CrossRiver*Rail*

9. Land Use and Tenure

Cross River Rail

CHAPTER 9
LAND USE AND TENURE

JULY 2011

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9 Land use and tenure

9.1 Introduction

This chapter addresses Part B, Section 3.3.3 of the ToR. The study corridor comprises a broad mix of land uses that reflect its inner city and inner suburban location, including residential, commercial, community, open space and light industry land uses. Densities also vary across the study corridor with the highest densities located in the Brisbane central business district (CBD) and at key employment areas such as Woolloongabba, Spring Hill and around key transport nodes.

Overall, residential use is the most prominent land use within the study corridor with key residential areas located to the north of Breakfast Creek, at Spring Hill and Yeerongpilly, east of Ipswich Road and between Stable Swamp Creek and Riawena Road. Industrial land uses are primarily located within Bowen Hills and between the existing Yeerongpilly Station and Stable Swamp Creek, while commercial uses are predominantly located within the Brisbane CBD area.

The Project would provide city-wide and local benefits through facilitating improved land use and transport integration at key locations in Brisbane's inner suburbs and by providing an accessible and efficient public transport system to support planned sustainable population growth.

In the longer term, the Project may lead to changes to the pattern of development and densities along the corridor, particularly surrounding the new stations while, in the short-term, the Project may impact land uses nearest to construction activities.

9.1.1 Methodology

The focus for this land use and tenure assessment is generally the study corridor identified for the EIS. However, consideration has also been given to land use and tenure impacts outside of the study corridor, where relevant.

The assessment involved:

- a review of the legislative framework, strategic policies and land use plans relevant to land use and development within the study corridor, including for both State and local government
- a survey of existing land uses within the study corridor
- an assessment of the potential implications for existing and likely future land uses, from the construction and operation of the Project, including land use requirements of the Project, potential constraints on or changes to existing or likely future land use and development, and opportunities for future development due to improved public transport access
- identification of measures to avoid or manage potential impacts on land use and tenure and maximise or enhance opportunities for existing or likely future land use.

Consultation with relevant State and local government agencies was also undertaken for this assessment. The outcomes of this consultation informed the assessment of existing and likely future land use and planning in the study corridor, the identification of likely impacts of the Project's construction and operation and mitigation measures.

9.2 Planning framework

Land use and development in the study corridor is guided by both State and local government legislation. This section provides an overview of the State and local planning framework relevant to the Project. Further details are also provided in *Technical Paper No. 3 – Land Use and Tenure*.

9.2.1 State planning framework

The Sustainable Planning Act 2009 (SP Act) is the primary legislation guiding planning and development within Queensland. The purpose of the Sustainable Planning Act is to manage development processes and implications of development on the environment and coordinate the integration of local, regional and state planning.

The SP Act and the *Sustainable Planning Regulation 2009* (SP Regulation) provide the overarching approvals requirements and exemptions for development within Queensland. The Project would be exempt under Schedule 4 of the regulations from assessment against the Brisbane City Plan 2000. Further information on the development approval requirements for the Project is provided in **Chapter 4 Project Description**.

The provisions of the SP Act enable the State Government to implement State Planning Policies (SPPs). SPPs establish the State Government's position in regard to planning matters of State significance and are applicable to development assessment, designation of community infrastructure and the making and amending of planning schemes across the State. A SPP prevails over a local planning instrument to the extent of any inconsistency. SPPs relevant to the Project include:

- SPP 2/02 Planning and managing development involving acid sulfate soils
- SPP 1/03 Mitigating the adverse impacts of flood, bushfire and landslide
- SPP 4/10 Healthy waterways
- SPP 5/10 Air noise and hazardous materials.

SPP 2/02 has been produced to manage development involving acid sulfate soils (ASS) in low-lying coastal areas. The SPP applies to land, soil or sediment at, or below five metres Australian Height Datum (AHD) and where natural ground level is less than 20 m AHD. It relates to development involving excavating or removing 100 m³ or more of soil or sediment or filling of land involving 500 m³ or more of material with an average depth of 0.5 m or greater.

Areas within the study corridor that may be subject to the SPP are generally located in areas close to the Brisbane River, ie Brisbane City, and Breakfast Creek, ie Bowen Hills and north to Albion, as well as areas to the west of the study corridor in the southern section near to Moolabin Creek and Stable Swamp Creek (Yeronga, Rocklea and Salisbury). Development within these areas which would disturb potential acid sulphate soils (PASS) or ASS would require an ASS management plan to be prepared which outlines the treatment and ongoing management of PASS and ASS.

Further discussion on areas of PASS and ASS is provided in **Chapter 7 Topography, Geology, Geomorphology and Soils**.

SPP 1/03 has been prepared to minimise the potential impact of natural hazards such as flood, bushfire and landslide on people, property, economic activity and the environment. The SPP is supported by 'Guideline for SPP 1/03: Mitigating the Adverse Impacts of Flood, Bushfire and Landslide' which provides advice and information on interpreting and implementing the SPP. The SPP is relevant to areas across Queensland for flood as well as areas within the Brisbane LGA for landslide and bushfire. Landslides and bushfire are not likely to be risks in the study corridor. Areas susceptible to flooding are located near to waterways, including the Brisbane River, Breakfast Creek/Enoggera Creek and Oxley Creek.

SPP 1/03 is relevant to the Project on the basis that the whole of the Brisbane City Council (BCC) local government area is listed as a natural hazard management area. Development in natural hazard management areas should be compatible with the nature of the natural hazard. Where practicable, community infrastructure should be located and designed to function effectively during and immediately after natural hazard events commensurate with a specified level of risk. The Project tunnels have been designed to achieve flood immunity for a 1:10,000 year event. Potential impacts of the Project on flooding are discussed in **Chapter 14 Flood Management**.

SPP 4/10: Healthy Waters seeks to ensure development for urban purposes, including community infrastructure, is planned, designed, constructed and operated to manage stormwater and waste water in ways to help protect the environmental values specified in the *Environmental Protection (Water) Policy 2009* (EPP (Water)). The SPP is consistent with and reflects *the South East Queensland Regional Plan 2009-2031* (SEQ Regional Plan), which provides for the adoption of water sensitive design for achieving water quality objectives as set out in the EPP (Water). The SPP is applicable where development involves:

- stormwater management
  - a material change of use for urban purposes that involves greater than 2,500 m² of land
  - reconfiguring a lot for urban purposes that involves greater than 2,500 m² of land and results in an increased number of lots or is associated with operational works
  - operational works for urban purposes that involve disturbing greater than 2,500 m² of land
- waste water management for industrial or commercial development
  - a material change of use for urban purposes involving waste water discharge
  - reconfiguring a lot for urban purposes involving waste water discharge
  - operational works for urban purposes involving waste water discharge
- community infrastructure involving any development described previously.

The SPP does not apply to development that involves making a material change of use of premises for an environmentally relevant activity, a material change of use or operational works made assessable by Schedule 3 of the Sustainable Planning Act or building work that is assessable only against the *Building Act 1975.* As the Project would be exempt from assessment against the City Plan, the application of this SPP would be limited. However, the SPP may apply to a number of the development requirements outlined in **Appendix D**.

The SPP 5/10 for Air, Noise and Hazardous Materials, which took effect on 2 May 2011, plans for and manages the appropriate assessment of any potential impacts of industrial air and noise emissions on human health and well-being. If assessment against the SPP is required, the relevant Project component would need to consider its proximity, orientation and design in order to protect the environmental values and human safety from industrial air and noise emissions and impacts from hazardous materials.

South East Queensland Regional Plan 2009-2031

The SEQ Regional Plan is the pre-eminent regional planning document for South East Queensland. The Plan has statutory force, in accordance with the SP Act and provides a strategic planning framework for the sustainable management of growth and development for the region to 2031 and beyond.

The SEQ Regional Plan outlines a regional vision for South East Queensland that is supported by nine strategic directions to achieve the preferred pattern of development for the region. The strategic directions relevant to the Project include:

- creating a more sustainable future
- accommodating future residential and employment growth
- regional accessibility
- building a series of strong, identifiable communities
- providing infrastructure and services
- supporting strong, healthy communities.

Supporting the regional vision, the SEQ Regional Plan identifies a regional land use pattern, which provides a spatial context for both the strategic direction and the regulatory provision of the Plan. The study corridor is located within the urban footprint area which identifies land to be developed for urban purposes to meet the land requirements for development in the region to 2031. The Project is consistent with the intent of the urban footprint designation.

The SEQ Regional Plan contains regulatory provisions to ensure that the strategic directions are implemented through the planning and decision making processes. The regulatory provisions for the Plan primarily relate to controlling development outside of the urban footprint area.

Generally, the Project supports the desired regional outcomes of the SEQ Regional Plan by addressing capacity constraints in Brisbane's inner city rail network, improving public transport movement and accessibility to identified high growth areas. In particular, the Project:

- supports the sustainable growth of South East Queensland by reducing the demand for private vehicle transport
- integrates land use and transport, supporting high growth areas within South East Queensland and areas of increased urban density along the study corridor, including in the Brisbane CBD and at Bowen Hills, Woolloongabba, Boggo Road, and Yeerongpilly through the provision of frequent and efficient public transport connections
- provides improved public transport access for communities in the South East Queensland Region, including to regionally significant employment areas, such as the Brisbane CBD, Royal Brisbane and Women's Hospital (RBWH), Princess Alexandra Hospital (PA Hospital), Mater Hospital, Boggo Road Ecosciences Precinct, Bowen Hills, Queensland University of Technology (QUT), and Yeerongpilly transit oriented development (TOD)
- support economic development in South East Queensland by facilitating improved rail freight movements to the Port of Brisbane and providing improved access to regionally significant employment areas
- provides integration with existing public transport services such as busway and rail networks as well as active transport networks.

The relevant desired regional outcomes to the Project are described in further detail in *Technical Report No. 3 – Land Use and Tenure*.

As the Project has been declared a significant project under section 26(1)(a) of the *State Development and Public Works Organisation Act 1971*, the State planning regulatory provisions of the SEQ Regional Plan do not apply.

