience changes either directly or indirectly, to the landscape character or visual amenity due to the Project, for example areas from which there could be views of the Project.

There are currently no accepted guidelines for landscape and visual impact assessment (LVIA) in Queensland. This assessment has been developed with reference to accepted national and international guidelines, primarily the Guidelines for Landscape and Visual Impact Assessment (2013) prepared by the Landscape Institute (UK) and the Institute of Environmental Management and Assessment.

Other relevant guidance notes considered in this assessment include:

- Visual Landscape Planning in Western Australia: a manual for evaluation, assessment, siting and design (November 2007) (Department of Planning and Infrastructure, 2007)
- Landscape Institute Advice Note 01/11: Use of photography and photomontage in landscape and visual assessment (Landscape Institute, 2011)
- Topic Paper Six: Techniques and Criteria for Judging Capacity and Sensitivity (Scottish Natural Heritage and the Countryside Agency, 2006)
- AS4282-1997 Control of the obtrusive effects of outdoor lighting (Standards Australia, 1997)
- Guidance Notes for the Reduction of Obtrusive Lighting GN01 (The Institution of Lighting Engineers, 2005).

This assessment of potential impact on landscape character and visual amenity involved:

- reviewing existing information on landscape character and visual amenity within the study area, including relevant landscape planning policies such as those detailed in the Brisbane City Plan 2014 and findings from previous investigations and studies in the study area
- undertaking a site survey to confirm the landscape and visual values within the study area to identify key elements of the Project that are likely to impact on landscape character and visual amenity, and determine sensitive receptors and key views likely to be affected by the Project
- preparing a baseline assessment describing existing landscape character and visual amenity within the study area including:
 - identifying the various landscape character types (LCTs) that exist within the study corridor to illustrate the varying visual environments

- built and natural landscape elements such as focal points, landmarks and other features contributing to the visual quality of the study corridor particularly those elements expected to be valued by local, district and/ or regional communities
- visual context, such as major views, viewsheds, outlooks and features contributing to the visual amenity of the study corridor
- assessing the likely significance of impacts on landscape character and visual values identified, drawing on, as appropriate, a range of LVIA techniques including landscape character assessment
- identifying mitigation measures to avoid or manage the Project's adverse impacts on landscape character and visual amenity and to support opportunities provided by the Project to enhance landscape character and visual amenity in the study area.

The assessment describes potential impacts of the Project on landscape character, such as areas of parkland, street trees and impacts on visual amenity, such as changes in views. Impacts may be described as being:

- adverse (negative)
- beneficial (positive)
- neutral (different, but neither obviously worse nor better than the current situation).

Impacts can also be:

- direct (ie directly or physically affecting a landscape resource) or indirect (ie physical changes in a location which affect the landscape character or views within adjacent or more distant areas)
- temporary/ short term (ie those occurring during construction) or permanent/ long-term (ie those lasting for the life of the project)
- widespread or localised.

The following provides a summary of the approach used for the landscape character and visual amenity assessments. The detailed approach for this LVIA is described in **Appendix H**.

Landscape character assessment

Landscape character refers to a distinct and recognisable pattern of elements that occur consistently in a particular type of landscape. Particular combinations of geology, landform, soils, vegetation, land use and human settlement create character, which makes each part of the landscape distinct and gives each its particular sense of place (Scottish Natural Heritage and the Countryside Agency, 2002).

Assessment of landscape effects deals with the effect of change and development on landscape as a resource. It assesses how the proposal would affect the elements that make up the landscape, the aesthetic and perceptual aspects of the landscape and its distinctive character (Landscape Institute and Institute of Environmental Management and Assessment, 2013).

The evaluation of significance of potential impacts on landscape character was determined based on the sensitivity of the existing landscape to change and the magnitude of change that is likely to occur.

The sensitivity of a landscape is judged on the extent to which it can accept change of a particular type and scale without adverse effects on existing landscape character.

The level of sensitivity is determined based on:

- the landscape's inherent values (eg perceptual qualities, cultural importance) and any specific values that may apply such as landscape planning designations
- the landscape's ability to absorb changes associated with the Project (ie the extent to which the Project may fit or be absorbed into the landform, land use, pattern, scale or texture of the existing landscape).

The magnitude of change to landscape character depends on the nature, scale and duration of the change that is expected to occur. The magnitude of change also depends on the loss, change or addition of any feature to the existing landscape. It is based on that part of the landscape character type which is likely to be impacted to the greatest extent by the Project (ie worst case scenario), before the application of any mitigation measures. Magnitude of change is described as being barely perceptible, noticeable, considerable or dominant.

Visual amenity assessment

Assessment of visual impacts deals with the effects of change and development on the views available to people and their visual amenity. It assesses how the surroundings of individuals or groups of people may be specifically affected by changes in the context and character of views as a result of the change or loss of existing elements of the landscape and/or introduction of new elements (Landscape Institute and Institute of Environmental Management and Assessment, 2013).

Visual receptors were assessed and described in terms of the views that can be obtained from selected representative viewpoints within the study area. Representative viewpoints illustrate locations from which views to the Project may be obtained including locations likely to be most affected by the Project as well as key vantage points, such as lookouts, where there is particular interest in the view. Visual receptors were identified based on:

- proximity of the receptors to the Project, as the most affected visual receptors are anticipated to be located closest to the Project, unless located at an elevated vantage point
- type of receptor (eg residents, those passing through the area by vehicle, pedestrians or workers) as different viewer types would have different perceptions of the change.

The evaluation of significance of potential impacts on visual amenity is based on the sensitivity of the viewpoint, and the visual receptors it represents, to change and the magnitude of change that is likely to occur. The sensitivity of each viewpoint is considered to be dependent on the:

- importance of the view, its existing scenic qualities and the presence of other existing manmade elements in the view
- type of the visual receptor audience and their likely interest in the view
- volume of visual receptors and the duration of time that receptors spend experiencing the view.

The magnitude of a change to views and visual amenity depends on the nature, scale and duration of the change that is expected to occur. The magnitude of a change also depends on the loss, change or addition of any feature in the field of view of the receptor including an assessment of the level to which the change contrasts with the existing view or expected view of the landscape. This includes the degree of any change to the backdrop to, or outlook from, a viewpoint.

The assessment considers the impacts of the Project without mitigation measures being implemented as well as the impacts with the implementation of mitigation measures (eg screen planting). The level of effects on a view depends on factors such as the extent of visibility, degree of obstruction of existing features, degree of contrast with the existing view, angle of view, duration of view and distance from the Project.

13.1.2 Legislative and policy framework

This section provides an overview of the key planning policies and guidelines relevant to landscape character and visual amenity within the study area. Further information on State and local planning policies is provided in **Chapter 5 – Land use and tenure**.

Landscape character and visual amenity in the study area is guided by a range of State and local planning policies and instruments including:

- the South East Queensland Regional Plan 2009-2031 (SEQ Regional Plan)
- Brisbane City Council's Brisbane City Plan 2014, including Neighbourhood Plans
- Brisbane City Council's Natural Asset Local Law.

Although approval is not required under the Brisbane City Plan 2014, it has been considered as part of this assessment.

The overall intent of these planning documents in relation to landscape and visual amenity is to:

- protect and enhance natural elements that contribute to local character and identity, including major hills and valleys, bushlands and open space, mature urban vegetation, street and parkland trees and the bay and bayside areas and islands
- maintain and encourage sustainable built elements that contribute to local character and legibility, including the city centre skyline, built heritage and traditional character suburbs
- protect and enhance key views, including of the Brisbane River, Mount Coot-tha and other key landscapes and built features
- encourage high quality urban design, including designing and siting of development to reflect South East Queensland's subtropical climate, reinforce character and precinct identity, achieve high quality streetscapes, revitalise public open space, achieve safety objectives through crime prevention through environmental design (CPTED) and generally achieve innovation and design excellence.

Guidance on landscape character and visual values for specific locations within the study area is provided in the Neighbourhood Plans, particularly those relating to the City Centre, West End-Woolloongabba District and Woolloongabba Centre.

The West End-Woolloongabba District Neighbourhood Plan identifies the need for development in the area to maintain and enhance significant views from public spaces to the City and locality including across the West End peninsula to the City Centre and D'Aguilar Ranges, significant landmarks within the locality, and to the Brisbane River. The Plan also identifies the need for development within Precinct 2 (Mater Hill), near the Woolloongabba Station, to provide a useable and attractive public space and a landmark building form that addresses the high visibility of the site from the South-East Freeway, Ipswich Road and Vulture Street.

The Woolloongabba Centre Neighbourhood Plan identifies the need to maintain views to buildings of cultural heritage significance.

The City Centre Neighbourhood Plan identifies the need for a three metre setback for future development at the site of the George Street Station. The Plan also identifies George Street as a primary pedestrian street/ frontage and as providing a significant view or vista to the north-west.

13.2 Existing environment

The Project is located within Brisbane's inner suburbs and central business district (CBD). Land uses in the study area include a mix of residential represented by both contemporary and character housing, commercial and retail, institutional uses, light industrial areas, public open space, and transport infrastructure (railway corridors, roads).

Figure 13-1 and **Figure 13-2** provide an overview of the main land use zones and features relating to landscape character and visual amenity, including scenic value. This includes the location of areas and individual trees subject to Vegetation Protection Orders. Further information on existing land use in the study corridor is in **Chapter 5 – Land use and tenure**.

The topography of the study area is shown on **Figure 13-3**. From a landscape and visual perspective, the study area includes some of Brisbane's most well-known and recognisable urban and natural areas and features, such as the Kangaroo Point Cliffs, City Botanic Gardens, George Street heritage buildings, Roma Street Parkland and Victoria Park.

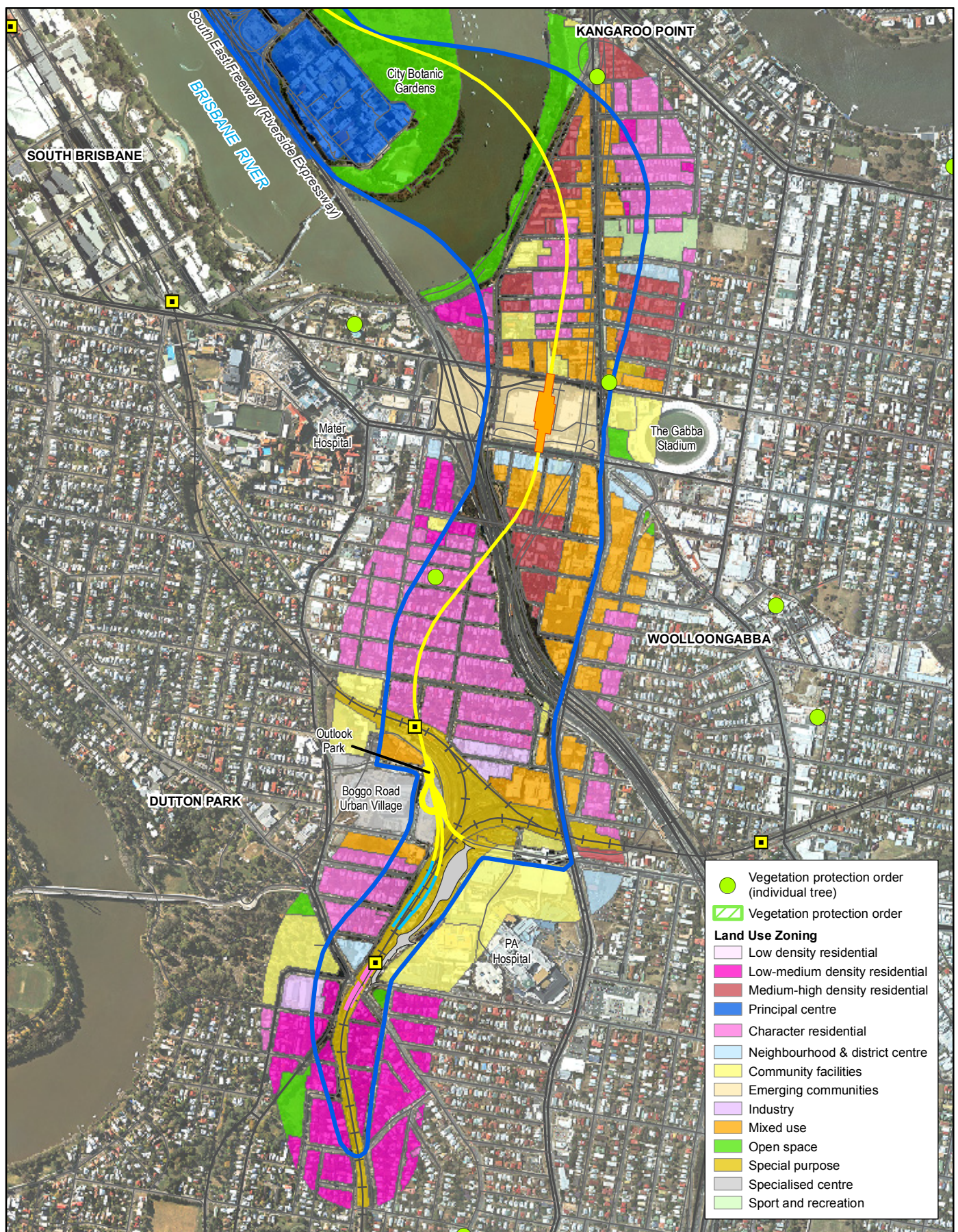
A number of generic LCTs were identified across the study area, which provide a broad context to the landscape values in the study area. These illustrate differences in aspects including topography, land use, vegetation and built character.

The LCTs occur in a number of discrete landscape character areas (LCAs) across the study area. These are shown on **Figure 13-4** and **Figure 13-5**, while **Table 13-1** describes the LCTs and associated LCAs in the study area, including the key values and sensitivities of each.

For the purposes of the LVIA, five precincts were identified based on the location of surface works and Project infrastructure. These precincts would most likely experience the greatest changes in landscape character and visual amenity from the Project. The precincts identified for this assessment are shown on **Figure 13-4** and **Figure 13-5** and include:

- Precinct 1: Dutton Park (Southern Connection)
- Precinct 2: Woolloongabba Station
- Precinct 3: George Street Station
- Precinct 4: Roma Street Station
- Precinct 5: Spring Hill (Northern Connection).

An assessment was undertaken to determine those LCAs falling within each of the precincts that have potential to be impacted by the Project (refer to **section 13.3.1**).



LEGEND

- Existing rail station
- Existing rail line
- Highway/main road
- Local road
- Study corridor

- Project Infrastructure**
- Underground station
 - Bus layover
 - Dutton Park Station (upgraded)

- Alignment**
- Above ground
 - Underground

BUS AND TRAIN PROJECT ENVIRONMENTAL IMPACT STATEMENT

FIGURE 13-1

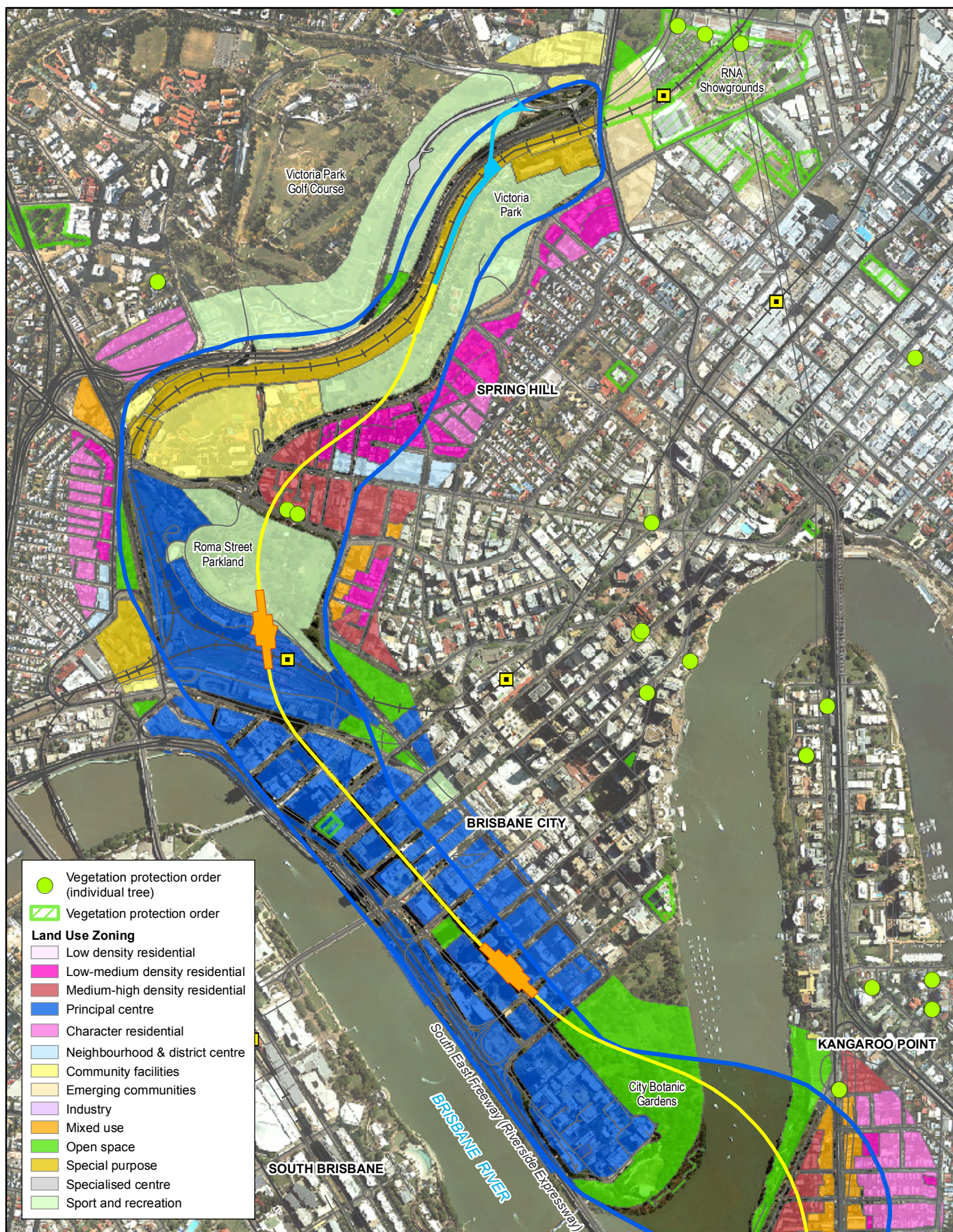
Land use zoning and landscape features - south