South East Queensland Infrastructure Plan and Program 2010-2031

The SEQ Regional Plan is supported by the *South East Queensland Infrastructure Plan and Program 2010-2031* (SEQIPP). The SEQIPP is a statement of the State Government's proposed investment commitments and timing for major infrastructure and identifies the infrastructure required to 2031 to realise the preferred pattern of development projected by the SEQ Regional Plan. Investment in transport infrastructure is a key aspect of the SEQIPP. The key principles of the SEQIPP that underpin regional transport investment are:

- land use and planning – reducing the need for travel through integrated planning
- pricing and travel demand – applying travel demand management measures to reduce private vehicle transport
- travel options – creating a public transport and active transport network that is accessible, frequent and reliable
- efficiency – maximising the efficiency of existing transport infrastructure
- capacity – building on existing infrastructure investment through upgrades and extensions.

The SEQIPP seeks to build on additional infrastructure investment by providing more public transport such as rail upgrades and extensions and station upgrades. Priority infrastructure projects include provision for improved rail capacity and reliability including new rolling stock and a program of station and line upgrades.

The initial studies and the Project are identified in the SEQIPP as key public transport network projects for the Greater Brisbane area.

Draft Connecting SEQ 2031: An Integrated Regional Transport Plan for South East Queensland

The draft *Connecting SEQ 2031: An Integrated Regional Transport Plan for South East Queensland* (Connecting SEQ 2031) is a long term planning document that will assist in the delivery of a sustainable, multi-modal transport network within South East Queensland. This Plan guides the prioritisation of available funds for transport projects and will inform the development and annual revisions of the *Queensland Infrastructure Plan* (due for release in 2011/2012).

The Project is identified within Connecting SEQ 2031 as a key action to completing an integrated transport network. Within the document, the majority of the Project's corridor is identified as a priority transit corridor. Priority transit corridors have been identified within inner Brisbane to connect a large number of specialist and general employment precincts and other major destinations, such as hospitals and universities. Connecting SEQ 2031 identifies that priority transit corridors generally contain areas where significant land use planning has been undertaken and the building stock is predominately suitable for redevelopment, therefore enabling land use change in the short term.

River City Blueprint

River City Blueprint is currently being developed by BCC, in partnership with the Queensland Government, to guide the future development of inner Brisbane to 2031 and beyond. The River City Blueprint is an outcome of the Smart Cities: Rethinking the City Centre report, which was released by the State Government in 2007 and identifies more than 30 current and prospective urban renewal and transport projects within Brisbane's inner suburbs. The River City Blueprint will form a strategic and integrated plan that considers existing plans, major developments and strategies within five kilometres of the Brisbane CBD.

The release of the River City Blueprint was originally scheduled for mid-2011. However, this has been delayed due to the January 2011 flood event. A new timeframe for the release of the document is yet to be announced.

The draft River City Blueprint addresses a number of land use and development issues, such as:

- provision of new housing and commercial development
- design of the inner city to support sustainable subtropical lifestyles
- new public transport systems and river crossings
- encouragement of knowledge-based industries and collocation with existing research and cultural facilities
- provision of social infrastructure.

Key public transport and active transport connections are also identified throughout the inner city area.

The Project supports the densification and consolidation of land uses within the inner city through the provision of improved public transport access to the Woolloongabba urban development area (UDA), Bowen Hills UDA and development in areas such as Spring Hills, Bowen Hills, Woolloongabba and Kangaroo Point.

Urban Land Development Authority Act 2007

The *Urban Land Development Authority Act 2007* (ULDA Act) provides for particular parts of the State to be declared as urban development areas and establishes the ULDA to manage and carry out development within defined UDAs.

Fourteen sites across Queensland have been declared as UDAs, of which the Bowen Hills and Woolloongabba UDAs are located within the study corridor.

An urban development scheme has been prepared for the Bowen Hills UDA to facilitate a coordinated approach to development in this area over a 10-15 year development horizon and ensure a development outcome that is consistent with surrounding land uses and activities.

Development within the UDA is to provide for a range and mix of uses, including residential, commercial, retail and community/recreational uses. The Bowen Hills Urban Development Scheme aims to maintain the existing function of the RNA Showgrounds for major events, supported by new mixed use development activities. High intensity development areas are also identified between Gregory Terrace and Wall Street and moderate intensity areas adjacent to O'Connell Terrace and Bowen Bridge Road and between Perry Park and the Inner City Bypass (ICB).

The redevelopment of the existing Exhibition Station is not included in the development scheme. However, the scheme identifies development setbacks to allow future rail requirements and consideration is given to the heritage values of the existing station.

Development surrounding the existing Exhibition Station is to establish uses that activate the area and generate year-round activity, including residential, retail and entertainment uses.

The Project would allow integration with proposed development within the Bowen Hills UDA, and would provide increased rail services in the short-term to support nearby development.

The RNA Showgrounds, including the existing Exhibition Station, are located within the Bowen Hills UDA. A master plan has been prepared to guide redevelopment of the RNA site. Key objectives of the master plan seek to ensure that the inherent character of the Ekka and its experiences are preserved and that redevelopment occurs without detracting from the RNA Showgrounds. Retaining buildings and spaces which are of high heritage value, either in their own right or as an integral part of the Ekka experience is also identified as a key objective. The master plan also seeks to take account of the influences of a range of major changes in the RNA Showgrounds context associated with transport and traffic infrastructure, and with urban development.

A development application has been approved for the RNA Showgrounds, which involves demolition of some existing buildings and the addition of between 310,000 to 340,000 m^2 of gross floor area of mixed use development. A new street network is proposed to facilitate improved access through the site. This includes a north-south link which connects St Pauls Terrace and Gregory Terrace (Grand Parade), as well as a plaza linking Gregory Terrace and the existing Exhibition Station, south of Show Ring 1. A range of mixed use precincts are proposed around the street edges, specifically O'Connell Terrace, Exhibition Street, the proposed Grand Parade, Costin Street and Constance Street.

The redevelopment of the RNA Showgrounds would impact on heritage buildings and structures, although some heritage elements are to be retained to mitigate the loss of the precinct's heritage values. Cumulative impacts on the heritage values of the RNA Showgrounds associated with the Project and the redevelopment of the Showgrounds site is addressed in **Chapter 19 Non-Indigenous Cultural Heritage** and **Chapter 23 Cumulative Impacts**.

The staged development of the site is intended to occur from 2012 to 2020, as outlined in **Table 9-1**.

Table 9-1 RNA proposed development

Location	Land use type	Timeframe
Grand Parade/Gregory Terrace	Market	2012
Gregory Terrace	Industrial pavilion	2012
O'Connell Terrace (adjacent Show Ring 1)	Cattle Pavilion	2012
Main Street	Retail	2012
Constance Street /Grand Parade (proposed new road)	Residential	2012-2013
Grand Parade/Main Street (proposed new road)	Commercial	2012-2017
Grand Parade/Gregory Terrace	Hotel etc.	2014
Sutton Street (proposed new road linking Grand Parade and Gregory Terrace)	Residential	2015-2018
O'Connell Terrace (western end)	Medical	2019-2020
O'Connell Terrace/Gregory Terrace (eastern end of O'Connell Terrace in front of the proposed Cattle Pavilions and Exhibition Buildings)	Residential	2019-2021

Source: Royal National Agricultural and Industrial Association of Queensland and Lend Lease (2010), RNA Showgrounds Development Application, Volume 3

A large proportion of the site would be developed prior to the commencement of the Project's construction. Ongoing consultation with the RNA and Lend Lease would be undertaken to manage development of the RNA Showgrounds and construction of the Project and to avoid or minimise potential impacts for future development.

A Development Scheme has been developed for the Woolloongabba UDA. The Scheme identifies the site as a future urban transit oriented precinct, containing a range and mix of residential, community, recreation and commercial uses, which is well connected to existing and planned transport infrastructure. Planning for the Project has been undertaken concurrently with the Woolloongabba UDA to maximise opportunities for the integration of transport and land use. Key aspects of the Development Scheme include a major public transport interchange incorporating the existing Bowen Hills Station and new bus stops and 20-30 storey development located in areas with easy access to the Bowen Hills Station to support the investment in public transport infrastructure. A centre core of parkland and urban plaza is also proposed to accommodate a range of community and recreational uses.

Yeerongpilly TOD Concept Plan

The proposed Yeerongpilly TOD is located on land previously occupied by the Department of Primary Industries Animal Research Institute, east of Fairfield Road. A concept plan of development has been developed for the site. This generally provides for commercial and retail development of six to nine storeys adjacent to Fairfield Road and residential development to the south of the site ranging from two to four storeys to nine to12 storeys. Improvements to local access and connectivity are also proposed through the construction of new roads or the realignment or relocation of existing roads and provision of a pedestrian overpass across Fairfield Road, linking to the existing Yeerongpilly Station (now complete).

The first release of land has been released to the market for development and development applications lodged with BCC for several sites. It was anticipated that a portion of the site would be developed prior to construction of the Project. However, the effect of the January 2011 flooding in the Brisbane River has caused the development scope and programme to be revised.

Improved public transport services achieved through the development of a new station at Yeerongpilly would support the transit oriented function of the Yeerongpilly TOD.

9.2.2 Local planning framework

At a local level, land use and development within the study corridor is guided by:

- Brisbane CityShape Implementation Strategy, which sets out a local implementation strategy for the provisions of the SEQ Regional Plan
- Brisbane City Plan, which guides and controls land use and development within the Brisbane City local government area (LGA), providing the strategic planning direction for the LGA as well as local development direction through local and neighbourhood plans
- BCC local laws, which govern and regulate certain activities within the local government area such as parking, noise and vegetation.

While Schedule 4 of the SP Regulation exempts the Project from assessment against the City Plan, consideration of local planning frameworks is required by the ToR for the EIS.

Brisbane City Plan 2000

The City Plan provides the strategic planning direction and statutory land use and planning guidance for future development within Brisbane. The Plan comprises the Strategic Plan, area plans and local plans.

The Strategic Plan sets out the broad planning policy for the LGA and the overall land use structure for the City. It comprises a vision and desired environmental outcomes (DEOs) and strategies. BCC's vision for Brisbane to be "the most liveable and progressive city in the Asia-Pacific Region", providing an enhanced quality of life for residents, a living environment based on the City's sub-tropical character, and access to a wide range of services and public transport facilities. The vision also seeks to ensure the coordinated, integrated, efficient and equitable distribution of infrastructure.

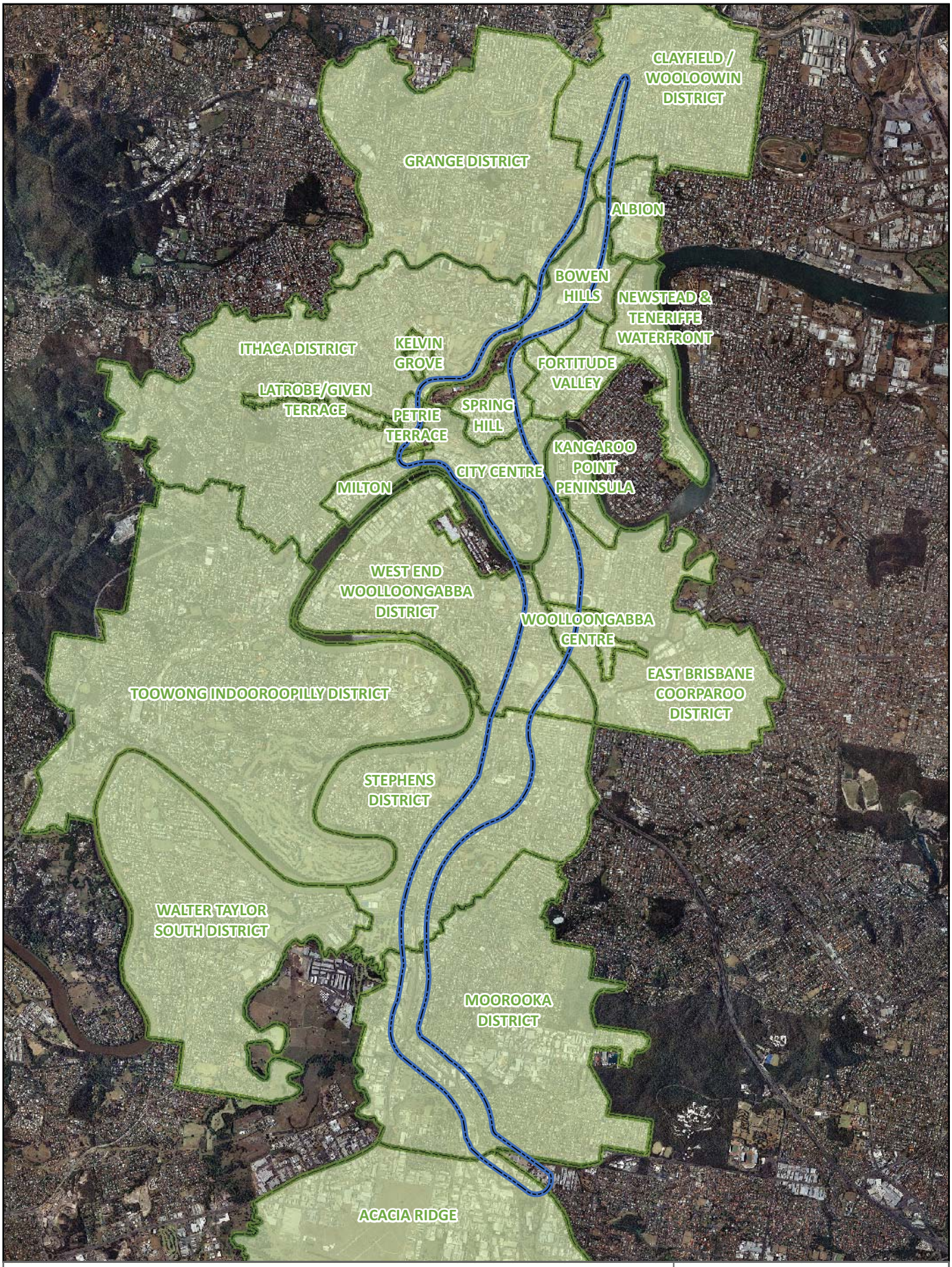
The vision provides the foundation for the DEOs which set out the broad city-wide development intentions for the city. Those DEOs relevant to the Project relate to:

- community life, health and safety, which seeks to achieve a safe, health and vibrant place to live, offering a wide range of local and regional services, facilities and activities
- land use and built environment, which seeks to achieve a land use pattern and built environment that promotes the City's unique environment, topography and urban layout and which features a sustainable network of residential areas, centres, employment areas and transport links
- access and mobility, which aims to achieve an efficient transport system that promotes a compact urban structure and less reliance on private motor vehicles, and which allows people and goods to move safely, economically, equitably, comfortably and conveniently.

Local and neighbourhood plans

The City Plan comprises a range of local plans and neighbourhood plans which provide detailed guidance on planning and land use for the future development of specific localities across the City. The study corridor is covered by a number of local and neighbourhood plans as shown in *Technical Report No. 3 – Land Use and Tenure.*

The planning and land use intent for each of the relevant local and neighbourhood plans is summarised in **Table 9-2**. Further information is also provided in *Technical Report No.3 – Land Use and Tenure.* Local Area Plans are shown on **Figure 9-1**.



LEGEND

- Study Corridor
- Local Area Plan Boundary

CROSS RIVER RAIL
ENVIRONMENTAL IMPACT STATEMENT

Figure 9-1

Local Area Plan Boundaries

0 0.5 1 1.5 2 2.5 km

1:75,000 at A4

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CrossRiverRail

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Table 9-2 Local and neighbourhood plans

Local and neighbourhood plan	Planning and land use intent
Bowen Hills Local Plan	This area has also been identified as the Bowen Hills UDA. Capitalising on the area's proximity to the Brisbane CBD and Fortitude Valley, the Local Plan proposes intensification of land uses, particularly around transport nodes. Major sites in the local plan area include RNA Showgrounds and Mayne Rail Yard. Growth and development associated with the RBWH is also expected. A large portion of this local plan is occupied by the Bowen Hills UDA and as such, is subject to the planning intent established by the ULDA.
Petrie Terrace and Spring Hill Local Plan	This Local Plan identifies the need to protect the large number of buildings with cultural or historical significance in this area from demolition and unsympathetic development. Further encouragement of residential uses is proposed within the area through suitably located high density residential development, which maintains the area's character. Commercial development should not occur outside areas designated as city centre or other areas that are not well served by both bus and rail.
Ithaca District Local Plan	Commercial and light industrial uses are to be primarily located between Milton Road and the Brisbane River within the north Milton industrial precinct. Further commercial development is also proposed for the area immediately north and west of Victoria Park around the existing sites of RBWH and QUT's Kelvin Grove Campus. Residential development within the District is primarily established as character 'timber and tin', single lot dwellings.
City Centre Neighbourhood Plan	Land use planning for the City Centre encourages development of high density commercial and residential areas, complemented by a vibrant retail core and high level recreational and entertainment uses. The Neighbourhood Plan does not enforce a maximum building height, unless a building is located in a sensitive area (eg adjacent to a heritage place). A number of sites have been identified as strategic redevelopment areas and are earmarked as potential office development or hotel development. Whilst reinforcing the major high rise commercial areas and supporting intensity of uses, development must also maintain the character and integrity of heritage places located in the City Centre. Additionally, development must also support reduced dependence on private vehicles through high quality pedestrian connections and access to public transport. The Plan also establishes a number of special context areas, which comprise places of historical and cultural significance or areas that offer future development opportunities. These include North Bank, Town Reach, Central Station Plaza and Countess Street and Roma Street Station. Countess Street and Roma Street Station provide opportunity for development to strengthen the connection between the City Centre and surrounding areas with development to reflect the area's purpose as a transition zone between the City and the inner urban suburbs.
East Brisbane/Coorparoo District Local Plan	The key development principles of the Local Plan are to protect the existing significant character housing and areas with environmental values, whilst also maintaining a wide range of residential and commercial uses and improving vehicle and pedestrian/cycle access throughout. Centres such as Coorparoo Junction and Stones Corner will remain as important places across the District for employment, retail and social purposes.
Woolloongabba Centre Neighbourhood Plan	The Woolloongabba Centre Neighbourhood Plan proposes significant local planning and land use changes including development of an intensive core area at the intersection of Logan Road and Jurgens Street, containing a mix of uses with heights of up to 20 storeys. Residential uses offering a mix of housing types are to continue to be located at Woolloongabba Hill, with intensification of uses in this area up to four storeys. Logan Road and Stanley Street are to continue to develop through a mix of uses, with intensification of this area supported to building heights of six to eight storeys.
West End-Woolloongabba District Local Plan	Significant local planning improvements are proposed by the local plan for major sites within the study corridor. The current Goprint site is identified for potential future redevelopment to capitalise on its proximity to the Woolloongabba busway station to allow for a mix of uses, including high density residential development. This is proposed to be progressed through the ULDA's Woolloongabba UDA. The Buranda residential precinct located adjacent the PA Hospital, is to provide medium density residential development, offering a range of housing types.

Local and neighbourhood plan	Planning and land use intent
Stephens District Local Plan	The Stephens District Local Plan identifies the need to provide further residential development through redevelopment of sites such as Boggo Road Gaol and Tennyson power station. Development is to be sympathetic to the existing character housing that is prevalent throughout the District. These sites are also to be supported by public transport. Ipswich Road will continue to be a location for more intensive residential and commercial/retail development.
Moorooka District Local Plan	The Moorooka District Local Plan identifies areas of character residential properties that should be retained. The local plan identifies that future residential development should be developed in a way that contributes to the character of the area, while also being diverse enough to meet the needs of the community. Significant environmental features such as Rocky Waterholes Creek and Stable Swamp Creek are to be preserved for their ecological and recreational values. Views from within the area to other environmental features such as hills or ranges, or to the city centre, are to be preserved and complemented through landscape amenity improvements. These include green, leafy streets and attractive commercial and industrial areas.
Acacia Ridge Local Plan	The Acacia Ridge area is dominated by Archerfield Airport. Future residential development within this area is to consider potential sensitivity implications of being located within close proximity to the airport, light and medium industrial uses. Environmentally sensitive areas around Blunder Creek and Oxley Creek are to be protected from intensive industrial activities. The Local Plan encourages the provision of active transport networks.