0 0.25 0.5
Kilometres

1:15,000 (at A4)

Projection: GDA 1994 MGA56



Aerial Photo: Brisbane City Council 2012

BUS AND TRAIN PROJECT ENVIRONMENTAL IMPACT STATEMENT

FIGURE 13-2

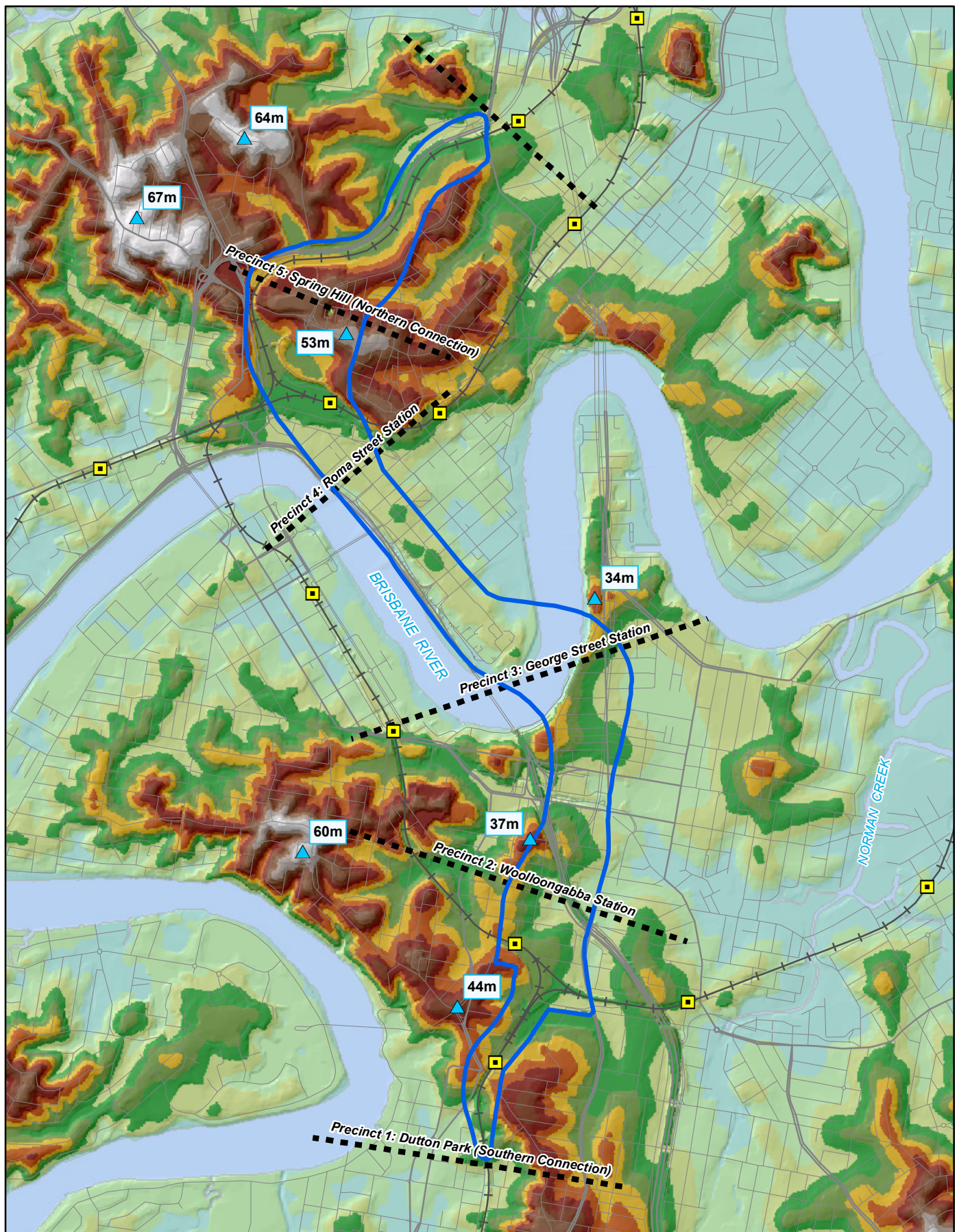
Land use zoning and landscape features - north



0 0.25 0.5
Kilometres

1:15,000 (at A4)

Projection: GDA 1994 MGA56



LEGEND

- Existing railway station
- Existing rail line
- Highway/main road
- Local road
- Landscape precinct boundary
- Watercourse
- Study corridor

Key high point

Elevation

- < 5 m
- 5-10 m
- 10-15 m
- 15-20 m
- 20-25 m
- 25-30 m

- 30-35 m
- 35-40 m
- 40-45 m
- 45-50 m
- 50-55 m
- 55-60 m
- > 60 m

BUS AND TRAIN PROJECT ENVIRONMENTAL IMPACT STATEMENT

FIGURE 13-3

Physical landscape context

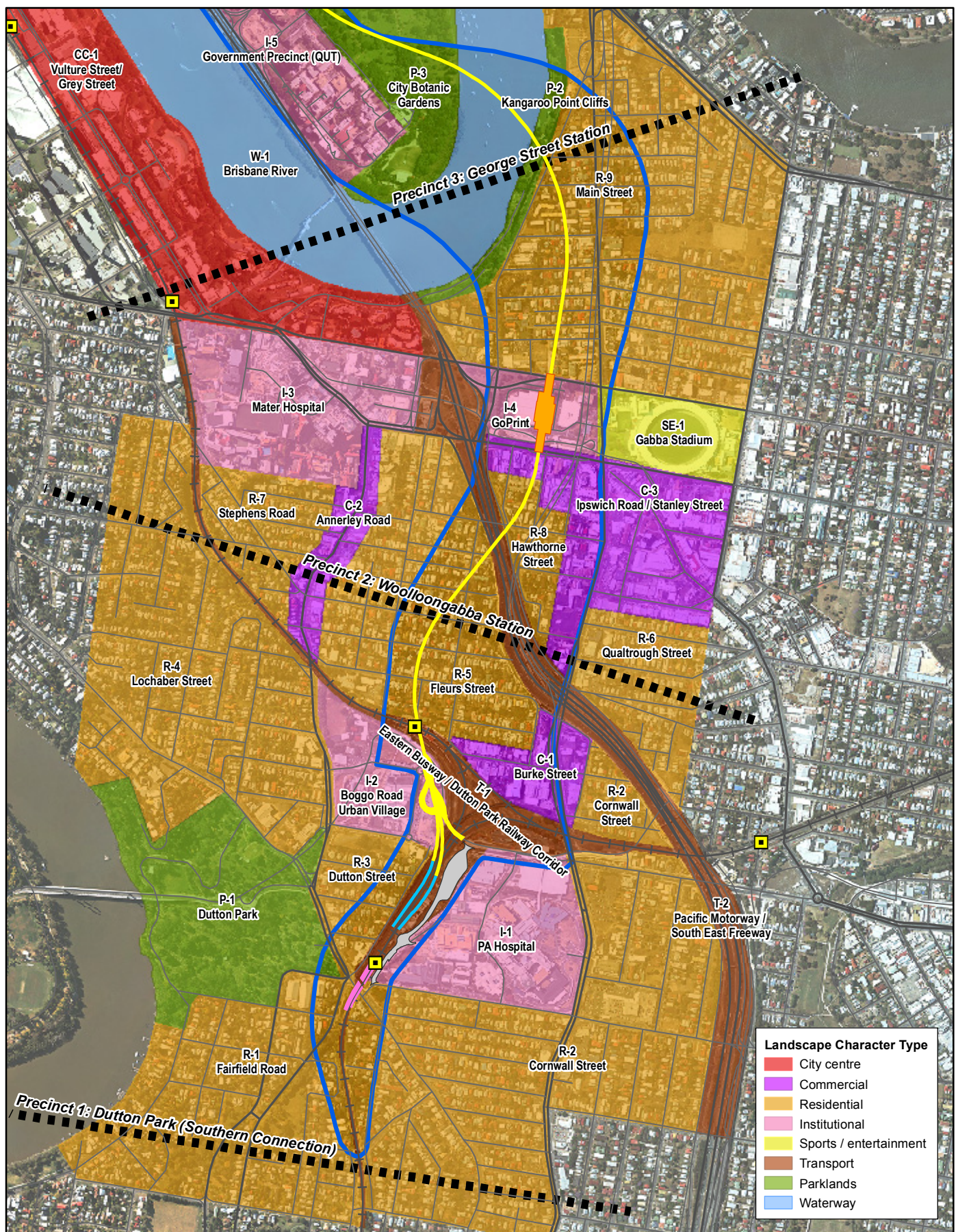
Aerial Photo: Brisbane City Council 2012



0 0.5 1
Kilometres

1:30,000 (at A4)

Projection: GDA 1994 MGA56



LEGEND

- Existing rail station
- Existing rail line
- Highway/main road
- Local road
- Landscape precinct boundary
- Study corridor

Project Infrastructure

- Underground station
- Bus layover
- Dutton Park Station (upgraded)

Alignment

- Above ground
- Underground

BUS AND TRAIN PROJECT ENVIRONMENTAL IMPACT STATEMENT

FIGURE 13-4

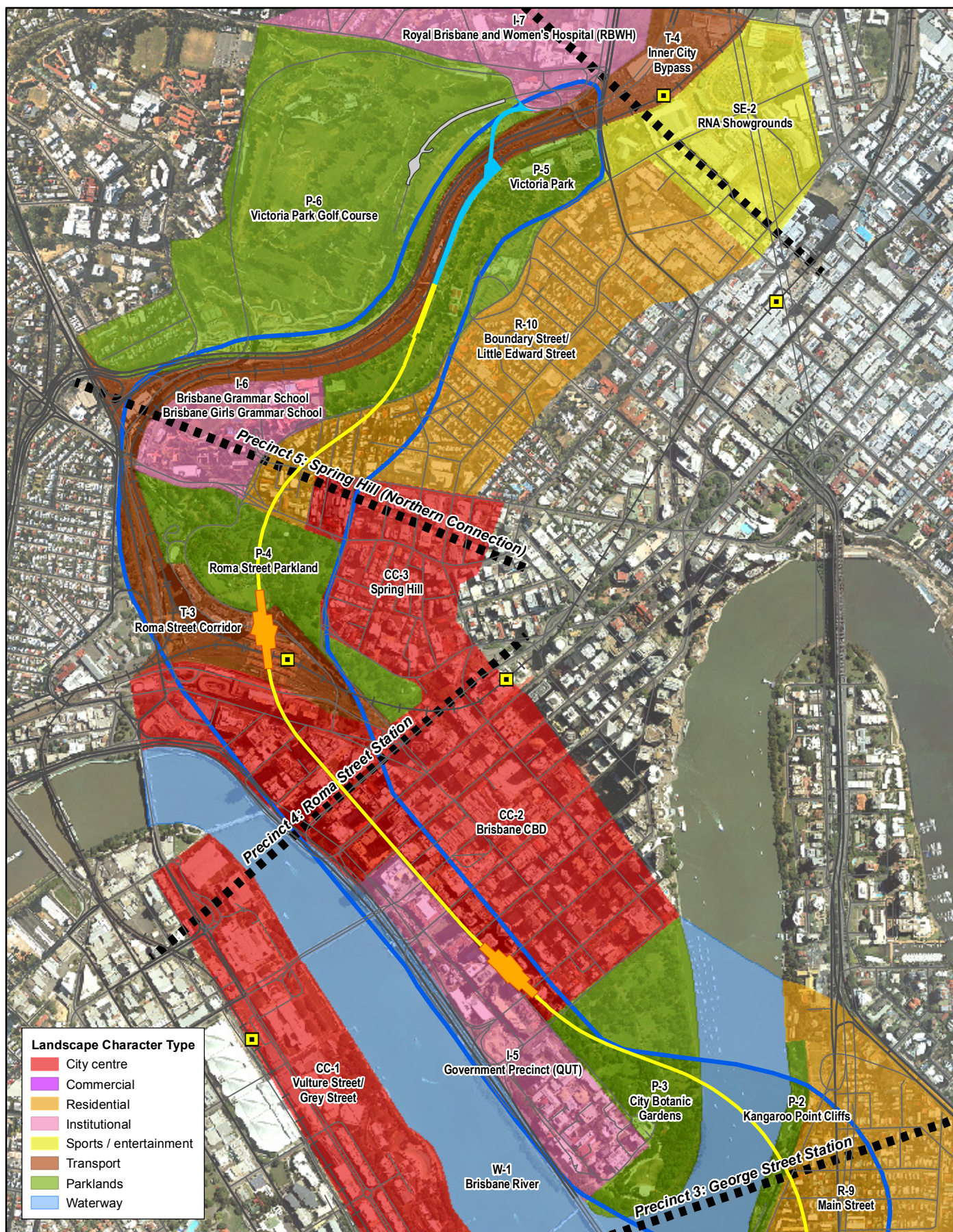
Landscape character / areas - south

Aerial Photo: Brisbane City Council 2012



0 0.25 0.5
Kilometres

1:15,000 (at A4)
Projection: GDA 1994 MGA56



LEGEND

- Existing rail station
- Existing rail line
- Highway/main road
- Local road
- Landscape precinct boundary
- Study corridor

- Project Infrastructure**
- Underground station
 - Bus layover

- Alignment**
- Above ground
 - Underground

BUS AND TRAIN PROJECT ENVIRONMENTAL IMPACT STATEMENT

FIGURE 13-5

Landscape character / areas - north






0 0.25 0.5
Kilometres




1:15,000 (at A4)



Projection: GDA 1994 MGA56

Aerial Photo: Brisbane City Council 2012

Table 13-1 Summary of landscape character types and associated landscape character areas

Landscape character type	Key characteristics	Landscape character areas
<p>Parklands (P)</p> 	<ul style="list-style-type: none"> Typically low lying riverside or elevated and undulating areas Presence of mature trees and vegetation – valued elements sensitive to removal Few buildings/ structures – those present are ornamental or support recreational uses Generally low levels of lighting High scenic value – parkland landscapes including the City Botanic Gardens and Kangaroo Point Cliffs. 	<p>P1: Dutton Park P2: Kangaroo Point Cliffs P3: City Botanic Gardens P4: Roma Street Parkland P5: Victoria Park P6: Victoria Park Golf Course</p>
<p>Residential (R)</p> 	<ul style="list-style-type: none"> Intimate streetscapes dominated by residential buildings – typically detached character housing, including some of heritage value Some more recent buildings, including apartment buildings Variable topography with elevated locations offering extensive views Some street trees, which are valued by the community, although vegetated character largely derived from gardens and pocket parks Local shopping and retail Moderate light levels due to street lighting. 	<p>R1: Fairfield Road R2: Cornwall Street R3: Dutton Street R4: Lochaber Street R5: Fleurs Street R6: Qualtrough Street R7: Stephens Road R8: Hawthorne Street R9: Main Street R10: Boundary Street/ Little Edward Street</p>
<p>Institutional (I)</p> 	<ul style="list-style-type: none"> Dominated by large multi-storey institutional buildings (eg hospitals) offering extensive views Some lower, typically older institutional buildings (eg schools), including some with heritage character Grounds typically include landscaped areas with trees and ornamental vegetation of visual value Moderate light levels associated with street lighting and light spill from buildings. 	<p>I1: Princess Alexandra Hospital (PA Hospital) I2: Boggo Road Urban Village I3: Mater Hospital I4: GoPrint I5: Government Precinct/ Queensland University of Technology (QUT) I6: Brisbane Girls Grammar School I7: Royal Brisbane and Women's Hospital (RBWH)</p>

Landscape character type	Key characteristics	Landscape character areas
<p>Commercial (C)</p> 	<ul style="list-style-type: none"> • Taller commercial buildings along main roads offering elevated views, with lower buildings including warehouses/ light industry • Occasional street trees • Well lit along main roads • Commercial users typically considered of low sensitivity. 	<p>C1: Burke Street C2: Annerley Road C3: Ipswich Road/ Stanley Street</p>
<p>City Centre (CC)</p> 	<ul style="list-style-type: none"> • Dense, mixed use development, predominantly retail and commercial with some residential apartments and hotel accommodation – elevated views from multi-storey buildings • Variety of ages and styles of buildings, including towers and lower structures, and some heritage buildings • Presence of landmark and important civic buildings • Presence of small squares and pocket parks with mature trees • Presence of street trees and palms highly valued for greening the urban environment • Large number of users means this area is considered to be of high visual sensitivity. 	<p>CC1: Vulture Street/ Grey Street CC2: Brisbane CBD CC3: Spring Hill</p>
<p>Transport (T)</p> 	<ul style="list-style-type: none"> • Landscape dominated by transport infrastructure (ie road, rail or busway), including associated abutments, bridges, wires, barriers and fencing • Vegetation largely absent, poor quality or limited to leftover spaces between corridors • Busway stations typically of higher urban design quality • Built heritage values of some rail station elements including at Dutton Park Station and Roma Street Station. 	<p>T1: Eastern Busway/ Dutton Park railway corridor T2: Pacific Motorway/ South East Busway T3: Roma Street railway corridor T4: Inner City Bypass (ICB)</p>

Landscape character type	Key characteristics	Landscape character areas
<p>Sports and entertainment (SE)</p> 	<ul style="list-style-type: none"> • Major sporting and entertainment venues • Dominated by stadium/ grandstand buildings • Many users, but as they are predominantly interested in activity considered of relatively low sensitivity. 	<p>SE1: Gabba Stadium SE2: RNA Showgrounds</p>
<p>Waterway (W)</p> 	<ul style="list-style-type: none"> • Natural corridor of the Brisbane River, dominated by waterscape • Banks variably fringed with mangroves and other mature bankside vegetation of scenic and landscape value • Presence of watercraft add to scenic character • Bridge crossings – each bridge of a different character and age • High scenic quality and considered to be of high visual sensitivity. 	<p>W1: Brisbane River</p>



13.2.1 Precinct 1: Dutton Park (Southern Connection)




The Dutton Park (Southern Connection) precinct comprises the landscape near the Southern Connection, including the area broadly located between Victoria Street, Fairfield to the south and Ross Street, Woolloongabba to the north. The construction worksite and surface construction works would generally occur within the existing railway corridor west of the PA Hospital, and within the Boggo Road Urban Village, between the Ecosciences building and existing railway corridor.