Overall, the Project is consistent with the intent of the local and neighbourhood plans covered by the study corridor and generally supports those areas identified for increased residential and commercial development at Bowen Hills, Brisbane CBD, Woolloongabba, Boggo Road and Yeerongpilly, through the provision of improved public transport access.

Area designations

The City Plan sets out development intentions and DEOs for each area and identifies the intended pattern of development to be achieved. This area classification is identified on the planning scheme maps within the City Plan.

Planning scheme area classifications for the study corridor are shown on **Figure 9-2** to **Figure 9-5** and are outlined in **Table 9-3.**

Table 9-3 City Plan area designations

Area	Purpose/intent	Project relevance
Character residential	Character residential areas primarily accommodate pre–1946 houses. Key character residential precincts located within the study corridor are located in areas of Spring Hill, Woolloongabba and Fairfield. Character residential areas are included in the demolition control precinct.	Character and low density housing areas located in areas adjacent to or in close proximity to rail stations serviced by the Project may eventually be redeveloped at higher densities to benefit from increased transport connectivity. Character and low density areas located in areas that are removed from rail infrastructure are unlikely to experience changes in density. This is a result of existing planning provisions that seek to retain traditional housing stock and character and to maintain the low density urban form.
Low density residential	Predominantly comprised of detached houses, one or two storeys in height. Prominent low density areas within the study corridor are located within Albion/Wooloowin.	

Area	Purpose/intent	Project relevance
Low-medium density residential	The low–medium density residential areas contain a mix of houses up to two storeys, two and three storey multi–unit dwellings and single unit dwellings. Land in this area is located in those parts of the city that are close to public transport networks or centres. Low-medium density areas within the study corridor are the primary residential classification within the study corridor.	Low-medium density areas, predominantly located within Yeronga and Yeerongpilly may experience pressure to be redeveloped at higher densities as a result of improved access to public transport. This is specifically relevant to areas close to the new Yeerongpilly Station.
Medium density residential	Medium density residential areas are located in near City locations with good access to public transport and centres. Medium density residential areas will accommodate single unit dwellings and multi–unit development up to five storeys. Medium density residential areas are primarily located within Kangaroo Point and Woolloongabba within the study corridor.	Areas classified as medium or high density residential are unlikely to change as a consequence of the Project.
High density residential	High density residential areas are located close to the city with very good access to public transport and facilities. High density residential areas are in locations with outstanding views to the central city or Brisbane River. High density residential areas are primarily located within Kangaroo Point and Spring Hill within the study corridor.	
Special purpose centre	Special purpose centres provide for particular major activities. Each special purpose facility is designated differently within the scheme determined by the purpose of the development. The study corridor contains a number of special purpose centres including: • SP1 – Major Hospital and Medical Facility (including the Princess Alexandra Hospital (PA Hospital) and RBWH), • SP2 – Major Education and Research Facility (including QUT Gardens Point) • SP4 – Major Sporting Stadium (Gabba Stadium) • SP5 – Entertainment Centre (RNA Showgrounds) • SP8 – Major Residential Institution (Albion) • SP13 – Office Park (Bowen Hills)	A number of special purpose centres with high travel demands would benefit from the improved public transport accessibility provided by the Project, including: • RBWH • RNA Showgrounds during major events • office park located to the south of Mayne Rail Yard • Gabba Stadium during events • PA Hospital • Moorooka car sales and service area along Ipswich Road These area classifications are unlikely to change as a consequence of the Project.

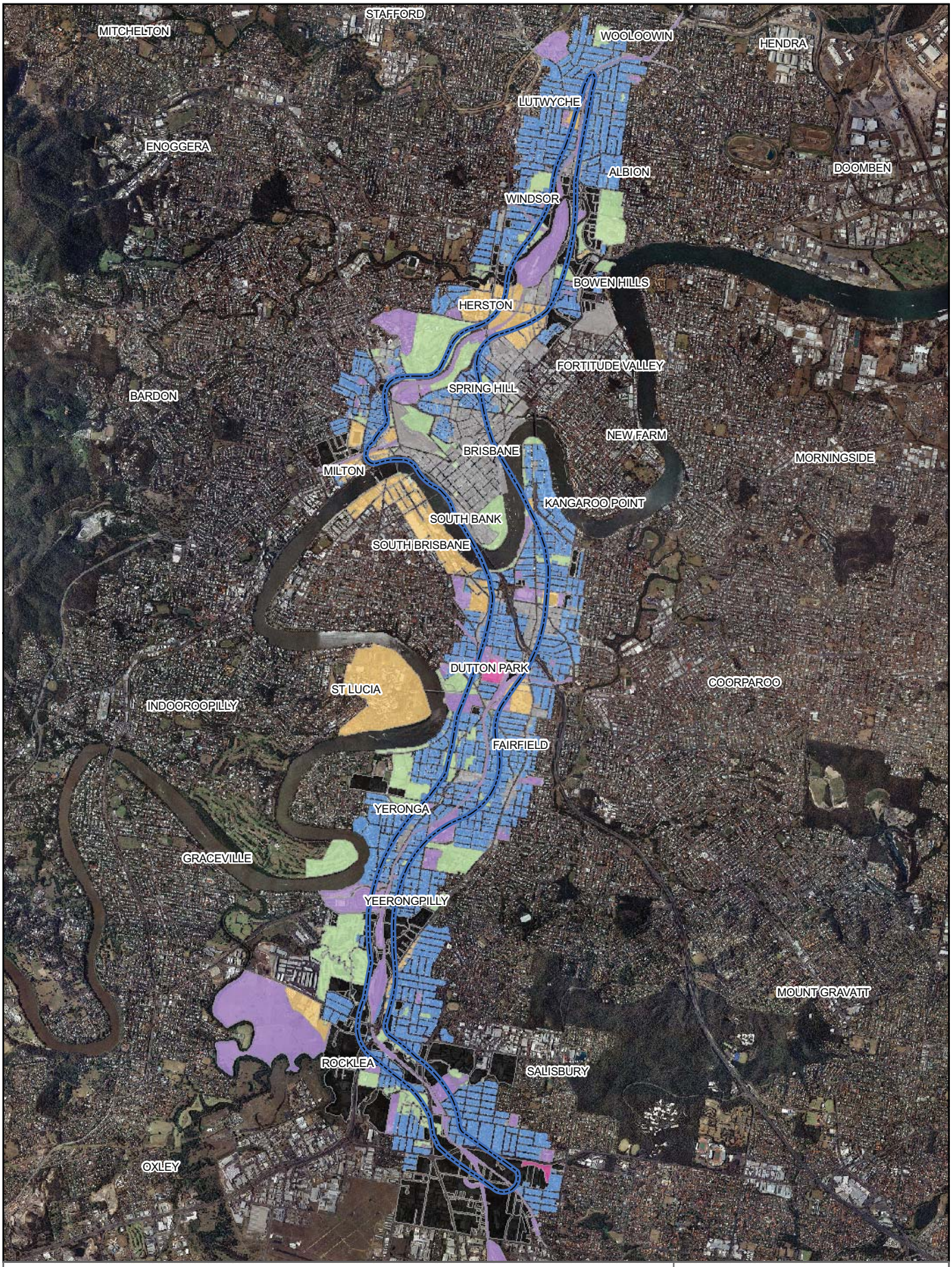
Area	Purpose/intent	Project relevance
Multi-purpose centre (MP1) city centre	The political, administrative, economic and social heart of Brisbane	A number of multi-purpose centres with high travel demands would benefit from improved public transport accessibility provided by the Project, including: • city centre (MP1) • major centre (MP2), includes areas in Bowen Hills, Spring Hill and Woolloongabba • suburban centre (MP3) These area classifications are unlikely to change as a consequence of the Project.
Multi-purpose centre (MP2)	The major concentrations of centre activities outside the city centre. Major centres are located at Spring Hill and Woolloongabba on the outskirts of the Brisbane CBD.	
Multi-purpose centre (MP3) suburban centre	Characterised by small tenancies within a limited area, or lower density larger tenancies over a broader area. They generally provide a variety of services and contains more than 6,000 m^2 of gross floor area MP3 areas include Spring Hill, Fairfield, Bowen Hills, Albion and Yeronga.	
Multi-purpose centre (MP4) convenience centre	Characterised by smaller centres providing local services within walking distance of residents. They generally contain less than 6,000 m^2 of gross floor area. MP4 areas include Dutton Park.	
Emerging community	Areas containing land suitable for future urban development. Land within emerging community areas require the preparation of a neighbourhood structure plan before development can occur. Emerging communities areas are located in Dutton Park.	Future urban development within this area would be supported by improvements to public transport access as a result of the Project's station at Boggo Road.
Community use area	Land in the community use area may be either privately or publicly owned and accommodates a range of community uses. Community uses are designated differently within the scheme, determined by the purpose of the development. The study corridor contains a number of community use areas including: • CU1 – Cemetery (Brisbane South Cemetery) • CU2 – Community facilities (such as religious facilities) • CU4 – Education purposes • CU5 – Emergency services (including ambulance stations etc) • CU7 – Railway activities • CU8 – Utility installation	With exception to community use areas that may be acquired for the Project, it is unlikely changes to these classifications would occur due to the Project.

Area	Purpose/intent	Project relevance
Park land	Characterised by informal open air recreation and outdoor cultural and educational activities. Areas may also provide opportunities for informal sports or other events on a casual basis. Major areas include Victoria Park and Roma Street Parkland.	Park land and sport and recreation areas are unlikely to change as a consequence of the Project. A small area of park land within Victoria Park would be acquired for the Project.
Sport and Recreation	Provides for more formal sport and recreation and may include club buildings and associated off-street parking facilities.	
Light industry	Comprises industries and warehousing that has low environmental impact.	Industrial areas within Yeerongpilly would be acquired for the construction and operation of the Project. Following construction, there may be pressure to redevelop land surplus to the Project for non-industrial urban development to capture the benefits of improved public transport access. This would be subject to a separate planning process.

Local laws

Local laws are adopted by councils as a means to having a greater level of protection over particular places or activities. Local laws are administered under the *Local Government Act 2009*. They provide local governments with the ability to establish permit or licence regimes for activities they seek to regulate, to create offences for unacceptable behaviour and to allow for the issue of compliance or abatement notices.

BCC currently has 35 local laws and six subordinate local laws. Local laws relevant to the Project are discussed further in **Chapter 4 Project Description**.



LEGEND

- Study Corridor

Area Classification

- Community Use Areas
- Emerging Communities
- Green Space Areas
- Industrial Areas
- Investigation Area
- Multi Purpose Centres
- Residential Areas
- Special Purpose Centres

CROSS RIVER RAIL
ENVIRONMENTAL IMPACT STATEMENT

Figure 9-2

Area Classifications - Overview

0 0.5 1 1.5 2 2.5 km

N

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LEGEND

- Study Corridor

Area Classification

- Community Use Areas
- Emerging Communities
- Green Space Areas
- Industrial Areas
- Investigation Area
- Multi Purpose Centres
- Residential Areas
- Special Purpose Centres

CROSS RIVER RAIL
ENVIRONMENTAL IMPACT STATEMENT

Figure 9-3

Area Classifications (Northern Section)

0 0.25 0.5 0.75 1 km

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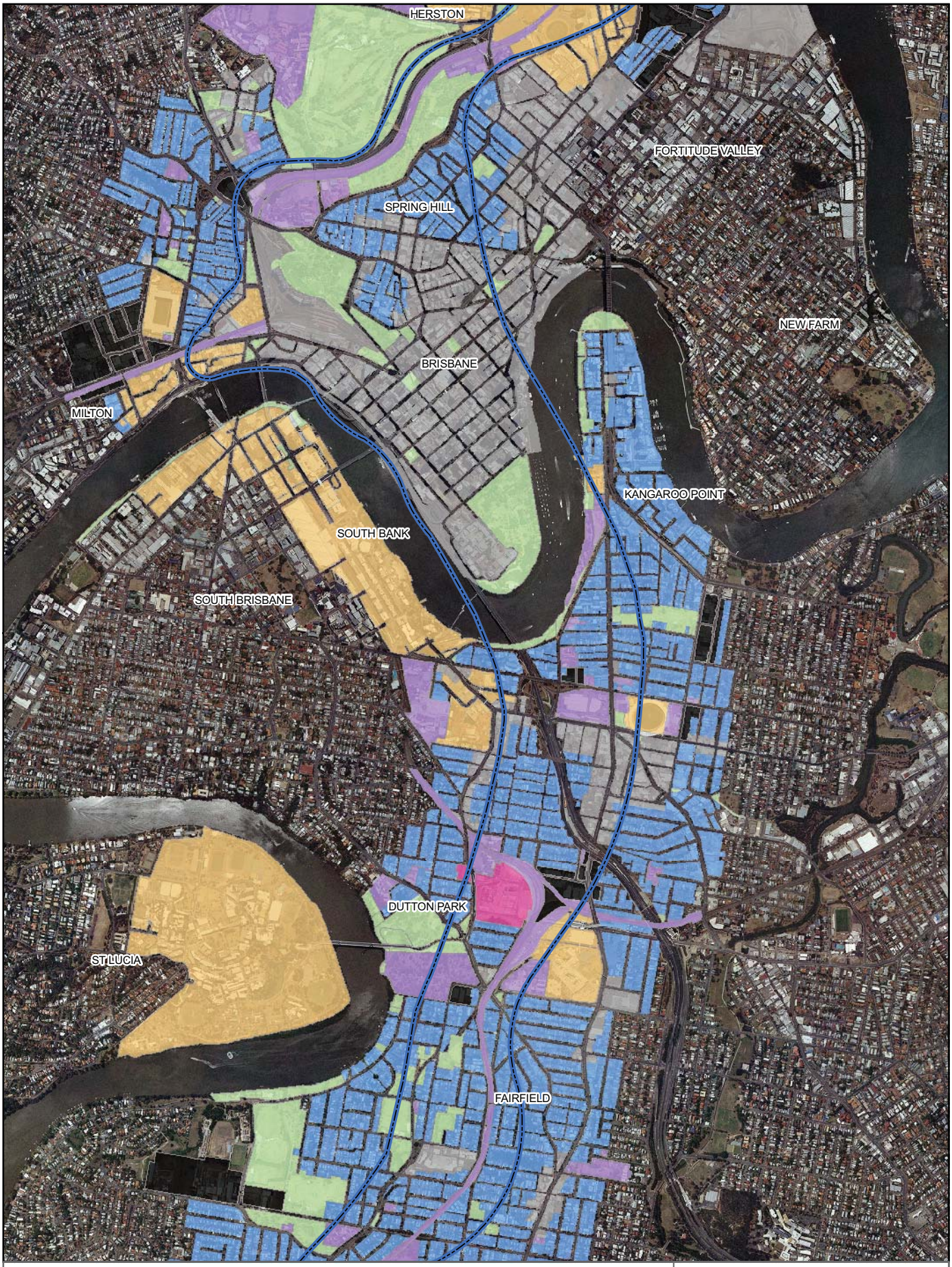

LEGEND

- Study Corridor

Area Classification

- Community Use Areas
- Emerging Communities
- Green Space Areas
- Industrial Areas
- Investigation Area
- Multi Purpose Centres
- Residential Areas
- Special Purpose Centres

CROSS RIVER RAIL
ENVIRONMENTAL IMPACT STATEMENT

Figure 9-4

Area Classifications (Central Section)

0 0.25 0.5 0.75 1 km

N

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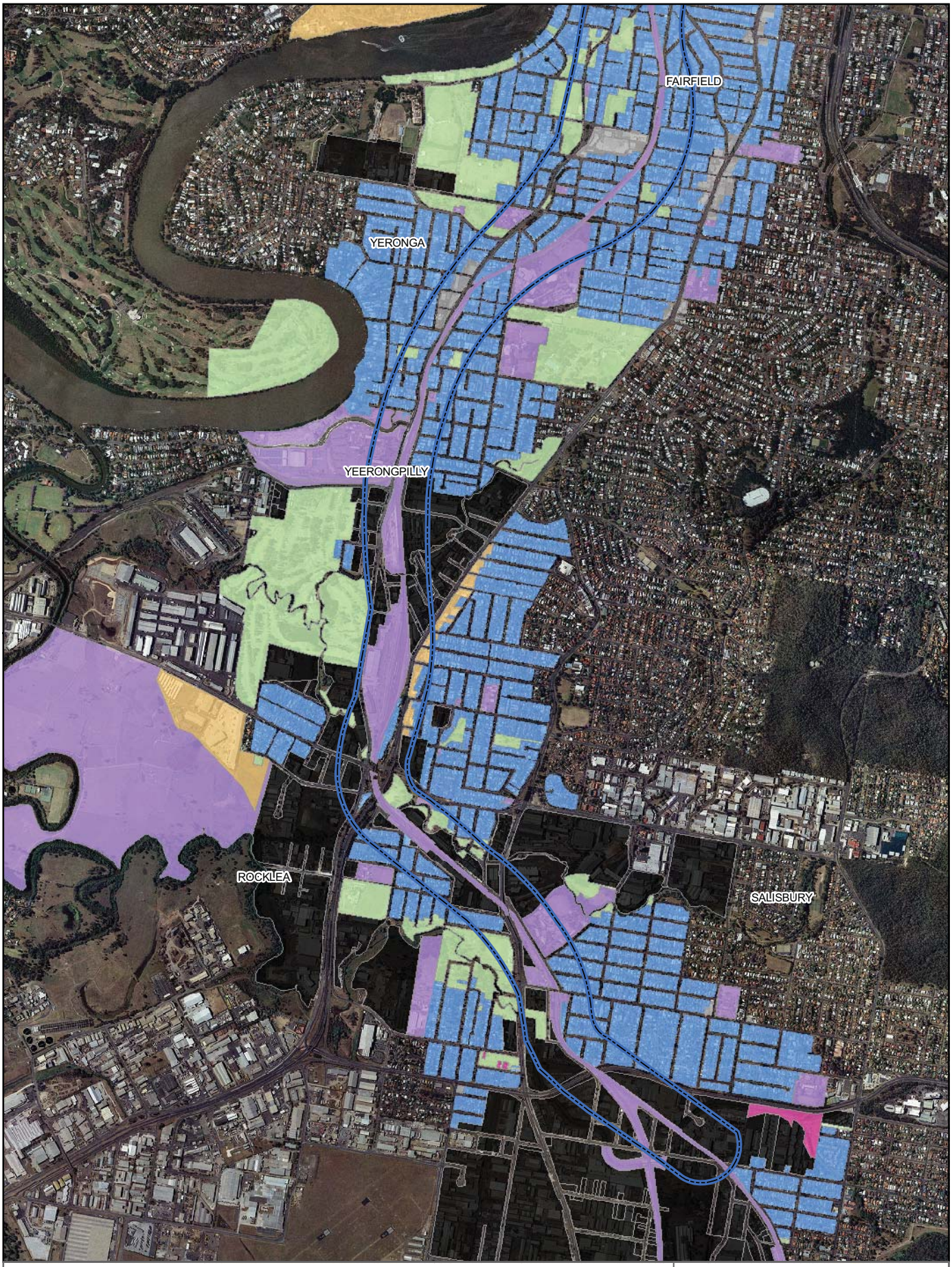

LEGEND

- Study Corridor

Area Classification

- Community Use Areas
- Emerging Communities
- Green Space Areas
- Industrial Areas
- Investigation Area
- Multi Purpose Centres
- Residential Areas
- Special Purpose Centres

CROSS RIVER RAIL
ENVIRONMENTAL IMPACT STATEMENT

Figure 9-5

Area Classifications (Southern Section)

0 0.25 0.5 0.75 1 km

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CrossRiverRail

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9.3 Description of existing land use

This section describes existing land uses within the study corridor. This information is based on a survey of existing land uses undertaken as part of these investigations, which gathered information on land use and building type. Further information on the land use descriptions and building definitions is provided in *Technical Report No.3 – Land Use and Tenure*.