The Dutton Park precinct comprises undulating to hilly terrain (refer to **Figure 13-3**). The existing transport infrastructure lies at a low point in the landform. From this point, the landform rises westwards to a gentle ridge, approximately following Annerley Road at up to 44m AHD, before falling towards the Brisbane River. To the east, the landform is less pronounced, rising gently before falling eastwards to Norman Creek.

This precinct has a mixed character dominated by transport infrastructure, large institutional buildings, commercial/ light industrial areas and residential buildings. **Table 13-2** provides an overview of the LCTs and associated LCAs in this precinct.

Table 13-2 Landscape character areas within Precinct 1: Dutton Park (Southern Connection)

Typical image(s)	Landscape character areas
Parklands (P)	P1: Dutton Park
	The Dutton Park parklands LCA is located west of the Project and comprises a large area of greenspace with mature trees, encompassing Dutton Park, the State heritage listed South Brisbane Cemetery and Gair Park. Gair Park is located at an elevated high point; however, views from the park towards the railway corridor are largely restricted by large institutional buildings. The landform of the cemetery and Dutton Park fall toward the Brisbane River, restricting views towards the Project.
Residential (R)	R1: Fairfield Road; R2: Cornwall Street; R3: Dutton Street; R4: Lochabar Street.
	<p>The residential areas around the Project are of low-medium density, typically comprising single storey character housing (timber and tin) set in gardens with mature vegetation and creating a landscape character of high landscape and visual amenity. Fairfield Road dips westward away from the transport infrastructure.</p> <p>Cornwall Street (R2) and Lochabar Street (R4) are largely visually separated from the existing railway corridors by large institutional buildings (LCA I1 and I2 respectively).</p> <p>A small pocket park (Heferan Park), which contains vegetation subject to a Vegetation Protection Order, lies adjacent to Annerley Road in the western part of R2.</p> <p>The Dutton Street area (R3) comprises older, low density Queenslander houses on Pound Street, Dutton Street, Rawnsley Street and Railway Terrace. A noise barrier is located along the eastern edge of this area providing visual separation from the existing railway infrastructure.</p>

Typical image(s)	Landscape character areas
Institutional (I)	I1: PA Hospital; I2: Boggo Road Urban Village
	<p>The PA Hospital LCA (I1) comprises the multi-storey hospital and university buildings, which range in age and character. The buildings fronting Cornwall Street and Ipswich Road present a positive, modern image complemented by landscaping. However, lower amenity occurs adjacent to parts of the railway corridor with older buildings, including an incinerator and buildings with chimneys/ stacks.</p> <p>The Boggo Road Urban Village LCA (I2) comprises the modern, multi-storey Ecosciences building and adjoining State heritage listed Boggo Road Gaol. The precinct comprises a mixture of residential, commercial and research uses and includes areas identified for redevelopment as part of the wider Boggo Road Urban Village development. The Leukaemia Foundation ESA Village (ESA Village) is located in the south-east of the area overlooking the railway corridor.</p> <p>Landscaped areas include Outlook Park, a small greenspace area with seating, which has views over the railway corridor (T1). The landscape appears to be well used by workers in the precinct.</p>
Commercial (C)	C1: Burke Street
	<p>The Burke Street LCA comprises a small area of commercial and light industrial buildings. The buildings are typically converted houses, or single/ double storey warehouses used for low impact activities. The area has a low amenity value and vegetation is typically poor with few street trees.</p>
Transport (T)	T1: Eastern Busway/ Dutton Park railway corridor
	<p>LCA T1 comprises rail infrastructure associated with the Beenleigh/ Gold Coast/ Cleveland rail lines, including Dutton Park Station and Park Road Station, as well as busway infrastructure, such as the Boggo Road Busway Station and the PA Hospital Busway Station. The area is considered to be of low landscape and visual value.</p> <p>Noise barriers are located between the railway corridor and the adjoining residential area (R3), while elsewhere the corridor is defined by high chain link fences. There is no significant vegetation within this area. Dutton Park Station is located at the southern end of the T1 LCA and comprises a typical Queensland Rail island station undistinguished except for a small Queensland Rail heritage listed shelter located on the eastern platform. A high concrete retaining wall with artwork treatments is located adjacent to Boggo Road Urban Village.</p>

13.2.2 Precinct 2: Woolloongabba Station

The Woolloongabba Station precinct includes the area between Ross Street, Woolloongabba in the south and the Brisbane River in the north. The precinct is located approximately 1.5km from the Brisbane CBD in an area subject to ongoing urban renewal.


The topography of the Woolloongabba Station precinct is gently undulating, becoming increasingly flatter to the east, and rising north to the Kangaroo Point Cliffs (around 30m AHD), at which point the

land falls steeply to the Brisbane River (refer to **Figure 13-3**). Despite this there are pronounced grade differences within the precinct arising from human intervention in the natural landform; in particular associated with the cuttings and bridges of transport infrastructure, particularly the Pacific Motorway.

This precinct has a mixed character dominated by transport infrastructure, large institutional buildings, commercial and residential uses. LCAs within the precinct are described in **Table 13-3**.

Table 13-3 Landscape character areas within Precinct 2: Woolloongabba Station

Typical image(s)	Landscape character areas
Residential (R)	R8: Hawthorne Street and R9: Main Street
	<p>These LCAs comprise low-medium density, residential development of moderate visual amenity, including mainly single storey dwellings with areas of multi-storey apartment buildings to the north.</p> <p>The main areas adjacent to the Project comprise R8: Hawthorne Street and R9: Main Street. These LCAs include a mixture of traditional housing with mature gardens and medium size apartment buildings. They also include religious buildings, such as St Nicholas Russian Orthodox Cathedral at Vulture Street, which add to the visual amenity and character of the streetscape.</p>
Institutional (I)	I4: GoPrint
	<p>Major institutional uses are situated in the middle of the precinct. The multi-storey Mater Hospital and Queensland Children's Hospital buildings are located to the west. An area of government buildings including the Lands Centre, South Brisbane Dental Hospital and former GoPrint building is located in the heart of the precinct. These buildings were constructed in the late 1970s and early 1980s and have a dated character, considered to be of low visual amenity and appeal.</p>
Commercial (C)	C3: Ipswich Road/ Stanley Street
	<p>This LCA comprises a mix of low density 'heritage' buildings used for commercial purposes, and modern mixed-used residential/ commercial buildings, such as the building on the corner of Stanley Street and Main Street.</p> <p>The older commercial strip includes shops, cafes, small offices, hotels (eg The Chalk Hotel), the old Woolloongabba Post Office. A concentration of antique shops, cafes and restaurants are located east of Main Street. Some commercial buildings extend onto Vulture Street.</p> <p>The area is undergoing urban renewal. The South East Busway, including the Woolloongabba Busway Station, is located on the northern side of Stanley Street.</p>
Transport (T)	T2: Pacific Motorway/ South East Busway
	<p>The Pacific Motorway and South East Busway traverses the Woolloongabba Station precinct. The busway is mainly in cutting defined by high concrete retaining structures. This level difference provides visual and physical separation and creates a barrier between the eastern and western parts of the precinct. Landscaping adjoining the roadway includes feature palms, creating a subtropical character.</p>



Typical image(s)	Landscape character areas
Sports and entertainment (SE)	SE1: The Gabba Stadium
	The Brisbane Cricket Ground (Gabba Stadium) is a key landmark appearing as a prominent, white structure in views from the adjoining area. The adjacent park, Woolloongabba Place Park, is the only public open space available in the locality. The park includes mature Poincianas, Jacarandas and other exotic trees, which contribute positively to the landscape character and amenity of this part of Woolloongabba.





13.2.3 Precinct 3: George Street Station

The George Street Station precinct lies between the Brisbane River to the south and Ann Street in the Brisbane CBD to the north. It is located within the meander of the Brisbane River associated with Gardens Point.

The topography of this precinct is low lying at up to around 20m AHD, sloping gently towards the Brisbane River in three directions – westwards towards the Riverside Expressway, southwards and eastwards towards Gardens Point (refer to **Figure 13-3**). This precinct is dominated by the Brisbane CBD comprising a mixture of high density commercial and residential buildings interspersed with pocket parks and larger areas of urban greenspace, including the State heritage listed City Botanic Gardens. The LCAs within this precinct are described in **Table 13-4**.

Table 13-4 Landscape character areas within Precinct 3: George Street

Typical image(s)	Landscape character areas
Parklands (P)	P3: City Botanic Gardens
	<p>The City Botanic Gardens is the major green space of the city lying next to the Brisbane River. It is an important visitor destination and provides informal recreation opportunities for workers and residents in Brisbane CBD, including picnic areas, cycle paths and walkways. The space is also used occasionally for community events.</p> <p>The vegetation of the Gardens is diverse comprising large trees of many native and exotic species, including a riverside boulevard of mature figs. The City Botanic Gardens is listed on the Queensland Heritage Register. It is of high landscape and visual amenity value and of high community value.</p>
Institutional (I)	I5: Government/ QUT
	<p>This LCA extends between George Street, the Brisbane River, the Brisbane City Council building at Brisbane Square on Adelaide Street and the QUT Gardens Point campus.</p> <p>The precinct contains educational and administrative buildings associated with Queensland Government departments, including the State heritage listed Queensland Parliament House. Other character buildings in the precinct include Harris Terrace, The Mansions and the Treasury Casino.</p> <p>The sandstone buildings of Parliament House and QUT are typically up to about four storeys. Collectively these create a strong heritage character of high landscape amenity, which creates a visitor destination. The precinct also includes more recent government</p>

Typical image(s)	Landscape character areas
	<p>buildings from the 1970s around William Street that are typically of lower visual appeal.</p> <p>All of these buildings are set within landscaped grounds with occasional mature trees. Most have a visual relationship with the Brisbane River and Riverside Expressway.</p> <p>This area includes the proposed Queen's Wharf Brisbane redevelopment area.</p>
City Centre (CC)	CC2: Brisbane CBD
	<p>The Brisbane CBD LCA is the dominant part of this precinct comprising a grid of streets including George Street, Albert Street and Edward Street running in a north-south direction and Adelaide Street, Queen Street, Charlotte Street, Mary Street, Margaret Street and Alice Street running in an east-west direction.</p> <p>This area contains a mix of commercial office buildings interspersed with hotels and residential apartments. The buildings are diverse in age and height, including towers of up to 81 storeys at Herschel Street. Buildings of heritage character are interspersed through the precinct such as the State heritage listed Queensland Club, The Mansions and Harris Terraces.</p> <p>Retail and café frontages with outdoor dining are found at ground level providing strong activation to the streetscape. The Brisbane CBD has a high numbers of workers, residents and visitors creating a vibrant atmosphere.</p> <p>A regular grid of street trees including Leopard Tree (<i>Ceasalpinia ferrea</i>), various palms, Kauri Pine (<i>Agathis robusta</i>) and Crows Ash (<i>Flindersia australis</i>) with occasional larger fig trees (<i>Ficus macrophylla</i> and <i>benjamina</i>) creates a strong sub-tropical character of moderate visual amenity.</p>
Transport (T)	T2: Pacific Motorway/ South East Busway
	<p>The Government/ QUT Institutional precinct is framed to the south-west by the Riverside Expressway, which forms part of the Pacific Motorway. This elevated structure provides a key traffic route for motorists bypassing or travelling to the city, although it interrupts the relationship between the city and the Brisbane River. It is not valued for its landscape or visual amenity.</p>
Waterway (W)	W1: Brisbane River
	<p>The Brisbane River LCA is located in the west of the precinct. It comprises the river and fringing mangroves. There are no buildings directly fronting onto the Brisbane River near the Project, although there are a number of marine berths, ferry and City Cat terminals and a bikeway.</p> <p>A number of bridge crossings complement the character of the river. These include older heritage listed structures such as the William Jolly Bridge as well as more modern structures such as the Kurilpa Bridge.</p> <p>The Brisbane River is of high landscape and visual amenity.</p>



13.2.4 Precinct 4: Roma Street Station


The Roma Street Station precinct is bounded by Ann Street to the south and Boundary Street, Spring Hill to the north. The topography of the precinct is varied, ranging from the relatively low lying landscape of the Brisbane CBD rising to the elevated and undulating landform of Roma Street Parkland associated with Spring Hill in the north rising up to 53m AHD (refer to **Figure 13-3**). This creates a distinctive landscape with varied opportunities for elevated and expansive views.

This precinct is dominated by Roma Street Parkland, Albert Park, the northern part of the Brisbane CBD and the transport infrastructure associated with Roma Street Station. It comprises a mix of commercial and residential buildings interspersed with pocket parks and larger areas of urban greenspace.

The key LCAs within this precinct are described in **Table 13-5**.

Table 13-5 Landscape character areas within Precinct 4: Roma Street Station

Typical image(s)	Landscape character areas
Parklands (P)	P4: Roma Street Parkland
	<p>This area comprises a large area of urban parkland bounded by Roma Street Station and urban land uses at Spring Hill. It contains sub-tropical greenery with large mature trees interspersed with more recent contemporary planting.</p> <p>The parkland is a popular destination for visitors and residents, including for celebratory events. It includes a variety of distinctive parkland settings, including a lake and rainforest walk.</p> <p>The elevated and steeply sloping landform of the Roma Street Parkland allows expansive views out and across the city to Mount Coot-tha. A line of modern residential apartment buildings are located between the park and the railway corridor provides visual separation between the two areas.</p>
City Centre (CC)	CC2: Brisbane CBD and CC3: Spring Hill
	<p>The Roma Street Precinct includes Roma Street, dominated by the Brisbane Transit Centre and the legal quarter.</p> <p>Emma Miller Place and Gallipoli Place, situated between Roma Street, Albert Street and the entrance to Roma Street Parkland, provide localised green space. The green space borders the Inner Northern Busway and railway corridor and forms part of a pedestrian link connecting Roma Street Station to Queen Street Mall. The space comprises terraced grass areas and established trees and palms that impart a subtropical character including Leopard Trees (<i>Caesalpinia ferrea</i>) and Jacarandas (<i>Jacaranda mimosifolium</i>).</p>

Typical image(s)	Landscape character areas
Transport (T)	T3: Roma Street railway corridor
	<p>Roma Street Station is a major transport hub for local, state and national train, coach and bus services. The station comprises the original State heritage listed Roma Street Station building surrounded by newer infrastructure. The precinct is dominated by the Brisbane Transit Centre, which was built in the 1980s. The building is not valued for its visual character or contribution to landscape amenity.</p> <p>Remnants of the original station garden are of heritage value and occur adjacent to the Travelodge building and the western margin of what is now Emma Miller Place.</p> <p>The landscape is functional with relatively low amenity excepting the heritage station building, which has lost much of its former 'landmark' status due to the presence of the surrounding buildings.</p>


13.2.5 Precinct 5: Spring Hill (Northern Connection)



The Spring Hill (Northern Connection) precinct is bounded by Boundary Street, Spring Hill to the south and the RNA Showgrounds to the north. The precinct has a very distinctive valley-like topography, which runs north to south. The most elevated area is Spring Hill, at 53m AHD (refer to **Figure 13-3**). Gregory Terrace follows a gentle ridgeline. To the east, the land slopes eastwards through the residential and commercial areas of Spring Hill, while to the west the land falls steeply through Victoria Park to the ICB and Exhibition Line, before rising again, steeply through Victoria Park Golf Course.



This precinct is dominated by Victoria Park and Victoria Park Golf Course. Around this open space there are a variety of different characteristic land uses, including low density residential, commercial and institutional uses comprising schools and hospitals.

The LCTs and key LCAs in this precinct are described in **Table 13-6**.