9.3.1 Overall study corridor

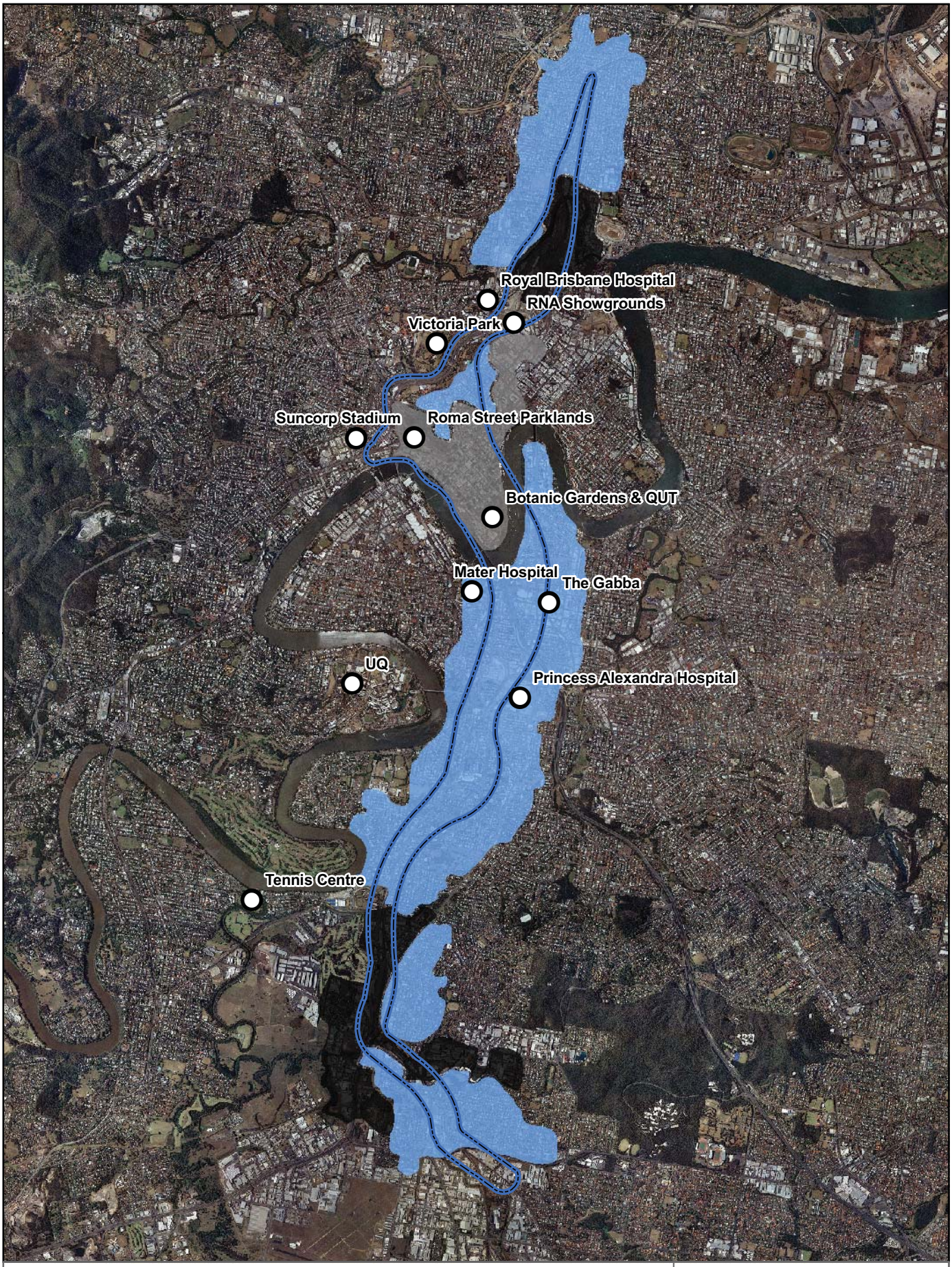
The study corridor comprises a broad mix of land uses that reflect the inner city and inner suburban location and includes areas of residential, commercial, community, open space and light industry. General land uses are shown on **Figure 9-6.** Land uses for the corridor are shown on **Figure 9-7**.

Residential uses are the most prominent land use within the study corridor, with these located in a number of locations including:

- to the north of Breakfast Creek
- at Spring Hill
- between the Brisbane River and Yeerongpilly Station
- east of Ipswich Road and between Stable Swamp Creek and Riawena Road.

Industrial land uses are primarily located at Bowen Hills and between the existing Yeerongpilly Station and Stable Swamp Creek at Salisbury. Commercial uses are predominantly located within the Brisbane CBD.

The study corridor contains a mix of densities with the highest densities located within the Brisbane CBD. Higher density development is also located at key employment areas, such as Woolloongabba and Spring Hill, and around key transport nodes.



LEGEND

- Key Feature
- Study Corridor

Land Use Precinct

- CBD
- Industry
- Residential

CROSS RIVER RAIL
ENVIRONMENTAL IMPACT STATEMENT

Figure 9-6

Land Use Context

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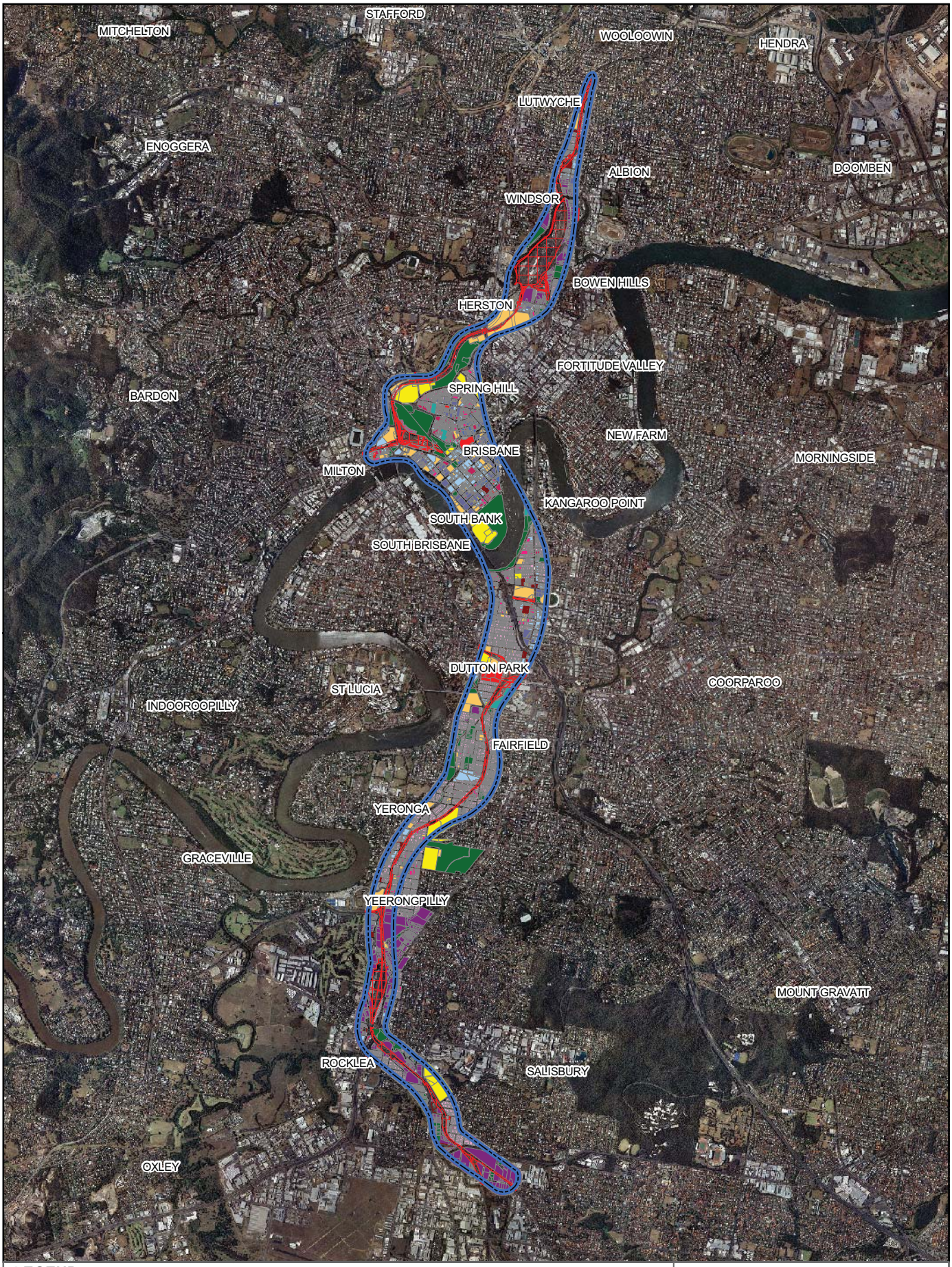

LEGEND

- Study Corridor

Existing Landuse

- Residential - Detached
- Residential - Multiple Unit
- Residential - Accommodation
- Mixed Use (Resid/Comm/Retail)
- Mixed Use (Commercial/Retail)
- Commercial/Retail
- Office Space
- Industry
- Community
- Education
- Health Care
- Car Park
- Open Space/Park/Recreation
- Vacant
- Transport Infrastructure

CROSS RIVER RAIL
ENVIRONMENTAL IMPACT STATEMENT

Figure 9-7

Existing Land Use - Overview

0 0.5 1 1.5 2 2.5 km

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CrossRiverRail

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9.3.2 Northern section – Wooloowin to Bowen Hills

Existing land uses in the northern section of the study corridor are shown in **Figure 9-8**. The northern area is dominated by a number of large community uses surrounded by low-medium density residential and commercial and industrial uses. The area also includes a range of major transport uses.