Table 13-6 Landscape character areas within Precinct 5: Spring Hill (Northern Connection)

Typical image(s)	Landscape character areas
Parklands (P)	P5: Victoria Park and P6: Victoria Park Golf Course
	<p>Victoria Park is a regionally significant open space corridor, which stretches from Brisbane Girls Grammar School in the south to Bowen Bridge Road in the north. It is listed on the State and local heritage registers. While highly modified, the park is highly valued by the community for its landscape, aesthetic, recreational and cultural heritage (both Indigenous and non-Indigenous) values.</p> <p>The park provides opportunities for both formal and informal recreation. The park's grassy slopes fall steeply to the north-west interspersed with avenues and groups of mature trees including Moreton Bay Figs (<i>Ficus macrophylla</i>) and large stands of native eucalypts. More recent planting includes 60 trees planted in the Diamond Jubilee walk. A number of the landscape spaces and trees are of community importance and are recognised on the State heritage listing. This is discussed further in Chapter 14 – Socio-economic assessment.</p> <p>A series of pedestrian and cycle paths connect through the park. The Centenary Aquatic Centre and tennis courts are the only significant built features of the park. The north-east of the park is occupied by Energex, the Biomedical Technology Services (Radiation Health) and a Brisbane</p>

Typical image(s)	Landscape character areas
	<p>City Council Field Services Group temporary staging facility, which reduces the landscape character and visual amenity in this section of the park. Incremental incursions by transport infrastructure have also reduced the extent of the parkland over time. However, landform and vegetation limits the visibility of this infrastructure assisting the park to retain its green character as a respite from the surrounding urban environment.</p> <p>Views are focussed to Victoria Park Golf Course and wider views to Mount Coot-tha and the RBWH. The Victoria Park Golf Course LCA (P6) is located north of the ICB and is connected to P5 by a land bridge. The golf course slopes steeply down towards the ICB. It comprises a typical golf course character including grassland interspersed with fairways defined by mature trees and occasional buildings. An area occupied by sports fields also lies adjacent to the ICB.</p> <p>This precinct also comprises a small area of landscaped parkland with lakes, known as York's Hollow. This area has cultural significance for the Traditional Owners (Turrbal People).</p>
Residential (R)	R10: Boundary Street/ Little Edward Street
	<p>The residential landscape of Spring Hill is varied, comprising a mix of schools, churches and residential properties.</p> <p>Low to medium density residential development of high visual amenity falls steeply westwards from the ridgeline at Gregory Terrace.</p> <p>Residential properties include traditional character 'tin and timber houses' as well as more modern multi-storey apartment buildings. Housing along Gregory Terrace comprises traditional 'character' Queenslanders with more recent development designed to maintain a character façade. These houses are set in small manicured gardens presenting a verdant character to the streetscape.</p> <p>The undulating landform creates a visually interesting streetscape culminating in a ridgeline that runs approximately along Gregory Terrace adjacent to Victoria Park. The existing railway corridor is not visible from residences along Gregory Terrace due to the landform and screening provided by trees within the park.</p>
Institutional (I)	I6: Brisbane Girls Grammar School; I7: RBWH
	<p>This LCA is adjacent to the railway corridor and Victoria Park and includes both the Brisbane Girls Grammar School and Brisbane Grammar School. It is a private landscape bounded by a solid wall. The buildings of both schools comprise a mixture of heritage brick and more modern structures as well as sporting facilities such as tennis courts.</p> <p>The RBWH LCA (I7) is located north of the ICB. It comprises hospital buildings, many of which are undergoing redevelopment, as well as modern multi-storey structures. Ancillary medical institutions such as the Clive Berghofer Medical Research Institute building adjoin the hospital building. There are mature trees and vegetation within the hospital grounds. However overall it has a high density urban character of low amenity.</p>

Typical image(s)	Landscape character areas
Transport (T)	T4: Inner City Bypass
	<p>A significant transport corridor comprising the ICB, railway corridor, Inner Northern Busway and Legacy Way tunnel traverses the precinct in a north-south direction.</p> <p>These transport corridors have encroached on the original Victoria Park landscape, with the two parts now connected by a wide land bridge located near the tennis courts. The ICB is a multi-lane inter-urban connector road with little significant vegetation of low landscape and visual amenity. Despite its size, its location at the low point of a 'valley' means it is well contained from the surrounding landscape.</p>
Sports and entertainment (SE)	SE2: RNA Showgrounds
	<p>The RNA Showgrounds is typically not highly visited by the general public except for during events. Much of the showgrounds is used for commercial car parking during week days. The showgrounds are relatively flat, defined by a number of utilitarian and more architecturally significant buildings clustered around the show ring. A number of these buildings are State heritage listed (Brisbane Exhibition Grounds).</p> <p>There are a number of mature trees on the site mainly Weeping Figs (<i>Ficus benjamina</i>). North of Bowen Bridge Road within the complex is Exhibition Station and the old Queensland Museum next to Bowen Bridge Road.</p>

13.3 Impact assessment

This section describes the Project works that have the potential to impact on landscape character and visual amenity values within the study area and assesses the likely effects of the Project on these values.

For the purpose of this assessment, potential effects are described as:

- impacts and effects on landscape sensitive receptors
- impacts and effects on visual sensitive receptors.

These impacts are considered together in relation to the Project precincts described in **section 13-5**.

The assessment considers both direct and indirect impacts on the identified landscape and visual receptors and significance of impact prior to taking into account any additional mitigation measures considered in later sections. Where there is any uncertainty, the impacts are based on the 'worst case scenario' assuming the greatest impact in terms of landscape and visual impact.

13.3.1 Project works with potential to change landscape and visual values

The Project would deliver rail and busway infrastructure in a single, double-decked, tunnel under the Brisbane River extending from Dutton Park in the south to Victoria Park at Spring Hill in the north, with new underground stations at Woolloongabba, George Street and Roma Street.

Once constructed, much of the Project infrastructure would be located underground, with surface infrastructure generally confined to discrete locations. This would generally include connections to the existing surface rail and busway networks at Dutton Park and Spring Hill, station buildings, a new

busway bridge over the ICB at Spring Hill and associated infrastructure such as feeder stations and ventilation outlets.

During construction, construction worksites would be required at the Southern and Northern Connections as well as at each of the underground stations. Establishment of the construction worksites would require demolition of existing buildings and structures and clearing of trees and other vegetation. Acoustic sheds for the loading and handling of spoil from the tunnel and station caverns would be erected at each of the construction worksites, apart from the worksite at Victoria Park, Spring Hill. Following construction, the worksites would be rehabilitated and reinstated to the previous use or similar alternative use. A summary of the main project elements that are likely to change landscape and visual amenity values is provided in **Table 13-7**.

Table 13-7 Key project elements with potential to change landscape and visual values

Element	Southern Connection	Woolloongabba Station	George Street Station	Roma Street Station	Northern Connection
Construction (temporary)					
Site establishment and preparation works	Removal of immature trees and vegetation from 'Outlook Park' green space	Demolition of GoPrint building and removal of vegetation	Demolition of existing office building at 63 George Street; loss of three semi-mature street trees	Removal of mature trees and vegetation from Emma Miller Place	Demolition of Brisbane City Council Field Services Group temporary staging facility; clearing of mature trees within the construction worksite in Victoria Park
Excavation works	Cut and cover excavation of tunnel, transition structure and tunnel boring machine (TBM) launch shaft	Cut and cover excavation of station shaft; associated acoustic shed	Cut and cover excavation of station shaft; associated acoustic shed	Cut and cover excavation of station shaft; associated acoustic shed	Cut and cover excavation of tunnel and TBM retrieval shaft
Construction worksites	Laydown, storage areas and site offices surrounded by temporary hoarding/ screening Acoustic shed for loading and handling of spoil	Laydown, storage areas and site offices surrounded by temporary hoarding/ screening	Workshed and site offices surrounded by temporary hoarding/ screening, extending into George Street and Mary Street	Laydown, storage areas and site offices at Emma Miller Place surrounded by temporary hoarding/ screening	Laydown, storage areas and site offices surrounded by temporary hoarding/ screening
Operation (permanent)					
Transport infrastructure	Upgraded station, including new platform Transition structures New bus layover at Kent Street	New station building at site of current GoPrint building	New station building at site of commercial building (63 George Street)	New station entrance at Roma Street Station	Transition structures within the railway corridor New busway bridge across the ICB connecting to existing busway north of the ICB Bus layover at Gilchrist Avenue

Element	Southern Connection	Woolloongabba Station	George Street Station	Roma Street Station	Northern Connection
Ancillary infrastructure	Feeder station (5-8m high) east of railway corridor; ventilation outlet (24m ² structure footprint and up to 11m high) east of Ecosciences building, with 2-4m above the fan station parapet	Ventilation outlet (49.5m ² structure footprint and up to 24m high) located at site of station building	Ventilation outlet (49.5m ² structure footprint and up to 25m high) located at site of station building	Ventilation outlet (49.5m ² structure footprint and up to 8m high) located within railway corridor near to original Roma Street Station building	Feeder station (8m high) within the railway corridor, south of the ICB; ventilation outlet (24m ² structure footprint, and up to 10m high) adjacent to existing Land Bridge. Surface busway and rail lines would be in cutting with high retaining walls within the railway corridor south of the ICB.
Landscape rehabilitation	Rehabilitation of Outlook Park following construction	No	No	Rehabilitation of Emma Miller Place following construction	Rehabilitation of Victoria Park following construction through a master planning process undertaken by Brisbane City Council in consultation with the Turrbal People and the local community

13.3.2 Project wide landscape and visual values

An assessment was undertaken to identify the LCAs within each precinct that would experience changes to landscape character and visual amenity from the Project. This considered:

- whether the Project would pass through the precinct at surface level and would result in direct impacts
- the presence of permanent surface infrastructure, and whether this would result in impacts on landscape and visual values during operation
- the presence of temporary construction worksites, and potential for these to result in temporary visual impacts.

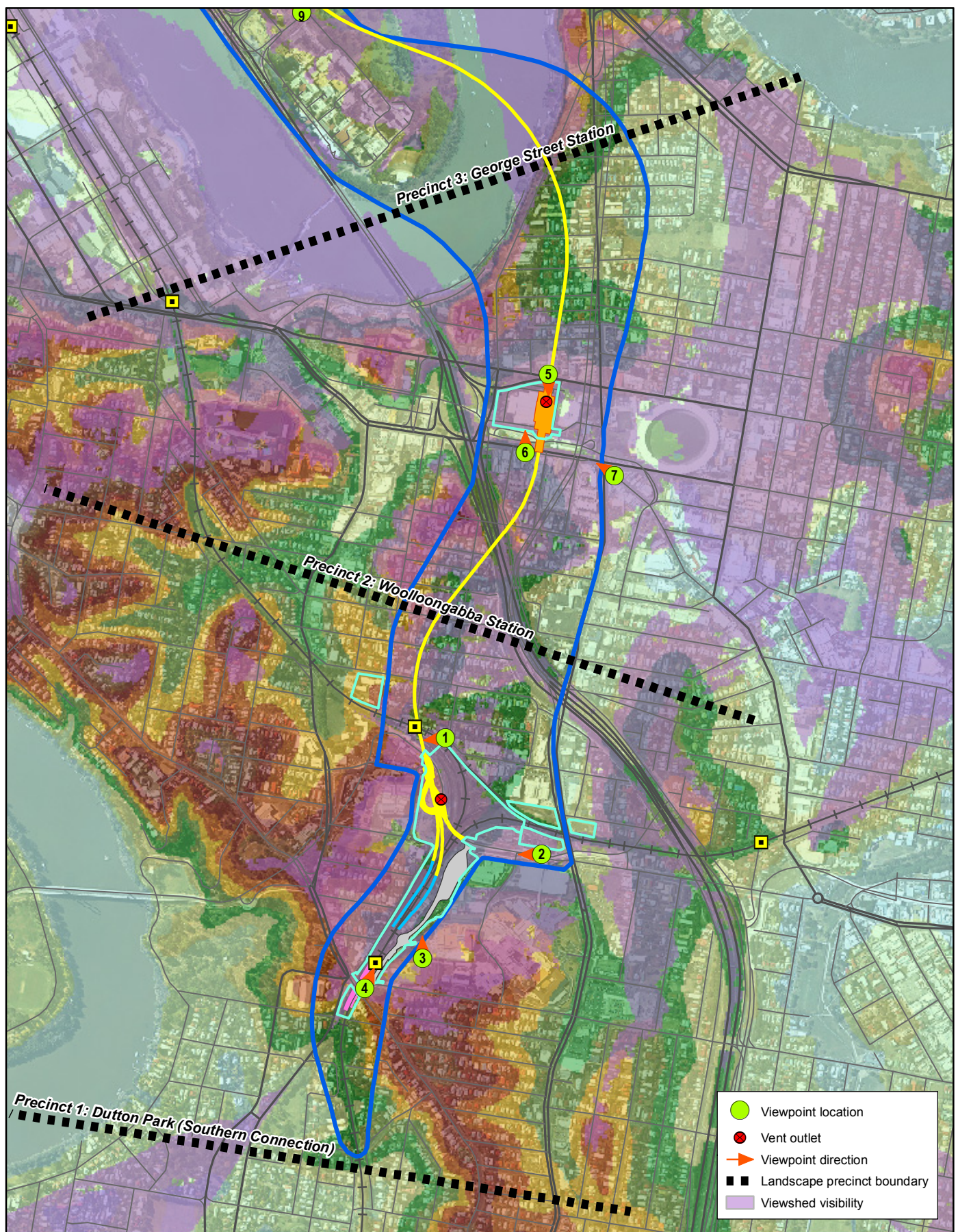
The outcomes of this assessment are presented in **Appendix H**. In summary, construction and operation of the Project is expected to result in landscape and visual impacts, either beneficial or adverse, to the LCAs of:

- I2: Boggo Road Urban Village and T1: Eastern Busway/ Dutton Park railway corridor due to works for the Southern Connection
- I4: GoPrint due to works for the Woolloongabba Station
- CC2: Brisbane CBD due to works for the George Street Station
- P4: Roma Street Parkland and T3: Roma Street railway corridor due to works for Roma Street Station
- P5: Victoria Park and P6: Victoria Park Golf Course, due to works for the Northern Connection.

Impacts would also occur for visual receptors within some of the LCAs. Visual impacts are assessed through the representative viewpoints shown on **Figure 13-6** and **Figure 13-7**.

The LCAs expected to experience direct impacts on landscape character or visual amenity are described in **section 13.3.4** to **section 13.3.8**. The outcomes of the assessment on other LCAs is included in **Appendix H**. Impacts would generally relate to:

- operational impacts, which would result in permanent or long-term changes, relating to:
 - minor encroachment of infrastructure on Victoria Park, resulting in the permanent loss of a small area of playing fields north of the ICB and further incursion of built development, and rehabilitation of those areas impacted by construction activities
 - impacts on townscape character and views due to new station buildings at Woolloongabba, George Street and Roma Street and associated rehabilitation near Project stations
 - potential for enhancement to the public realm of Emma Miller Place and establishment of a new civic plaza in the vicinity of Roma Street Parkland, through the rehabilitation of construction worksites
 - changed views of the transport infrastructure corridor through Dutton Park as a result of the bus layover facility at Kent Street
- construction impacts, which would result in short-term or temporary impacts, due to:
 - temporary construction impacts on landscape elements, such as the temporary loss of access to areas of parkland/ green space, and loss of vegetation including mature trees
 - temporary construction impacts on views due to construction activities and presence of construction infrastructure, such as acoustic sheds associated with surface and other works
 - temporary lighting impacts associated with construction night works.



LEGEND

Existing rail station	Project Infrastructure	Alignment
Existing rail line	Construction worksite	Above ground
Highway/main road	Underground station	Underground
Local road	Bus layover	
Study corridor	Dutton Park Station (upgraded)	

For Topographic Legend refer to Figure 13-3.
Aerial Photo: Brisbane City Council 2012

BUS AND TRAIN PROJECT ENVIRONMENTAL IMPACT STATEMENT

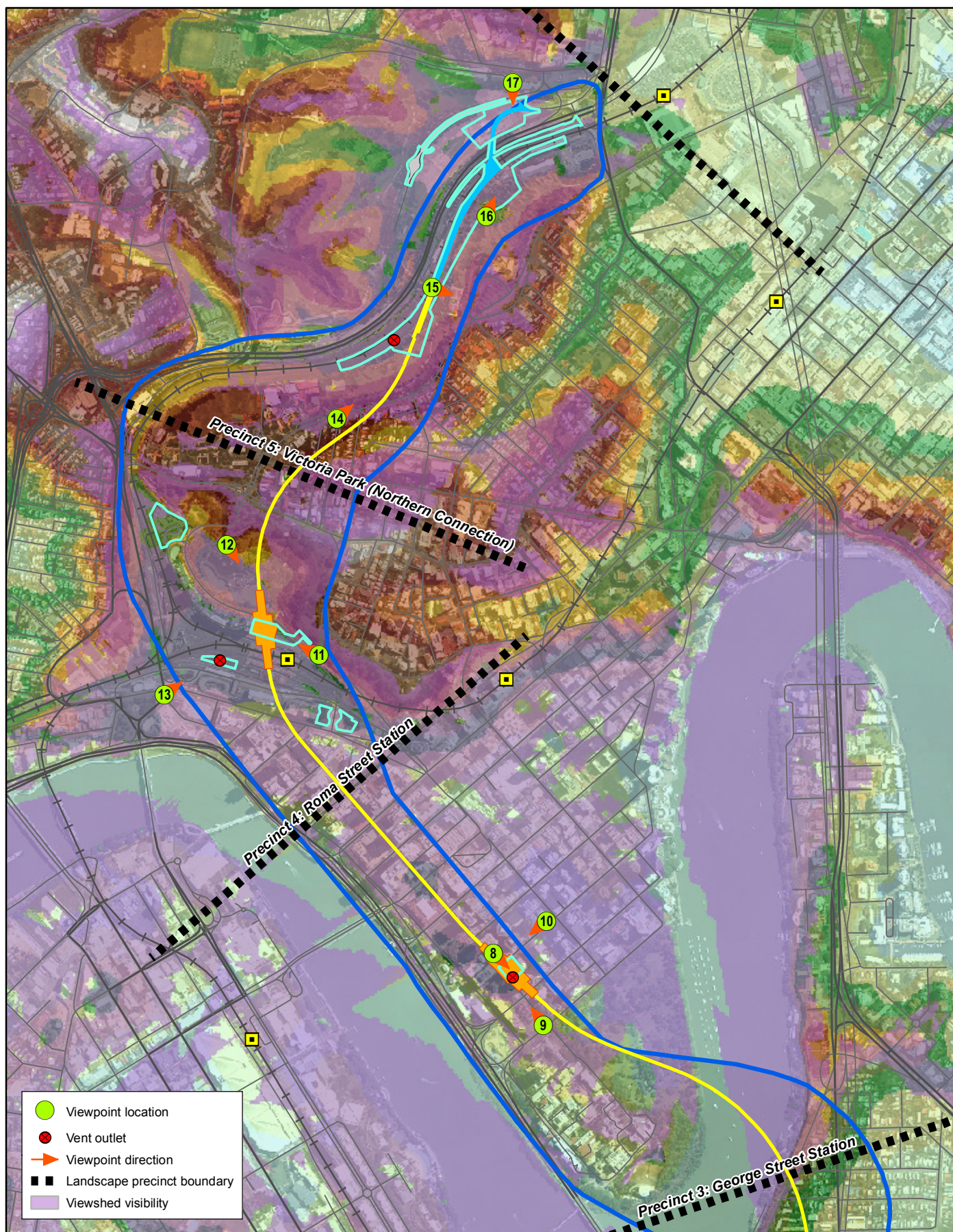
FIGURE 13-6

Viewpoint locations - south



0 0.25 0.5
Kilometres

1:15,000 (at A4)
Projection: GDA 1994 MGA56



LEGEND

- Existing rail station
- Existing rail line
- Highway/main road
- Local road
- Study corridor

- Project Infrastructure**
- Construction worksite
 - Underground station
 - Bus layover

- Alignment**
- Above ground
 - Underground

BUS AND TRAIN PROJECT ENVIRONMENTAL IMPACT STATEMENT

FIGURE 13-7

Viewpoint locations - north

For Topographic Legend refer to Figure 13-3.
Aerial Photo: Brisbane City Council 2012



0 0.25 0.5
Kilometres
1:15,000 (at A4)
Projection: GDA 1994 MGA56

The assessment presented in **section 13.3.3** to **section 13.3.8** mainly focusses on the operational phase of the Project, as the presence of permanent surface infrastructure has the greatest potential to result in long-term changes to landscape character and views (positive, neutral or negative).

Impacts of construction activities have also been considered as these can result in immediate changes (such as the removal of vegetation and effect on views). However, the significance of these changes is typically lower due to the temporary and dynamic nature of these activities. Similarly, impacts from lighting are also considered but are assessed in less detail since their impact tends to be of lower significance particularly given the well-lit background context of the Project.

Impacts assessed to be of moderate significance or above are presented in **section 13.3.3** to **section 13.3.8**. The outcomes of the full assessment are included in **Appendix H**.

13.3.3 Project wide impacts

In the longer term, the Project has the potential to affect landscape values within locations across the Project through the development of station buildings, surface infrastructure and associated landscape rehabilitation works undertaken as part of the Project.

During construction, temporary impacts on landscape character and visual amenity may be experienced at locations near to the construction worksites. This would be due mainly to the presence of construction infrastructure such as acoustic sheds, security fencing, site offices. Night-time construction works, particularly associated with works within the railway corridor, and security and safety lighting at construction worksites, may result in impacts associated with night lighting. This may result in possible light spill from construction areas onto surrounding areas. This impact would be temporary, and of minor to moderate adverse impact, and is not considered to be significant. Further details on this assessment are presented in **Appendix H**.

The effects of construction traffic were considered as part of the assessment. While the presence of construction traffic near to the Project may be a visual reminder of construction activities, this would not impact visual amenity given the context of existing traffic volumes in the study corridor.

Section 13.3.4 to **section 13.3.8** describes the likely significance of impacts on landscape and visual values. This has been determined based on an assessment of the sensitivity of the key LCAs and representative viewpoints for each precinct, together with the likely magnitude of impact associated with the Project works described in **section 13.3.1**.

13.3.4 Precinct 1: Dutton Park (Southern Connection)

Operational impacts

Landscape receptors and impacts

Direct impacts on landscape character would occur on two LCAs in this precinct – I2: Boggo Road Urban Village and T1: Eastern Busway/ Dutton Park railway corridor. These impacts generally relate to the presence of new busway infrastructure, such as connections to the existing busway and bus layover area at Kent Street, as well as transition structures for the rail connection to the existing rail network. While the Project's surface infrastructure would be visually prominent within the landscape, they would be consistent with the existing views of transport infrastructure at this location.

The affected LCAs currently accommodate transport infrastructure with low visual amenity. As such, the significance of the change is considered to be minor to negligible. Further discussion of impacts on these LCAs is provided in **Appendix H**.

Visual receptors and impacts

The Project is not anticipated to result in any significant impacts on key visual receptors in this precinct.

Four representative viewpoints were identified that represent impacts on representative viewer groups in this precinct. They include:

- representative viewpoint 1: Burke Street which is representative of residents and open space users
- representative viewpoint 2: PA Hospital Busway Station, which is representative of public transport users
- representative viewpoint 3: Pacemaker Café, Pharmacy Australia Centre of Excellence, which is representative of workers and patients in buildings near to the Project
- representative viewpoint 4: Annerley Road near Dutton Park Station, which is representative of drivers and pedestrians walking along Annerley Road.

The greatest change to visual amenity in this precinct would relate to viewpoint 1. This change would be of minor to moderate significance and of neutral effect (ie neither obviously worse nor better than the existing situation). These changes would generally relate to the noticeable presence of new transport infrastructure, including the bus layover at Kent Street and ventilation outlet adjacent to the Ecosciences building.

Figure 13-8 shows existing views and illustrative sketches of the ventilation outlet at Dutton Park.

While the changes would be noticeable to receptors familiar with the existing view, the Project infrastructure would not contrast strongly with the existing landscape character, which comprises transport infrastructure of low visual amenity, particularly as the wider landscape of the Boggo Road Urban Village is in flux due to ongoing redevelopment. Further discussion on impacts from other representative viewpoints is provided in **Appendix H**.

Construction impacts

Construction impacts on landscape receptors in this precinct primarily relate to the temporary use of 'Outlook Park' (within I2: Boggo Road Ecosciences) and the presence of the construction worksite, including an acoustic shed (T1: Eastern Busway/ Dutton Park railway corridor). The existing environment of the railway corridor is not of high landscape amenity. As such, the likely significance of impacts on landscape receptors in this precinct associated with the Project's construction, are considered to be of minor adverse significance or below.

Construction impacts on visual receptors in this precinct relate primarily to the presence of hoardings and the acoustic shed, which would be visible from a range of nearby vantage points including a small number of residential properties, the ESA Village, public transport nodes and adjoining hospital buildings. These impacts are considered to be of minor adverse significance or below, due to the low sensitivity of most affected receptors and the existing low visual quality of the railway corridor.

Further information about impacts of construction on landscape character and visual amenity within the Dutton Park precinct is provided in **Appendix H**.

Figure 13-8 Existing view and illustrative sketch of the ventilation outlet (Dutton Park)



Lighting impacts

Without mitigation, construction lighting has the potential to temporarily impact on nearby residents as well as patients at the PA Hospital and ESA Village. However, due to existing lighting levels in this area, the change is anticipated to be low (ie noticeable), resulting in a minor to moderate adverse level of impact.

During operation, Project lighting would have a negligible contrast with the existing light levels. As such, the significance of impacts are expected to be minor neutral.

Further information about the Project's potential lighting impacts on the Dutton Park precinct is provided in **Appendix H**.

13.3.5 Precinct 2: Woolloongabba Station

Operational impacts

Landscape receptors and impacts

Direct impacts on landscape character in this precinct would affect one LCA, being I4: GoPrint. These impacts would generally relate to the construction of the new station building. This impact is considered to be of minor to moderate neutral significance. While the new station building would be noticeable, it is anticipated to have a positive urban and architectural design quality that would change, but not diminish the character of the site. The character of the site would also accord with ongoing change and development in the wider local environment and in the longer term the station building is expected to catalyse development with a positive urban design character resulting in enhancement of the site character.

Further discussion of impacts on this LCA is provided in **Appendix H**.

Visual receptors and impacts

Three representative viewpoints were selected that represent the impacts on viewer groups with potential to be affected in this precinct. These include:

- representative viewpoint 5: Vulture Street, which is representative of residential viewers
- representative viewpoint 6: Stanley Street Commercial, which is representative of users and workers of cafes, restaurants and retail establishments on Stanley Street
- representative viewpoint 7: Main Street.

The greatest change to visual amenity in the Woolloongabba Precinct would relate to viewpoint 5 and viewpoint 6. These changes would generally be of moderate neutral significance. Typically, changes in this precinct relate to the differences between the GoPrint site which, with the exception of mature boundary vegetation, is generally of low visual amenity and Project infrastructure, comprising the station building and 24m high ventilation outlet. **Figure 13-9** shows the existing view and illustrative sketch of the ventilation outlet at Woolloongabba Station.

Figure 13-9 Existing view and illustrative sketch of the ventilation outlet (Woolloongabba Station)




Whilst the views would be different, they would not be of 'worse' quality than the existing outlook and the character would be consistent with the ongoing redevelopment of the Woolloongabba Priority Development Area and wider Woolloongabba area. Furthermore, it is anticipated that over time, the Project would stimulate wider redevelopment, further enhancing the quality of views towards the site; for example through civic design and landscaping and through incorporation of the ventilation outlet into a new building.

Table 13-8 and **Table 13-9** describes potential changes to visual amenity from viewpoint 5 and viewpoint 6, respectively.

Table 13-8 Representative viewpoint 5: Vulture Street

	
Issue	Impact on visual values on residential properties and road users
Nature of the existing view	<p>The existing view is taken from Vulture Street looking south towards the Land Centre and existing GoPrint building. This view illustrates the influence of Vulture Street, which is a busy main road in the foreground of the view, as well as the low quality of the existing buildings on the site and the presence of significant vegetation that screens and provides a setting from the site.</p> <p>Although the view is taken from Vulture Street, it represents a worst case example of potential views from nearby residential areas, including within LCA R9: Main Street.</p>
Potential visual impact	<p>During operation, the view would comprise the new station building and associated multi-storey building. The ventilation outlet may also be visible, depending on the configuration of the new buildings.</p>
Visual sensitivity	<p><i>Medium</i> – residential viewers are generally considered to have a medium to high level of sensitivity to changes in view, although it is expected that relatively few residents are likely to be affected, with views largely obtained from the rear windows of residences located at Mark Lane. Other viewers from this location (ie road users) would have a lower sensitivity to changes from the Project. The area is also anticipated to undergo significant change as a result of various developments proposed in this area.</p>
Magnitude of visual impact	<p><i>Medium</i> – the Project would be a considerable change in this location, due to the removal of the existing GoPrint building and replacement with a new station building and ventilation outlet. It is anticipated that the station building would be a civic building of higher quality than the existing landscape. Therefore, the change would be neutral.</p> <p>In the longer term it is anticipated that the site would be used as a redevelopment opportunity resulting in positive uplift to the visual character of Woolloongabba.</p>
Significance of visual impact	<p><i>Moderate neutral (permanent)</i> with potential for <i>moderate beneficial (permanent)</i> over the longer term, should anticipated redevelopment be realised.</p>

Table 13-9 Representative viewpoint 6: Stanley Street

	
Issue	Impact on visual values on cafes and pedestrians
Nature of the existing view	<p>The existing view is taken from Stanley Street looking north over Stanley Street (a busy multi-lane road) towards the Land Centre (in right of view) and existing GoPrint building (in left of view), beyond the South East Busway in the foreground.</p> <p>This view illustrates the low quality of the existing buildings on the site and the presence of significant vegetation that screens and provides a setting from the site, particularly along the eastern boundary.</p>
Potential visual Impact	<p>During operation, the view would comprise the new station building and associated multi-storey building. The ventilation outlet is also likely to be visible.</p>
Visual sensitivity	<p><i>Medium</i> – this view is obtained by pedestrians along Stanley Street and by users of outdoor dining areas of cafes along the commercial strip in this area (C3: Ipswich Road/ Stanley Street).</p> <p>It is also typical of the views experienced by users of the South East Busway, although this group is anticipated to have a low visual sensitivity as they would experience only transient views. It is noted that this area is anticipated to undergo significant change as a result of various developments proposed in this area.</p>
Magnitude of visual impact	<p><i>Medium</i> – the new buildings would be an obvious change that is likely to enhance the urban civic character of the area. In the longer term, it is anticipated that the building would be set within a landscape setting that would enhance the visual character of Woolloongabba.</p>
Significance of visual impact	<p><i>Moderate neutral (permanent)</i> with potential for <i>moderate beneficial (permanent)</i> over the longer term should anticipated redevelopment be realised.</p>

Construction impacts

Construction impacts on landscape receptors in this precinct mainly relate to the demolition of the GoPrint building and removal of some mature vegetation from the construction worksite. The quality of the existing environment is of low local value. As such, impacts on landscape receptors from the construction of the Project are expected to be of minor adverse significance.

Construction impacts on visual receptors in this precinct relate to the demolition of the GoPrint building and the presence of an acoustic shed, which would be visible by a number of receptors in this precinct. These impacts are considered to be of minor to moderate adverse significance or below due to distance of receptors from the site. The presence of the construction worksite is also considered congruent with the ongoing change and redevelopment affecting the wider Woolloongabba area.

Further information about impacts of construction on landscape character and visual amenity in the Woolloongabba precinct is provided in **Appendix H**.

Lighting impacts

Without mitigation, construction lighting has the potential to temporarily impact on a small number of residents near the construction worksite. The GoPrint site is currently not well-lit at night, although the surrounding busways and major roads are generally well-lit. The Gabba is also well lit during night-time sporting events. The anticipated change in lighting level during construction is anticipated to be low (ie noticeable), which would result in a minor adverse level of impact.

During operation, Project lighting would have a negligible contrast with existing light levels, being consistent with a city landscape. The level of impact would be of minor neutral significance, and beneficial for users of the site.

Further information about the Project's potential lighting impacts on the Woolloongabba precinct is provide in **Appendix H**.

13.3.6 Precinct 3: George Street Station

Operational impacts

Landscape receptors and impacts

Direct impacts on landscape character would affect one LCA in this precinct, being CC2: Brisbane CBD. These impacts would generally relate to the new station building and ventilation outlet at 63 George Street. This impact is expected to be of minor to moderate neutral significance should the station building and ventilation outlet be integrated within a new building development.

Table 13-10 summarises the likely impacts of the Project's operation on landscape character in this precinct. Further information is also available in **Appendix H**.

Table 13-10 Landscape character area CC2: Brisbane CBD

Issue	Impact on landscape values of CC2
Nature of the existing landscape	<p>The landscape of the Brisbane CBD near the Project comprises buildings on George Street and Mary Street. The area near the Project comprises a variety of older, typically lower rise buildings and newer, multi-storey hotels, commercial buildings and apartments.</p> <p>The streetscape is enhanced by the presence of mature Leopard Tree (<i>Caesalpinia ferrea</i>) and palms.</p>

Issue	Impact on landscape values of CC2
Potential landscape impact	<p>The Project would result in the demolition of the existing office building at 63 George Street and removal of street trees at Mary Street and George Street adjacent to the site. A new station building would be provided at the site, with an entrance in Mary Street and smaller, secondary entrance in George Street.</p> <p>It is expected that the station building would be integrated into a new building, possibly up to about 40 storeys high. The ventilation outlet would also be assimilated into the architecture of the new building.</p>
Landscape sensitivity	<p><i>Medium</i> – this landscape is an important inner city location, although it is considered to have capacity to accommodate landscape change. The existing building is a non-descript eight storey, concrete structure that is not considered to be of particularly high architectural merit. It has associated artwork, but this is not of high landscape value. The building is thought to originate from the 1980s and does not have heritage value.</p>
Magnitude of landscape impact	<p><i>Low</i> – whilst the new building would be noticeably different from the existing building, it would be assimilated into the urban fabric and would not result in a change of landscape character.</p> <p>It is anticipated that new street tree planting and landscaping provided as part of the Project, would mitigate the impact of vegetation loss.</p>
Significance of landscape impact	<p><i>Minor to moderate adverse</i> (permanent) with potential for <i>minor to moderate neutral</i> (permanent), assuming a new building is developed that integrates the ventilation outlet.</p>

Visual receptors and impacts

Three representative viewpoints were identified that represent impacts on viewer groups near the George Street Station. These are:

- representative viewpoint 8: George Street, near the Treasury Hotel and Rendezvous Studio Hotel, which is representative of residential views
- representative viewpoint 9: George Street, near the City Botanic Gardens and Parliament House, which is representative of pedestrian and recreational visitor views
- representative viewpoint 10: Mary Street, which is representative of café users and pedestrians at Mary Street.

There is a high concentration of sensitive visual receptors in these locations, due to the precinct's city centre location. Changes to visual amenity in this precinct would range in significance from moderate impact to moderate to major impact.

These changes would generally result from the potential for a freestanding ventilation outlet at 63 George Street, if a high rise development does not occur above the station. If a development proceeds above the station, the ventilation outlet would be incorporated within the building envelope and would be neither visible nor evident from any viewpoint at street level. The ventilation would present as part of the 'roof top furniture' when viewed from adjacent high rise buildings.

Figure 13-10 also shows the existing view and illustrative sketch of the ventilation outlet for the George Street Station without development in place.

A station building at the intersection of George Street and Mary Street would have a neutral effect on the townscape quality. The development of a new multi-storey building above the station has potential to act as a 'landmark' in contrast to the existing building, providing opportunities for possible longer-term visual enhancements.