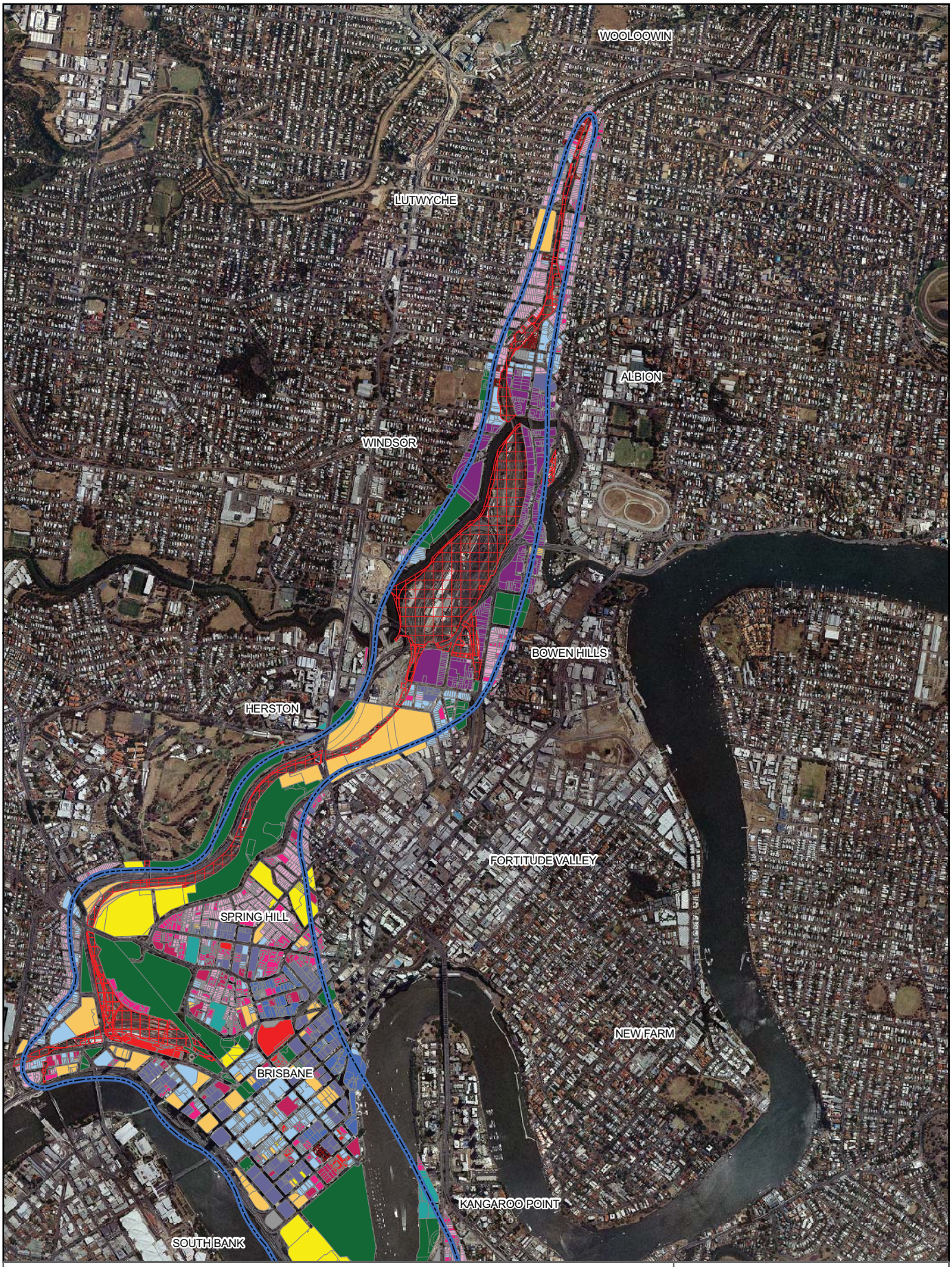
Prominent land uses include:

- RNA Showgrounds at Bowen Hills (**Photograph 9-1**), located south of O'Connell Terrace
- RBWH, at Bowen Bridge Road
- Queensland Rail facilities including at Mayne Rail Yard, Hudson Road and stations at Wooloowin, Albion, Bowen Hills and Exhibition
- BCC Bowen Hills bus depot
- Clem Jones Tunnel and Airport Link tunnel (currently under construction)
- Unitab complex at Sandgate Road.

Photograph 9-1 RNA Showgrounds

Residential uses are predominantly located in the suburbs of Wooloowin, Albion and Windsor, although a pocket of residential uses are also located east of Abbotsford Road in Bowen Hills. Residential uses in these suburbs generally comprise detached, low density residential dwellings with many dwellings comprising pre-1946 timber and tin character houses. However, multi-unit dwellings are also common, particularly near key transport nodes and local centres. New residential developments are located at Jeays Street and Hurworth Road at Bowen Hills as well as on Campbell Street, west of Breakfast Creek.

Commercial and light industry land uses are predominantly located in Bowen Hills and generally comprise manufacturing, production, processing, repairing, storage or transport businesses as well as a mix of office space, retail and cafe businesses. Areas of commercial and light industrial uses are also located at Sandgate and Hudson roads at Albion, with land uses consisting of restaurants/cafes, office space, retail, wholesale/warehouse businesses and some vehicle maintenance and service station businesses.



LEGEND

- Study Corridor

Existing Landuse

- Residential - Detached
- Residential - Multiple Unit
- Residential - Accommodation
- Mixed Use (Resid/Comm/Retail)
- Mixed Use (Commercial/Retail)
- Commercial/Retail
- Office Space
- Industry
- Community
- Education
- Health Care
- Car Park
- Open Space/Park/Recreation
- Vacant
- Transport Infrastructure

CROSS RIVER RAIL
ENVIRONMENTAL IMPACT STATEMENT

Figure 9-8

Existing Land Use (Northern Section)

0 0.25 0.5 0.75 1 km

1:30,000 at A4

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CrossRiverRail

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A number of large and small scale community uses are also located in this section of the study corridor. Health and medical services supporting the RBWH are focused on O'Connell Terrace, Campbell Street and Hamilton Place. The Holy Cross Church complex at Bridge Road includes a primary school and aged care, open space and recreation areas include Perry Park at Edmonstone Road, Bowen Park at Bowen Bridge Road, the western bank of Breakfast Creek, Windsor Park and the RNA Showgrounds. A number of small open spaces are scattered across the suburbs which provide informal recreation uses. Community uses are described further in **Chapter 20 Social Impact Assessment.**

Areas and features of environmental significance, identified in Brisbane City Council's Natural Assets Planning Scheme Policy (NAPS Policy), are located:

- in the vicinity of the rail corridor at Hudson Road
- adjacent to the Albion Overpass and McDonald Road
- along the banks of Breakfast Creek
- within Mayne Rail Yard
- within, and along streets near to, the RNA Showgrounds.

These environmentally significant areas and features are described further in **Chapter 11 Nature Conservation**.

9.3.3 Central section – Spring Hill to Dutton Park

The central section of the study corridor includes the suburbs of Spring Hill, Brisbane CBD, Kangaroo Point, Woolloongabba, Dutton Park and Fairfield. Generally this section is defined by the commercial centre of the Brisbane CBD and the broad mix of uses situated in surrounding inner city suburbs.

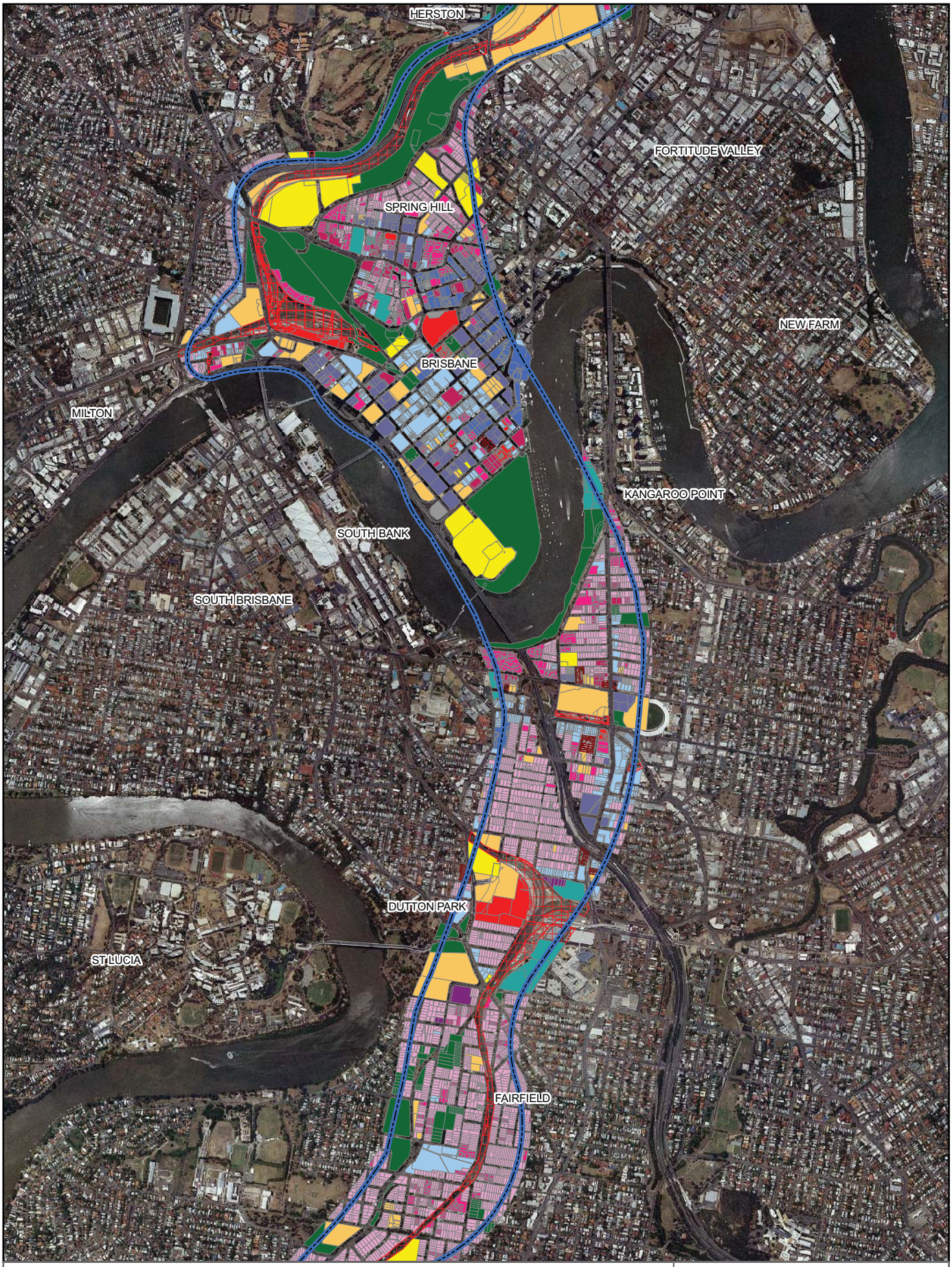
Land uses in this section of the study corridor are shown on **Figure 9-9**.