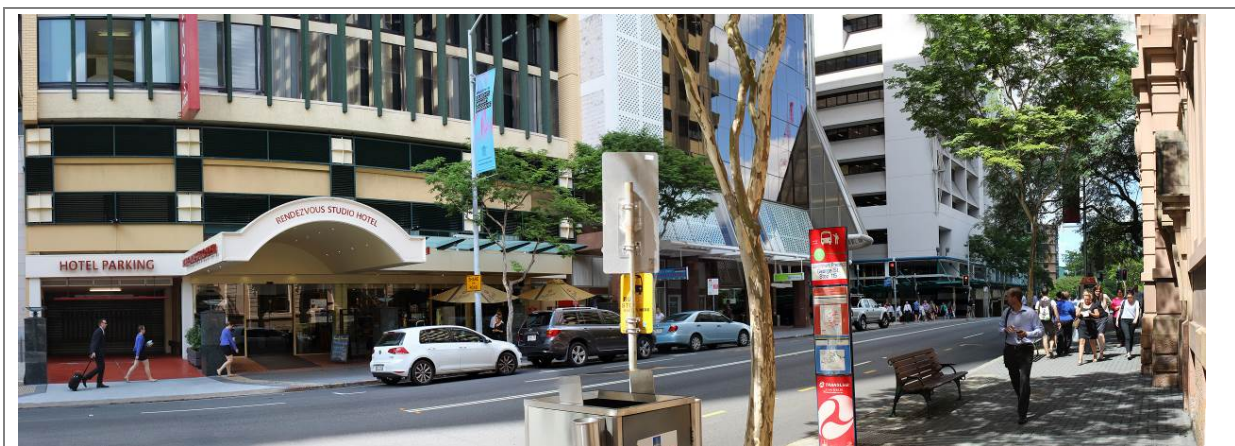
Table 13-11 to **Table 13-13** describes potential changes to visual amenity from viewpoint 8 to viewpoint 10, respectively.

Figure 13-10 Existing view and illustrative sketch of the ventilation outlet (George Street)



Note: transparency illustrates the extent of the ventilation outlet if development above the station does not proceed

Table 13-11 Representative viewpoint 8: George Street, near Rendezvous Studio Hotel




Issue	Impact on visual values on residential apartment buildings/ hotels
Nature of the existing view	<p>The existing view is located on the southern side of George Street, opposite the Rendezvous Studio Hotel. It is typical of the views for pedestrians looking south-east along George Street, but also gives a 'worst case' view typical of elevated residential buildings and hotels near the site.</p> <p>The viewpoint is located adjacent to a three storey sandstone heritage building (located in LCA I5: Government Precinct/ QUT).</p> <p>The existing building at 63 George Street is visible to the right of the view. It is characterised by a green awning at street level and an artwork feature on the corner of George Street and Mary Street, but is otherwise undistinguished.</p>
Potential visual impact	<p>The Project would result in the demolition of the building at 63 George Street and removal of street trees on Mary Street and George Street, adjacent to the site.</p> <p>During operation, the station entrance at Mary Street would form a prominent element of the view from this point. A ventilation outlet would be adjacent to the station building. This would be integrated within a new building located above the station, and consequently not visually obvious. If a high rise development does not occur above the station, a freestanding ventilation outlet would be an uncharacteristic element of the view.</p>
Visual sensitivity	<i>High</i> – there are large numbers of potential viewers who are expected to have a high level of interest in the amenity of the view. This includes visitors staying at hotels (such as The Rendezvous Studio Hotel) near the Project.
Magnitude of visual impact	<p><i>Medium</i> – the new station entrance would be a distinctive new, permanent element in the view, albeit it would accord with the existing character of the view.</p> <p>Redevelopment over the station could result in an improvement to the streetscape when viewed from this direction, possibly creating a positive civic character and focal point. If redevelopment does not occur over the station, the ventilation outlet would be visible within the environment.</p>
Significance of visual impact	<i>Moderate to major neutral</i> or even <i>beneficial</i> , although potential for <i>moderate to major adverse</i> if development above the station does not occur.

Table 13-12 Representative viewpoint 9: George Street, near the City Botanic Gardens and Parliament House

	
Issue	Impact on visual values on residential apartment buildings/ hotels
Nature of the existing view	<p>This viewpoint is located at the corner of George Street and Alice Street. It is representative of the views for pedestrians looking north-west along George Street.</p> <p>The viewpoint is located adjacent to a number of heritage buildings including the Queensland Club (on right side of view), The Mansions and Harris Terraces (on left side of view) and Parliament House (behind the viewer).</p> <p>The building at 63 George Street is visible in the centre of the view. While it is visible, it is not a particularly prominent or focal feature of the streetscape.</p>

Issue	Impact on visual values on residential apartment buildings/ hotels
Potential visual Impact	During operation, the building above the George Street Station would be visible curtailing views of the current multi-storey building at the north-eastern corner of Mary Street and George Street.
Visual sensitivity	<p><i>Medium</i> – this vantage point is typical of views for pedestrians. This view is also representative of ‘worst case’ views that could be obtained from locations such as Parliament House and the City Botanic Gardens, which are valued and highly visited landscapes.</p> <p>Whilst such viewers are anticipated to have a high level of interest in the visual character of their surroundings, their focus is likely to be on the Gardens or buildings. Therefore, it is expected they would typically be facing the opposite direction.</p> <p>Typical views at this vantage point are assessed to be of medium sensitivity. It is noted that from within the City Botanic Gardens, views are typically enclosed and curtailed by existing vegetation and foreground buildings.</p>
Magnitude of visual impact	<p><i>Medium</i> – the new station building would be a permanent and distinctive, but relatively small element, in this view and would blend with the character of the surrounding streetscape.</p> <p>It is expected that the ventilation outlet would be integrated into a new building on the site. If redevelopment does not occur over the station, a freestanding ventilation outlet would be a distinctive new element which is unlikely to contribute positively to the urban character.</p>
Significance of visual impact	<i>Moderate neutral</i> or even <i>beneficial</i> although potential for <i>moderate adverse impact</i> if development above the station does not occur.

Table 13-13 Representative viewpoint 10: Mary Street

	
Issue	Impact on visual values of users and workers of cafes, restaurants and retail establishments
Nature of the Existing view	<p>This view is obtained from Mary Street looking south-west along Mary Street, towards George Street.</p> <p>The existing view is dominated by multi-storey commercial and residential buildings. At street level there are a number of mature street trees. Awnings associated with the buildings extend over the footpath and accommodate outdoor dining areas. The building at 63 George Street is noticeable as it is shorter than the majority of the adjoining buildings, but is otherwise undistinguished from this direction.</p>
Potential visual Impact	During operation, the George Street Station would be visible integrating into the existing streetscape character and distinguished by a station entrance located at Mary Street.

Issue	Impact on visual values of users and workers of cafes, restaurants and retail establishments
Visual sensitivity	<i>Medium</i> – this viewpoint is experienced by users and workers of cafes, restaurants and retail establishments at Mary Street. These receptors are considered to have a moderate level of sensitivity, as they are only partly interested in the visual quality of their surroundings.
Magnitude of visual impact	<i>Medium</i> – the new station building would be a distinctive but relatively small element in the view and would blend with the character of the surrounding streetscape. The development of a new building over the station, would contribute positively to the streetscape character. If redevelopment does not occur over the station, the ventilation outlet is likely to be screened by existing buildings in views from Mary Street, except at its junction with George Street.
Significance of visual impact	<i>Moderate beneficial (permanent)</i> although potential for <i>moderate neutral impact</i> if development above the station does not occur.

Construction impacts

Construction impacts on landscape receptors in this precinct would relate primarily to the demolition of the building at 63 George Street and removal of a few mature Leopard trees. This landscape is an important inner city location, although it is considered to have capacity to accommodate landscape change. The presence of temporary construction worksites and associated activities would be consistent with the dynamic environment in the Brisbane CBD, which generally has a number of buildings under construction at any given time. The likely significance of impacts on landscape receptors in this precinct would be minor to moderate adverse significance.

Construction impacts on visual receptors in this precinct also relate to the demolition of the building and in particular, the presence of an acoustic shed extending over the site and part of the roadway in George Street and Mary Street. This would be visible by a number of receptors in the surrounding precinct, including residents of adjoining apartment buildings and hotels, occupants of commercial properties and pedestrians. These impacts are considered to be of moderate adverse significance or below. The moderate level of significance is largely due to the high number of potential viewers in this location.

Further information about impacts of construction on landscape character and visual amenity with the George Street precinct is provided in **Appendix H**.

Lighting impacts

Without mitigation, construction lighting has the potential to temporarily impact on a small number of permanent residents near the construction worksite at George Street. The area around the George Street construction worksite is currently brightly lit at night, consistent with its inner city location. Changes to this precinct associated with construction lighting would be of minor to moderate adverse significance.

During operation, the precinct would become slightly more brightly lit immediately near the George Street Station, commensurate with the safety levels required to service the new station. This would be a minor neutral impact on this precinct.

Further information about the Project's potential lighting impacts on the George Street Station precinct is provided in **Appendix H**.

13.3.7 Precinct 4: Roma Street Station

Operational impacts

Landscape receptors and impacts


Direct impacts on landscape character in this precinct are anticipated to impact three LCAs – P4: Roma Street Parkland, CC2: Brisbane CBD (in relation to Emma Miller Place), and T3: Roma Street railway corridor.

Landscape impacts on P4: Roma Street Parkland and T3: Roma Street railway corridor would be of minor neutral significance. Works in the LCA P4: Roma Street Parkland, would be confined to a relatively restricted area of the parkland and would not directly impact on areas of valued landscape elements. The development of the new entrance and station plaza, would be consistent with the existing landscape character, which is currently affected by rail infrastructure. The works in the LCA T3: Roma Street railway corridor occur in an area considered to be of low sensitivity and are anticipated to assimilate into the existing urban environment of the railway corridor.

Impacts on the landscape character of LCA CC2: Brisbane CBD are expected to be of moderate significance. However, in the longer term, there is potential for neutral or even beneficial impacts with appropriate new landscape design and as associated tree planting matures. **Table 13-14** summarises the likely impacts of the Project's operation on landscape character in this LCA.

Further information about potential impacts on landscape character in this precinct is provided in **Appendix H**.

Table 13-14 Landscape Character Area CC2: Brisbane CBD (Emma Miller Place)

	
Issue	Impact on landscape values of CC2
Nature of the existing landscape	<p>Emma Miller Place, Gallipoli Park and the former Roma Street Station gardens are important areas of city green space.</p> <p>The landscape comprises terraced grass areas and established trees and palms that impart a sub-tropical character including large Figs (<i>Ficus benjamina</i>), Leopard trees (<i>Caesalpinia ferrea</i>), Jacarandas (<i>jacaranda mimosifolium</i>), Tuckeroo (<i>Cupaniopsis anacardiodes</i>), Tulip tree (<i>Liriodendron tulipifera</i>), Poinciana (<i>Delonix regia</i>) and Hoop Pine (<i>Araucaria cunninghamii</i>).</p> <p>The parks provide a pleasant shady character, although they are not as well used as may be expected. This may be due to its location adjacent to the busy Roma Street.</p>
Potential landscape impact	<p>The existing trees within Emma Miller Place, Gallipoli Park and the former station garden would be removed. Following construction, these areas would be reinstated with new landscaping and compensatory tree planting.</p>
Landscape sensitivity	<p><i>High</i> – urban parkland, particularly areas such as this that include large mature trees, are highly valued in the city environment.</p>

Issue	Impact on landscape values of CC2
Magnitude of landscape impact	<i>Low</i> – following reinstatement of the green space post-construction, it would be evident that the parkland character has changed, particularly with the loss of mature trees. However, as the area would be reinstated to parkland, there would be no fundamental change to the character of the landscape, particularly as replacement tree planting matures.
Significance of landscape impact	<i>Moderate adverse (permanent)</i> noting that with appropriate new landscape design and as associated tree planting matures, there is potential for <i>neutral</i> or even <i>beneficial</i> longer term impact.

Visual receptors and impacts

Three representative viewpoints were identified that represent the range of views likely to be obtained by viewer groups in this precinct. These are:

- representative viewpoint 11: Parkland Boulevard, Roma Street Parkland, which is representative of residential views and pedestrians
- representative viewpoint 12: The Lookout, Roma Street Parkland, which is representative of recreational parkland users including visitors
- representative viewpoint 13: Intersection of Roma Street and Countess Street, which is representative of workers and motorists around the site.

There is a high concentration of sensitive visual receptors near the Roma Street Station site. The greatest change to visual amenity in this precinct would relate to viewpoint 11. This change would be of moderate neutral impact. Visual impacts from other viewpoints would be of lower significance.

Visual impacts for viewpoint 11 would generally relate to the presence of a freestanding ventilation outlet, west of the original Roma Street Station building. Other anticipated changes would relate to the reconfiguration of the station entrances, with the majority of infrastructure underground.

Figure 13-11 shows the existing view and illustrative sketch of the ventilation outlet for the Roma Street Station from near to the apartments in Roma Street Parkland.

This view provides a general representation of the view that would be appreciated from occupants of these apartments.

Figure 13-11 Existing view and illustrative sketch of the ventilation outlet (Roma Street Station)



Table 13-15 Representative viewpoint 11: Parkland Boulevard

Issue	Impact on visual values of residents (including apartments overlooking the Roma Street Parkland) and pedestrians accessing the park from the Brisbane CBD
Nature of the existing view	<p>This view is obtained looking north-west from the viewing platform located at Parkland Boulevard in Roma Street Parkland.</p> <p>The view provides an elevated panoramic view over Roma Street Station, encompassing (from left to right) the Brisbane Transit Centre, original heritage station building, platforms with associated shelters, residential apartment buildings, and Roma Street Parkland, comprising shelters and the café building.</p> <p>The Mount Coot-tha ranges are also visible in the background.</p>

Issue	Impact on visual values of residents (including apartments overlooking the Roma Street Parkland) and pedestrians accessing the park from the Brisbane CBD
Potential visual Impact	<p>During operation, the new Roma Street Station entrance and civic plaza would be prominent from this vantage point. The Project control centre building in front of the existing Platform 10 buildings may also be visible.</p> <p>The ventilation outlet would be visible to the right of the original State heritage listed station building. It would be about 8m in height, and would partially screen the Inner Northern Busway colonnade beyond.</p> <p>It is anticipated that the ventilation outlet would fall below the roofline of the existing buildings and would not obscure views of Mount Coot-tha.</p>
Visual sensitivity	<p><i>Medium</i> – pedestrians using the parkland are typically considered to be of high sensitivity since they are concerned with the visual quality of their surroundings. However, visitors to the Roma Street Parkland would usually access other more attractive locations within the Parkland further from the railway corridor, so this particular vantage point is assessed to be of lower sensitivity since views are likely to be transient.</p> <p>This view is also illustrative of elevated views that may be obtained from the south-facing windows of the residential apartment building overlooking the site. Whilst these viewers would be interested in the quality of their surrounds, they currently look over a railway corridor (rather than, for example, the high quality of the parkland to the north) so are also considered to be of medium sensitivity to change.</p>
Magnitude of visual impact	<p><i>Medium</i> – the new station entrance and civic plaza would create a positive civic ‘front’ to Roma Street Station, which is anticipated to enhance the townscape character of this part of the station/ parkland and result in overall improvements to the connectivity and legibility of the city centre.</p> <p>Whilst the ventilation outlet would be visible it is expected to assimilate into the existing transport corridor environment.</p>
Significance of visual impact	<i>Moderate neutral (permanent)</i>

Construction impacts

Construction impacts on landscape receptors in this precinct primarily relate to the temporary use of Emma Miller Place and Gallipoli Park. During construction, the existing trees within Emma Miller Place and Gallipoli Park would be removed. These include a number of large, mature street trees including figs and Poincianas that contribute to the character of this part of the city. The parks would also be surrounded by safety and security fencing during construction and would be temporarily inaccessible to the general public. Impacts of construction on the landscape character of CC2: Brisbane CBD would be moderate to major adverse. Construction impacts on P4: Roma Street Parkland and T3: Roma Street railway corridor would be of minor to moderate significance or below. This is primarily due to the relatively small area affected and low magnitude of change, given the relatively poor landscape quality of the directly affected areas.

Construction impacts on visual receptors in this precinct would generally be low and would vary depending on the state of construction. This largely reflects the existing views, which are of low visual amenity and sensitivity to change due to the strong influence of the transport infrastructure. Affected viewers would mainly be residents of the apartment building located between the parkland and railway corridor, who would look down onto the construction worksite and various stages of construction, including initial views of an open worksite and demolition, followed by views of the acoustic shed. Other affected viewers would include occupants of commercial properties, recreational users of the park, pedestrians and visitors. These impacts are considered to be of minor to moderate adverse significance or below, largely due to the high number of potential viewers in this central location.

Further information on the construction impacts on the Roma Street Station precinct is provided in **Appendix H**.

Lighting impacts

Without mitigation, construction lighting has the potential to temporarily impact on a small number of residents living in the apartments near to Roma Street Station. Roma Street Station and the surrounding areas is currently brightly lit at night, consistent with its inner city location. Changes to this precinct associated with construction lighting would be of minor adverse significance.

During operation, the precinct would become slightly more brightly lit immediately near the Roma Street Station, commensurate with the safety levels required to service the new station. This would have a minor to negligible neutral impact.

Further information about the Project's potential lighting impacts on the Roma Street Station precinct is provided in **Appendix H**.

13.3.8 Precinct 5: Spring Hill (Northern Connection)

The extent of works within Victoria Park at Spring Hill is shown in **Figure 13-12**. This includes the extent of above ground infrastructure as well as location of construction worksites.

Operational impacts

Landscape receptors and impacts

Direct impacts on landscape character would occur in two LCAs in this precinct – P5: Victoria Park Parklands and P6: Victoria Park Golf Course.


Landscape impacts on P6: Victoria Park Golf Course would be of minor adverse significance. This would mainly be due to the new busway connection across the ICB, which would be a noticeable new element of the landscape that would affect the open space character of the sports fields north of the ICB. The area of land not affected by permanent infrastructure would be reinstated to sports field or other similar open space use following construction.

Impacts on the landscape character of P5: Victoria Park Parklands, located south of the ICB, would be of moderate to major significance. These impacts would generally relate to the clearing of trees for construction and the presence of surface infrastructure in the rail corridor adjacent to Victoria Park. Permanent infrastructure would include the feeder station and ventilation outlet within the railway corridor adjoining the parkland and the elevated busway within the railway corridor and over the ICB. These works would have direct impacts on existing landscape elements, as well as indirect impacts on perception of naturalness within the parkland. However, over time, the significance of this impact may diminish as the reinstatement works, including landscape design and tree plantings, mature.

Table 13-16 summarises the likely impacts of the Project's operation on landscape character in this LCA.

Further information about potential impacts on landscape character in this precinct is provided in **Appendix H**.

Table 13-16 Landscape Character Area P5: Victoria Park Parklands

	
Issue	Impact on landscape values
Nature of the existing landscape	<p>Victoria Park is a regionally significant open space corridor, and is listed on the State and local heritage registers. The parkland comprises grassy slopes that fall steeply towards the ICB. There are many avenues and groups of mature trees across the site including figs, large stands of native eucalypts and the more recent planting associated with the Diamond Jubilee Walk. Many of the trees are of community value on account of their aesthetic and functional values and/ or because of community involvement in their establishment. They also provides some visual relief of the railway corridor and ICB from within Victoria Park and along Gregory Terrace.</p>
Potential landscape impact	<p>The Project would include the establishment of permanent busway and rail infrastructure that would be located within the existing railway corridor. The tunnel would emerge within the railway corridor near to the existing Land Bridge. This would involve the construction of retaining walls and transition structures. The busway would continue in structure over the rail line before crossing over ICB on bridge structure. There would be no permanent surface infrastructure within Victoria Park, south of the ICB.</p> <p>The bridge structure would result in the loss of parkland area north of the ICB (within the LCA P6: Victoria Park Golf Course described elsewhere). This area is used for playing fields, although is currently being temporarily used as workforce parking for the Legacy Way project. The bridge structure would erode the character and tranquillity of parts of the existing parkland, principally affecting the area between the Land Bridge and those areas used by Brisbane City Council and Energex at operation.</p> <p>Construction of the Project would require the removal of mature trees adjacent to the railway corridor, including stands of eucalypts near to the Brisbane City Council Field Services Group facility and mature figs adjacent to the railway corridor; although the mature trees located immediately south of the Land Bridge would be retained. A small section of the recently planted Diamond Jubilee Walk would also be removed.</p> <p>The construction worksite and cut and cover works for the tunnel and TBM retrieval shaft would also temporarily restrict access to areas of open park, south of the ICB. This includes an area of about 6,380m² south of the Land Bridge and about 17,940m² north of the Land Bridge, adjacent to the railway corridor.</p>
Landscape sensitivity	<p><i>High</i> – Victoria Park includes a large number of landscape elements of community value, including mature trees and informal green space. Accordingly it is considered to be of high sensitivity to change. This sensitivity is potentially exacerbated by previous incremental incursions into the parkland for transport infrastructure such as the ICB and Inner Northern Busway, which have affected its quality and tranquillity in parts and increased the level of community concern regarding further impacts on the remaining parkland.</p>

Issue	Impact on landscape values
Magnitude of landscape impact	<p><i>Medium</i> – although reinstatement and landscaping works would occur, there would be long-term adverse impacts on part of the parkland within this LCA due to the loss of mature trees (south of the ICB). There would be no permanent surface infrastructure within the parkland south of the ICB, although the Project would also result in the loss of a small area of playing fields within the LCA P6: Victoria Park Golf Course, north of the ICB. It is likely that the influence of transport networks on the parkland would also appear greater than is currently the case, particularly due to the presence of the busway connection over the ICB, which would intensify the perception of built transport infrastructure throughout this character area. The feeder station and other ancillary infrastructure, such as the ventilation outlet, would also be key elements that would erode the parkland character, albeit these would be sited within the existing railway corridor, adjacent to a lower lying (and therefore less prominent) part of the park. Rehabilitation of those areas affected by construction works, through a master planning process for Victoria Park, are likely to provide screening, diminishing the perception of the severity of the impact over time.</p>
Significance of landscape impact	<p><i>Moderate to major adverse (permanent)</i> noting that if appropriate new landscape design is undertaken and the associated tree planting matures there is potential for this to diminish to a <i>moderate impact</i> over time.</p>

Visual receptors and impacts

Four representative viewpoints were identified that represent impacts on viewers within this precinct. The viewpoint assessment in this precinct focuses on the views of parkland users and residents, as these receptors are considered to have a high level of interest in the visual amenity of Victoria Park.

The representative viewpoints are:

- representative viewpoint 14: Gregory Terrace, which is representative of residents overlooking Victoria Park
- representative viewpoint 15: Land Bridge (Victoria Park), which represents the views of recreational users of the parklands including pedestrians and cyclists
- representative viewpoint 16: Pedestrian path near to the dog off-leash area (Victoria Park), which also represents the views of recreational users of the parklands including pedestrians and cyclists
- representative viewpoint 17: Pedestrian bridge (Royal Children's Hospital), which represents views for pedestrians, public transport users as well as workers/ patients in the hospital buildings overlooking the park.

The greatest change to visual amenity in this precinct would relate to viewpoint 15: Land Bridge. This change would be of moderate to major significance. Changes to visual amenity from other viewpoints would generally be of moderate significance. Changes to amenity in this precinct would generally relate to impacts associated with the perceptible loss of mature trees and vegetation; the presence of new transport infrastructure within the railway corridor, which is likely to further intensify the incursion of transport infrastructure into the park; and the presence of a new busway bridge over the ICB connecting to the Northern Busway and the ICB on-ramp.

Figure 13-13 shows an illustrative sketch of the busway bridge over the ICB. The presence of ancillary infrastructure within the railway corridor such as a feeder station and ventilation outlet would also impact on the visual amenity of this precinct. **Figure 13-14** shows the existing view and illustrative sketch of the ventilation outlet at Spring Hill.

Figure 13-13 Illustrative views of the busway bridge over the ICB



Figure 13-14 Existing views and illustrative views of the ventilation outlet (Victoria Park)



The significance of these impacts is lessened by the siting of the Project in the lowest and most contained part of the parkland adjacent to the existing infrastructure. However, there is a high concentration of sensitive visual receptors in these locations, and the loss of mature trees and the introduction of new transport infrastructure would have long-term adverse visual impacts for this precinct. Over time, the significance of these impacts is likely to diminish as the tree plantings from reinstatement works mature.

Users of the ICB were considered to have low sensitivity to change because they are typically travelling at speed with only transient views and are not focussed on the quality of the landscape. However, the new bridge over the ICB and ICB on-ramp would be visible to these viewers. This infrastructure would be a typical element of the urban road network and would be consistent with the character of other road crossings in the vicinity. Accordingly the impact of the bridge is not considered significant in relation to ICB users.

Table 13-17 Representative viewpoint 14: Gregory Terrace


	
Issue	Impacts on visual values of residents
Nature of the Existing view	<p>This vantage point is illustrative of the current views of Victoria Park for residents at Gregory Terrace, Spring Hill. In the view, the eastern side of Brisbane Girls Grammar School is visible (to the left), while the RBWH is visible in the centre of the view. Gregory Terrace occupies the right of the view and is overlooked by residential properties located along this ridgeline.</p> <p>Victoria Park is the dominant element of the view, characterised by large mature trees and palms sloping steeply down before rising north of the ICB and existing rail line (not visible) to the vegetated hillsides of Victoria Park Golf Course beyond.</p>
Potential visual impact	During operation, the main effect would be the continued absence of an area of mature vegetation, required to be cleared for construction. However, following restoration of the parkland, over time this effect would diminish as vegetation matures.
Visual sensitivity	<i>High</i> – the existing residential properties have sustained quality views over vegetated parkland and are considered to have a high sensitivity to change.
Magnitude of visual impact	<i>Low</i> – the absence of trees would continue to be a noticeable change in the view, although over time there is potential for this to decline to negligible (ie barely perceptible change) as restoration tree planting undertaken following construction matures.
Significance of visual impact	<i>Moderate adverse</i> , potentially declining to <i>minor to moderate neutral</i> as planting matures.

Table 13-18 Representative viewpoint 15: Land Bridge (Victoria Park)




	
Issue	Impacts on recreational users of Victoria Park
Nature of the existing view	<p>This viewpoint is located on the Land Bridge crossing over the ICB from LCA P6 (Victoria Park Golf Course) to P5 (Victoria Park). The viewpoint is representative of views obtained from the Land Bridge, which would be experienced by cyclists and pedestrian users of the park. The bridge concentrates users so views experienced from here are likely to be of concern to the local community.</p> <p>Views are revealed sequentially when moving across the bridge. It provides a contained view across the parkland dominated by mature trees, artwork and the parapets/ safety barriers of the bridge. From other parts of the land bridge there are views of the ICB and the existing cycle network and tennis courts, as users move towards Victoria Park.</p>
Potential visual impact	<p>During operation, it would be possible to see the ventilation outlet located within the railway corridor, which would be approximately 8m high (refer to Figure 13-14). It would also be possible in some views obtained from the bridge to view the realigned bikeway, new rail lines and the new busway heading north-east on elevated structure over the rail lines within the existing railway corridor.</p> <p>Compensatory landscaping, particularly replacement of trees cleared for construction, is likely to diminish the perception of change over time, although there would be long-term reduction of naturalistic parkland landscape views over a small part of the park as experienced from this location.</p>
Visual sensitivity	<p><i>High</i> – this location is frequented by a large number of cyclists and pedestrians crossing through the parklands between land lying north and south of the ICB who are likely to be very interested in the visual quality of the parkland environment. This would include a large number of local community members who are known to be concerned about the potential for visual impacts on the parkland landscape.</p>
Magnitude of visual impact	<p><i>Medium</i> – the replacement of the existing trees with a busway in cutting and introduction of an 8m high ventilation outlet would be a change in the view; although would be experienced in the context of the existing views over the ICB and railway corridor. Over time there is potential for this impact to reduce to <i>low</i> once compensatory tree plantings mature.</p>
Significance of visual impact	<p><i>Moderate to major adverse</i> potentially declining to <i>moderate</i> as planting matures.</p>

Table 13-19 Representative viewpoint 16: Pedestrian path near to off-leash area (Victoria Park)

	
Issue	Impact on public transport users and pedestrians
Nature of the existing view	<p>This viewpoint is located on the pedestrian walkway within Victoria Park that connects the Land Bridge to the entrance of Victoria Park at Gregory Terrace.</p> <p>From this vantage point, it is possible to see the current utilitarian buildings associated with the Brisbane City Council Field Services Group, Queensland Health Biomedical Technology Services facility and, to the north, Energex substation. The Brisbane City Council facility is fenced with a chain link fence covered with shade cloth.</p> <p>Existing mature trees, predominantly native eucalypts and figs are visible and provide some integration of the buildings into their parkland setting, particularly when experienced from more distant vantage points. The buildings of the RBWH are visible on the horizon beyond.</p> <p>Whilst this area is within the parkland, this part of the park is less attractive and appears to be less well used than other areas of Victoria Park.</p>
Potential visual Impact	<p>During operation, the majority of the parkland affected by construction would be reinstated. The bus turn-back loop within the railway corridor on the southern side of the ICB would be visible. The elevated busway structure over the ICB would also be visible beyond, which would increase the presence of visible transport infrastructure in this part of the parkland.</p> <p>The existing buildings to the north of the Brisbane City Council compound would remain and revegetation, including new tree planting, would occur to assist in the integration of the buildings into the parkland setting.</p>
Visual sensitivity	<p><i>Medium</i> – people walking or cycling along this pedestrian path are likely to be park visitors who would be interested in recreation and the quality of the view.</p> <p>Although people generally do not stay for long periods in this part of Victoria Park (presumably due to the lower visual quality of the existing landscape in contrast to other areas of the park), the path is frequented by a moderately large number of cyclists and pedestrians crossing through the parklands between the entrance at Gregory Terrace and the Land Bridge/ other areas of the parkland. Users of the popular dog off-leash area would also be likely to be concerned about visual amenity in this area the parkland.</p>

Issue	Impact on public transport users and pedestrians
Magnitude of visual impact	<p><i>Medium</i> – the bus turning facility, ICB on-ramp and views to the busway structure over the ICB would result in a change in the view. This change would not be dominant because the park is already affected by the presence of utilitarian buildings in this location, so there is not a high level of contrast with the existing view, although it is anticipated that the community would consider the change to be adverse.</p> <p>The changes in the view experienced from this location would be large scale and cannot be readily mitigated, although urban design of the bridge elements and undertaking screen tree planting using fast growing species has potential to reduce the level of impact over time.</p> <p>In the longer term, the loss of trees within the parkland would appear less evident as compensatory tree plantings mature and assist in the integration/ screening of the structures within the parkland landscape.</p>
Significance of visual impact	<i>Moderate adverse (permanent)</i>

Table 13-20 Viewpoint 17: Pedestrian Bridge (Royal Children's Hospital)

	
Issue	Impact on public transport users and pedestrians
Nature of the existing view	<p>This viewpoint is located on the pedestrian walkway leading from the Royal Children's Hospital Busway Station over the Northern Busway in the vicinity of Gilchrist Avenue.</p> <p>From this elevated vantage point, it is possible to see the existing Legacy Way construction worksite in the foreground (to the right of the view) and beyond this, the rising landscape of Victoria Park, distinguished by its densely vegetated appearance. The Energex substation buildings can be discerned within the parkland, while beyond this, tall buildings in the city and Spring Hill are visible. The red tiled buildings of Brisbane Girls Grammar School are prominent on elevated land to the right of the viewpoint.</p>
Potential visual impact	<p>During operation, the view would be dominated by the busway structure over the ICB connecting the new busway with the existing busway. Much of the existing parkland in the vicinity of the Land Bridge is screened by existing trees adjoining the ICB. The bus layover at Gilchrist Avenue would be noticeable from other parts of this footpath. These can be accommodated without loss of the existing trees along this road and would assimilate into the existing landscape.</p>
Visual sensitivity	<p><i>Low</i> – people walking or cycling along this pedestrian path are likely to be focussed mostly on transit. However, some users of the pathway may also have some interest in the quality of the view, which is already affected by construction compounds and transport infrastructure. This view is also indicative of the likely worst case views from the institutional buildings overlooking Victoria Park, including the Royal Children's Hospital and RBWH.</p>

Issue	Impact on public transport users and pedestrians
Magnitude of visual impact	<p><i>High</i> – the new bridge structure would block a large portion of the view to Victoria Park beyond, representing a dominant change in the view and visual quality. However, this would be partly congruent with the existing transport infrastructure and busway structures already visible from parts of this footpath. Since it would not be possible to completely screen the new structures, mitigation would need to be focussed on enhancing the urban design quality, with involvement from the community where possible.</p> <p>In the longer term, the loss of trees within the parkland would appear less evident as compensatory tree plantings mature which would also help to assimilate the new bridge into its parkland setting.</p>
Significance of visual impact	<i>Moderate adverse (permanent)</i>

Construction impacts

Construction impacts on landscape receptors in this precinct would generally relate to construction activities south of the ICB. This includes the removal of some mature trees, including stands of eucalypts and figs located adjacent to the railway corridor near to the Energex substation and Brisbane City Council Field Services Group facility; and mature figs located south of the Land Bridge. A small section of the recently planted Diamond Jubilee Walk would also be removed. The construction worksite and cut and cover works for the tunnel and TBM retrieval shaft would also temporarily restrict access to areas of parkland, south of the ICB. This includes an area of about 6,380m² south of the Land Bridge and about 17,940m² north of the Land Bridge, adjacent to the railway corridor.

The significance of impacts on landscape receptors in this precinct would be of moderate to major adverse significance or below. This is mainly due to the sensitivity and high value of the landscape. The greatest level of impact would relate to LCA P5: Victoria Park Parklands. Construction activities would erode the parkland character and result in long-term adverse changes to the parkland environment, although maturing of compensatory plantings and landscape design would mitigate these impacts.

Construction impacts on visual receptors would primarily relate to the effect of tree loss on parkland views and the presence of plant, equipment and activities associated with the construction of the busway structure over the ICB. These impacts would have moderate impact on views from Gregory Terrace (viewpoint 14), moderate to major adverse impacts on recreational parkland viewers in the vicinity of the Land Bridge (viewpoint 15), and moderate impact on viewers near the dog off-leash area (viewpoint 16).

Further information about impacts of construction on landscape character and visual amenity within the Victoria Park precinct is provided in **Appendix H**.

Lighting impacts

Potential lighting impacts from construction are considered to be of minor to negligible adverse (temporary) impact. Sensitive receptors would be too far away from construction activities to experience impact from light spill or would be transient vehicular users of the ICB.

During operation, minor changes to lighting associated with the Project would accord with the character of the adjacent transport infrastructure and are considered to be of minor to negligible neutral impact.

Further information about the Project's potential lighting impacts on the Victoria Park precinct is in **Appendix H**.

13.3.9 Evaluation of significance

This section evaluates the Project's potential impacts on landscape and visual values.

Landscape character values

The main impacts of operation on landscape values include:

- potential neutral (or beneficial changes over the longer term) to townscape character due to the construction of new station buildings and associated landscaping at Woolloongabba, George Street and Roma Street
- initial adverse, but potential longer term enhancements to landscape character, due to:
 - works at Emma Miller Place and Gallipoli Park including potential for long-term landscape enhancement
 - civic plaza and landscape enhancement works at Roma Street Parkland, near to the new station building
 - rehabilitation works at Victoria Park, to be undertaken as part of a master planning process by Brisbane City Council in consultation with the Turrbal People and the local community
- negative impacts on the parkland character of Victoria Park south of the ICB, due to clearing of mature trees for construction, with potential for impacts to reduce in the longer term as compensatory tree planting and landscaping works mature.

The main impacts on landscape values from construction activities include:

- removal of trees and vegetation at:
 - Woolloongabba, within the construction worksite at the GoPrint building, including large mature and semi-mature stands of Silky Oak and Casuarina
 - George Street, including several semi-mature Leopard Trees near the construction worksite at 63 George Street
 - Emma Miller Place and Gallipoli Park, including a number of mature mixed feature trees such as Leopard Tree, Tuckeroo, Tulip tree, Fig tree, palms, Poinciana and Hoop Pines
 - Victoria Park, near the railway corridor and within the construction worksite, including mature figs and eucalypts, as well as recently planted trees associated with the Diamond Jubilee Walk
- temporary disruption of public access to:
 - Outlook Park, within Boggo Road Urban Village
 - Emma Miller Place and Gallipoli Park at Roma Street
 - a small section of Roma Street Parkland, near Parkland Boulevard
 - an area of Victoria Park, south of the ICB, including south of the Energex substation and between the Land Bridge and Brisbane Girls Grammar School.

Table 13-21 summarises the assessment of impacts on landscape values. The highlighted LCAs represent the most significant impacts (ie those of moderate significance or above).

Table 13-21 Summary of impacts on landscape values

Place	Significance of impact	
	Construction (short-term, temporary impacts)	Operation (long-term, permanent impacts)
Precinct 1: Dutton Park (Southern Connection)		
I2: Boggo Road Urban Village	Minor adverse	Minor to negligible adverse
T1: Eastern Busway/ Dutton Park railway corridor	Minor to negligible adverse	Minor to negligible neutral
Precinct 2: Woolloongabba Station		
I4: GoPrint	Minor adverse	Minor to moderate neutral with potential for minor to moderate beneficial longer term
Precinct 3: George Street Station		
CC2: P4: Brisbane CBD	Minor to moderate adverse	Minor to moderate adverse with potential neutral or beneficial longer term.
Precinct 4: Roma Street Station		
P4: Roma Street Parkland	Minor to moderate adverse	Minor neutral
T3: Roma Street Railway	Minor adverse	Minor neutral
CC2: Brisbane CBD (Emma Miller Park)	Moderate to major adverse	Moderate adverse potential for neutral or even beneficial longer term
Precinct 5: Spring Hill (Northern Connection)		
P5: Victoria Park Parklands	Moderate to major adverse (temporary)	Moderate to major adverse (permanent) potential to diminish to moderate over time
P6: Victoria Park Golf Course	Minor to negligible adverse (temporary)	Minor adverse (permanent)

Visual amenity values

The main impacts on visual amenity during operation include:

- potential short-term adverse views, changing to neutral or beneficial in the longer term, obtained from:
 - George Street and Mary Street, near to the George Street Station
 - within Victoria Park, and from properties at Gregory Terrace, Victoria Park Golf Course and RBWH associated with the presence of new rail and busway infrastructure, including transition structures, feeder stations and ventilation outlet within the railway corridor, bus layover area at Gilchrist Avenue, and bridge structure over the ICB
- neutral effects on views obtained from:
 - Boggo Road Busway Station, Ecosciences building, PA Hospital, and PA Hospital Busway Station, associated with the appearance of the new rail and busway infrastructure including transition structures, feeder station, ventilation outlet and bus layover area at Kent Street as the views would be consistent with the current views of transport infrastructure

- Countess Street, Parkland Boulevard and Roma Street Parkland towards the new Roma Street Station
- potential positive effects on views obtained from:
 - Leopard Street, Stanley Street, Main Street, Vulture Street and surrounding streets, associated with the construction of a new station and associated building on the current GoPrint site at Woolloongabba.

During construction potential impacts on visual values would include:

- temporary changes to views from:
 - Leopard Street, Stanley Street, Main Street, Vulture Street and surrounding streets, associated with the construction of the Woolloongabba Station on the current GoPrint Site
 - Boggo Road Busway Station, Ecosciences building, PA Hospital, and PA Hospital Busway Station, associated with construction activities at Dutton Park, particularly the presence of an acoustic shed for the loading and handling of spoil from TBM construction
 - George Street and Mary Street, associated with the demolition of the office building at 63 George Street and construction of the George Street Station
 - Roma Street, associated with the presence of a construction worksite at Emma Miller Place and Gallipoli Park
 - Roma Street Parkland, associated with construction of the new Roma Street Station
 - Victoria Park south of the ICB, Victoria Park Golf Course and RBWH associated with construction activities for new rail and busway infrastructure
- lighting impacts, including potential for light spill into sensitive areas, associated with the presence of construction worksites and construction night works.

Table 13-22 summarises the assessment of the Project's potential impacts on visual values. The highlighted viewpoints represent the most significant impacts (ie those of moderate to major adverse significance or above).

Table 13-22 Summary of impacts on visual values

Place	Significance	
	Construction (short-term, temporary impacts)	Operation (long-term, permanent impacts)
Precinct 1: Dutton Park (Southern Connection)		
Viewpoint 1: Burke Street	Minor adverse	Minor to negligible neutral
Viewpoint 2: PA Hospital busway station	Minor adverse	Minor to negligible neutral
Viewpoint 3: View from Pacemaker Café,	Minor adverse	Minor neutral
Viewpoint 4: View from Annerley Road near Dutton Park Station	Minor adverse	Minor beneficial
Precinct 2: Woolloongabba Station		
Viewpoint 5: Vulture Street	Minor to moderate adverse	Moderate neutral with potential moderate beneficial over time
Viewpoint 6: Stanley Street Commercial	Minor to moderate adverse	Moderate neutral with potential moderate beneficial over time

Place	Significance	
	Construction (short-term, temporary impacts)	Operation (long-term, permanent impacts)
Viewpoint 7: Main Street	Minor adverse	Minor neutral with potential minor beneficial
Precinct 3: George Street Station		
Viewpoint 8: George Street near Rendezvous Hotel	Moderate/ adverse	Moderate to major adverse with potential for moderate to major neutral or even beneficial over time
Viewpoint 9: George Street near City Botanic Gardens and Parliament House	Minor to moderate adverse	Moderate adverse with potential for moderate neutral or even beneficial over time
Viewpoint 10: Mary Street	Minor to moderate adverse	Moderate neutral with potential for moderate beneficial over time
Precinct 4: Roma Street Station		
Viewpoint 11: Parkland Boulevard, Roma Street Parkland	Minor to moderate adverse	Moderate neutral
Viewpoint 12: The Lookout, Roma Street Parkland	Minor to moderate adverse	Minor to moderate neutral
Viewpoint 13: Intersection of Roma Street and Countess Street	Minor adverse	Minor to negligible neutral
Precinct 5: Spring Hill (northern connection)		
Viewpoint 14: Gregory Terrace	Moderate adverse (temporary)	Moderate adverse potential minor to moderate neutral over time
Viewpoint 15: Land Bridge (Victoria Park)	Moderate to major adverse (temporary)	Moderate to major adverse (permanent) potentially declining to Moderate as planting matures
Viewpoint 16: Pedestrian path near to dog off-leash area (Victoria Park)	Moderate adverse (temporary)	Moderate adverse (permanent)
Viewpoint 17: Pedestrian Bridge (Royal Children's Hospital)	Minor to moderate adverse (temporary)	Moderate adverse (permanent)

13.4 Impact management

Mitigation measures have been developed based upon a hierarchy of:

- avoid – prevent the impact occurring, such as through site selection and siting of infrastructure.
- minimise – limit the extent of the impact, such as through minimising the height of intrusive elements.
- manage – limit the impact, such as through ongoing vegetation management or planting to restrict views.

Environmental design considerations would also be considered during the detailed design phase that would seek to minimise the Project's impacts on landscape character and visual amenity.

These are addressed further in **Chapter 18 – Draft Outline EMP** and would include consideration of:

- relevant urban design standards and policies
- relevant State and local government transport infrastructure landscaping guidelines
- station integration with existing landscape character
- management and preservation of views of places of heritage or social importance.

A summary of potential impacts on landscape character and visual amenity and proposed management measures are described in **Table 13-23**.

Table 13-23 Proposed management measures

Impact	Project phase	Management measure
<p>Clearing of vegetation and street trees for construction works and Project infrastructure at:</p> <ul style="list-style-type: none"> • GoPrint building, Woolloongabba • Mary Street and George Street • Emma Miller Place • Gallipoli Place • Victoria Park 	Construction	<p>Limit the footprint of construction worksites to the minimum necessary to safely and efficiently undertake construction works, thereby minimising the loss of significant mature trees</p> <p>Give further consideration to the protection of mature trees along the boundaries of construction worksites. For example, consider if selective trimming can be undertaken to enable trees to be maintained. Also, where possible, fence and protect trees of particular significance that fall within construction worksites and laydown areas.</p> <p>Restoration works in each place are to be developed and implemented in consultation with the Brisbane City Council.</p> <p>Undertake tree replanting to mitigate or offset the loss of vegetation in consideration of relevant Department of Transport and Main Roads (TMR) and Brisbane City Council landscaping policies where relevant. For Victoria Park, vegetation replanting would be undertaken as part of a master planning process undertaken by Brisbane City Council in consultation with the Turrbal People and the local community.</p> <p>The size of tree planting should reflect the severity of the loss and visual prominence of the location (eg advanced size trees may be able to more rapidly offset the loss in CBD locations such as Emma Miller Place and George Street). Where appropriate, tree planting should be considered at:</p> <ul style="list-style-type: none"> • Woolloongabba to support the long term vision for the precinct. • George Street and Mary Street, in accordance with Brisbane City Council policy, to replace the avenue effect and maintain a continuous streetscape character (replacement Leopard Tree planting) • Emma Miller Place and Gallipoli Place to be supportive of creating a vibrant attractive new landscape in this key inner city location (replacement planting) • Roma Street to support the long term vision for the station plaza (replanting) • Diamond Jubilee Walk in Victoria Park that were recently planted by members of the community (consider relocation, re-installation and/ or replacement of the

Impact	Project phase	Management measure
		<p>young trees).</p> <p>Replacement tree species should be selected based on current requirements (rather than necessarily an exact match of the species lost which may no longer be considered appropriate).</p> <p>A suitably qualified arborist should be consulted regarding the management of mature vegetation to be retained.</p> <p>A suitably qualified landscape architect be consulted regarding management of park access, functioning and restoration/ new landscaping proposals.</p>
<p>Temporary loss of public open space and greenspace at:</p> <ul style="list-style-type: none"> • Outlook Park • Emma Miller Place and Gallipoli Place, Roma Street • Victoria Park (large area of the park south of the Energex building and between the land bridge and Brisbane Girls Grammar School) 	Construction	<p>Minimise the extent of construction worksites where practicable to reduce the impact on the use of public open space and informal green space.</p> <p>Maintain construction worksites and boundary security fencing in good condition.</p> <p>Minimise the construction period of areas making incursions into public open space where practicable.</p> <p>Plan and execute the restoration of open spaces and areas of informal green space as rapidly as possible upon completion of the infrastructure works.</p>
<p>Potential enhanced townscape character due to the construction of new station buildings and associated landscaping in the following locations:</p> <ul style="list-style-type: none"> • Woolloongabba Station • George Street Station • Roma Street Station 	Design and operation	<p>Undertake detailed design of the station buildings to optimise the potential beneficial impacts of the Project that is complementary to the character of the surrounding townscape/ landscape (eg respects the presence of heritage buildings adjacent to the George Street site).</p> <p>The design of Project stations and their environs to provide a consistent and integrated urban design and landscaping approach, based on a water-wise, sub-tropical theme.</p> <p>The design of public spaces associated with the station precincts to be developed as part of the Project, supports neighbourhood identity, particularly in accordance with the relevant planning scheme or Neighbourhood Plan.</p>
<p>Visual impacts of Project infrastructure particularly:</p> <ul style="list-style-type: none"> • rail lines and transition structures • busways including portals and the structure over the ICB at Victoria Park. • bus layovers at Victoria Park and Dutton Park • ventilation outlets • feeder stations 	Design and operation	<p>Minimise adverse visual and landscape impacts on areas near to Project works through integration with existing built and landscape elements, and in the scale and character of the built form. Where possible, capitalise on the opportunities offered by the project to enhance landscape and visual amenity.</p> <p>Incorporate landscaping, urban design and public art treatments into Project works adjacent to public roads and thoroughfares, and visually prominent sections of the railway and busway corridor to minimise the visual impacts of Project infrastructure. At a minimum, these measures should be considered for:</p> <ul style="list-style-type: none"> • stations, station entrances, plazas • ventilation plant and outlets – with a preference to integrate ventilation outlets into buildings or other infrastructure such as lift shafts to minimise the

Impact	Project phase	Management measure
		<p>perception of impact</p> <ul style="list-style-type: none"> streetscape improvements and pedestrian links new noise barriers the Southern Connection construction worksite ventilation and emergency access building feeder stations at Dutton Park and Victoria Park busway structure over the ICB <p>Other Project infrastructure, such as pedestrian access, ventilation buildings and noise barriers, to be designed to integrate with the existing landscape and streetscape.</p> <p>The design of artwork and urban design of structures at Victoria Park would be undertaken as part of the master planning process by Brisbane City Council in consultation with the Turrbal People and local community.</p>
Impact of lighting on sensitive receptors	Construction and operation	<p>Project lighting to be designed in accordance with AS 4282-1997: Control of the obtrusive effects of outdoor lighting' and Queensland Rail's Lighting Standard for Railway Stations and the Brisbane busway design guidelines.</p> <p>Phase construction works to minimise night time impacts of lighting on residential properties where practicable. Place hoarding and visually impermeable barriers around construction worksites to minimise views of stockpiles and construction activities, particularly where construction worksites are visible to residential or recreational users.</p> <p>Where appropriate, use directionally-controlled, shielded lights that are mounted at a sufficient height to allow the light to be appropriately targeted to minimise light spill to surrounding properties, maintain safe driving conditions for motorists on adjacent roads and minimise impacts on local fauna.</p>

13.5 Summary

The Project traverses a large area of Brisbane, including beneath the Brisbane CBD. As much of the Project is underground, it would not directly affect landscape and visual values. The Project emerges to surface at five locations, including:

- Precinct 1: Dutton Park (Southern Connection)
- Precinct 2: Woolloongabba Station
- Precinct 3: George Street Station
- Precinct 4: Roma Street Station
- Precinct 5: Spring Hill (Northern Connection).

In terms of the assessment of the impact on landscape values during construction, many of the impacts would occur within existing transport corridors which are of low visual amenity and significance. The main landscape impacts identified are associated with locations where the Project impacts on parkland and open space, such as Emma Miller Place, Gallipoli Place and Victoria Park.

In particular, significant impacts are anticipated where mature parkland trees and street trees would be removed to accommodate construction worksites and/ or permanent Project infrastructure.

During operation, impacts on landscape values would be of less significance, with restoration and rehabilitation works. However, the impact on Victoria Park would be of moderate to major adverse significance in the short-term due to the loss of mature trees and cumulative impacts associated with incursions of existing transport infrastructure. Reinstatement and rehabilitation works, including tree planting, would assist in reducing potential impacts on landscape values of Victoria Park over time.

The impact on other areas of parkland, including Emma Miller Place, would also diminish over time as tree planting associated with rehabilitation matures. If landscape works are undertaken sensitively in these locations over the longer term there is even potential for landscape enhancements to these parklands. The replacement of low quality or undistinguished buildings, such as the office building at 63 George Street and GoPrint building, with new station buildings and associated civic spaces would also have beneficial effects on the landscape character of these areas.

Visual impacts during construction would be associated with the presence of acoustic sheds and enclosures at construction worksites. This is an issue of particular potential significance in areas where there are many visual receptors, such as the Brisbane CBD or where the receptors are of inherently higher sensitivity to the changes, such as recreational users of parklands, residents and visitors. Visual impacts during the construction phase are anticipated to be of moderate to major adverse significance or below, with the greatest impacts affecting users of Victoria Park. Construction would take place over five years.

During operation, it is likely that the Project's impacts on visual amenity would decrease as the infrastructure becomes assimilated into the surrounding landscape or townscape. In particular the visual amenity of some of the station precincts is anticipated to improve, through the appearance of new station buildings. Neutral or future beneficial impacts are anticipated in relation to the Woolloongabba Station, and viewpoints overlooking the new Roma Street Station. Moderate to major adverse impacts are anticipated for locations at George Street related to the presence of a ventilation outlet. Other potential moderate to major adverse impacts on views are related to the presence of busway and rail infrastructure including the new busway structure over the ICB, and feeder station and ventilation outlet within the railway corridor, adjacent to Victoria Park.

Lighting impacts have been considered, with the conclusion that without mitigation, lighting impacts during construction would be of minor to moderate adverse significance. These impacts can be minimised by employing directional construction lighting. During operation, the level of lighting would be typical of the surrounding urban area commensurate with maintaining safety and is not considered to be a significant impact with impacts of minor neutral significance anticipated.

The focus of the proposed mitigation measures is to reduce the negative impacts of the Project through minimising the extent and duration of construction impacts and minimising views into the construction worksites in order to minimise the loss of landscape features and reduce visual impacts on sensitive receptors where practicable. In addition, the mitigation measures focus on maximising the potential beneficial impacts of the project through focus on good urban, architectural and landscape design.

The Project would result in some significant adverse impacts, particularly on the Victoria Park area, as well as effecting 'neutral' changes on the character of some key sites. Many of these impacts are likely to be of particular concern to the local community. However, overall it is considered that landscape and visual amenity can be restored to acceptable and even improved levels through the implementation of appropriate mitigation measures.