Spring Hill and Brisbane CBD

The Brisbane CBD is the principle activity centre and administrative centre for South East Queensland and contains a high density mix of retail, commercial, government, education and residential uses. Spring Hill also accommodates a broad range of uses, including many prominent community, recreation, health and education activities and residential uses.

Major land uses in Spring Hill and the Brisbane CBD include:

- recreational uses such as Victoria Park, Victoria Park Golf Course, Roma Street Parkland and the Brisbane City Botanic Gardens
- health uses including St Andrews War Memorial Hospital, Brisbane Private Hospital and Brisbane Dental Hospital
- educational uses such as Brisbane Grammar School, Brisbane Girls Grammar School, St Joseph's College and QUT Gardens Point
- commercial and retail uses, including Boundary Street at Spring Hill, Queen Street Mall retail precinct, Eagle Street financial precinct and Government precinct at George Street
- major transport uses, including Roma Street and Central stations, Brisbane Transit Centre, Roma Street rail yard, busway stations at Roma Street, King George Square and Queen Street Mall and ferry terminals at North Quay, Gardens Point and Riverside
- Government administrative uses, including the Commonwealth Law Court and Law Court Complex, State Law Building, Queensland Police Headquarters, Treasury Building, Lands Administration Building, State Works Centre, Parliament House and BCC offices.



LEGEND

- Study Corridor

Existing Landuse

- Residential - Detached
- Residential - Multiple Unit
- Residential - Accommodation
- Mixed Use (Resid/Comm/Retail)
- Mixed Use (Commercial/Retail)
- Commercial/Retail
- Office Space
- Industry
- Community
- Education
- Health Care
- Car Park
- Open Space/Park/Recreation
- Vacant
- Transport Infrastructure

CROSS RIVER RAIL
ENVIRONMENTAL IMPACT STATEMENT

Figure 9-9

Existing Land Use (Central Section)

0 0.25 0.5 0.75 1 km

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Residential uses are predominantly located in Spring Hill in the area bounded by Gregory Terrace, Boundary Street and St Pauls Terrace and are generally characterised by a mix of both character and brick, detached and multiple unit dwellings located on steep, narrow streets with some areas providing views towards Victoria Park and the Brisbane CBD (refer to **Photograph 9-2).** Residential uses, including temporary visitor accommodation and permanent residences, are also located throughout the Brisbane CBD and comprise a mix of medium and high density multiple unit dwellings. Clusters of residential uses are located at Albert Street and the Roma Street Park Land.

Photograph 9-2 Typical residential street in Spring Hill

High density commercial office and retail uses are the predominant land use in the Brisbane CBD. General clusters are identifiable at key locations such as the legal precinct towards the northern end of George Street and the financial precinct at Eagle Street. Retail uses are generally located within the retail heart, focussing on Queen Street Mall, Adelaide Street, Edward Street, Elizabeth Street and George Street. Albert Street also contains a mix of small scale retail uses such as bookshops, restaurants/cafes and clothing outlets. George Street and William Street are identified as the primary Government administrative precinct and comprise a range of local, State and Commonwealth buildings.

Alice Street comprises a range of residential and commercial land uses, including two hotels (Quay West and Royal on the Park), a multiple unit residential dwelling, a restaurant and a mixed use building (refer to **Photograph 9-3**). Access to these properties is from Alice Street with the Royal on the Park and adjacent properties having dual access from Alice Street and Margaret Street.

Photograph 9-3 Alice Street (looking west)

Access to basement parking for commercial and residential uses is generally provided from the street frontages, although in some cases, vehicle access to buildings is provided via rear laneways or from within the carriageway such as the Myer Centre car park exit to Albert Street and the Queens Plaza car park entrance and exit to Edward Street.

A wide range of regional community uses are located within Spring Hill and the Brisbane CBD. Four schools are located near Victoria Park at Spring Hill including Brisbane Girls Grammar School, Brisbane Grammar School, St Joseph's College at Gregory Terrace and Brisbane Central Primary School at Water Street. St Andrew's Hospital is located at Boundary Street, providing a range of other associated health, community and education uses. QUT Gardens Point is located adjacent to the Brisbane River at the southern end of George Street.

A number of major open space and recreation areas are located in Spring Hill and the Brisbane CBD. Victoria Park occupying land to the north and south of the ICB (**Photograph 9-4**), provides for a number of formal and informal recreational activities, including the Centenary Aquatic Centre and cricket, tennis and netball facilities that are used by residents, visitors and nearby schools. An Energex facility, Biomedical Technology Services Facility and BCC Local Asset Services Central Compound are located adjacent to Victoria Park, while a number of health care businesses are located within the Centenary Aquatic Centre. Victoria Park provides a buffer between residential uses adjacent to Gregory Terrace and major transport infrastructure, such as the northern rail line and the ICB.

The City Botanic Gardens occupies a site of approximately 20 ha and is bounded by Alice Street, QUT, Parliament House and the Brisbane River. City Botanic Gardens includes a range of business and community uses including the Riverstage, café and cycle hire.

Other recreational and open space areas within Spring Hill and the Brisbane CBD include Roma Street Park Land, Wickham Park, King Edward Park Hardgrave Park, E.E. McCormick Place, Emma Miller Place Queens Park, ANZAC Square, Post Office Square, King George Square and Reddacliff Place at Brisbane Square.

Photograph 9-4 Victoria Park and Victoria Park Golf Course (viewed from the Centenary Pool Complex)

Areas and features of environmental significance identified in BCC NAPS Policy, are located within Victoria Park and Yorks Hollow, along Wickham Terrace at Spring Hill, and along the banks of the Brisbane River and within the City Botanic Gardens within the Brisbane CBD. These environmentally significant areas and features are described further in **Chapter 11 Nature Conservation.**

Kangaroo Point, Woolloongabba and Dutton Park

Kangaroo Point, Woolloongabba and Dutton Park contain a diverse mix of land uses at a range of different densities, including entertainment, retail, residential, transport and community uses.

Major land uses in this section of the study corridor include:

- Queensland Government Land Centre and Goprint
- Gabba stadium

- community uses, such as St Vincent's Hospital, the Woolloongabba Dental Hospital, Church of Jesus Christ of the Latter Day Saints at River Terrace, St Nicholas Russian Orthodox Church, the German Club at Vulture Street, St Joseph's Primary School, Dutton Park Primary School, South Brisbane (Dutton Park) Cemetery and the PA Hospital
- Boggo Road Urban Village, including the Boggo Road Gaol and Ecosciences Precinct
- major transport facilities, such as the South East Busway, including the Woolloongabba Busway Station (**Photograph 9-5**), Park Road Station, Boggo Road Busway Station, the Pacific Motorway and Clem Jones tunnel
- utilities such as the Telstra Exchange at Main Street
- Golden Casket building at Ipswich Road
- Mater Hospital precinct, west of the study corridor
- Sommerville House School and St Laurences College, west of the study corridor.

Photograph 9-5 Woolloongabba Busway Station

The Mater Hospital is also located immediately west of the study corridor, and comprises six separate hospital facilities providing employment for approximately 7,500 people (Mater Health Services, 2010).

Residential uses are generally located north of Vulture Street at Kangaroo Point, and south of Hawthorn Street and near Park Road Station at Woolloongabba. At Dutton Park, residential uses are generally located in that area bounded by the Boggo Road Urban Village, Annerley Road, the existing rail corridor and Pound Street. Residential uses include a mix of detached character houses and multiple unit apartments. A range of higher density residential developments have also recently been developed, such as the Gabba Central at Ipswich Road.

Commercial and retail uses are generally located adjacent to Vulture Street and Ipswich Road. Land uses within the commercial precincts of Stanley Street and Logan Road provide a mix of existing and emerging small scale retail and restaurants/cafes. A pocket on light industrial uses is also located at Burke Street and Dibley Street, Woolloongabba.

Recreational areas are located along the Brisbane River, east of the Gabba Stadium and at Kangaroo Point Park, located on Baines Street in Kangaroo Point.

Areas and features of environmental significance identified in BCC NAPS Policy are located along River Terrace, Leopard Street, Main Street and Lockhart Street, as well as at the site of the Boggo Road Gaol and South Brisbane Cemetery. Environmentally significant areas and features are described further in **Chapter 11 Nature Conservation**.

9.3.4 Southern section – Fairfield to Salisbury

The southern section of the corridor includes the suburbs of Fairfield, Yeronga, Yeerongpilly, Moorooka, Rocklea and Salisbury. Generally this section of the study corridor is defined by a mix of low density residential dwellings, light industry and community uses. Land uses in this section of the study corridor are shown on **Figure 9-10**.

Fairfield, Yeronga and Yeerongpilly

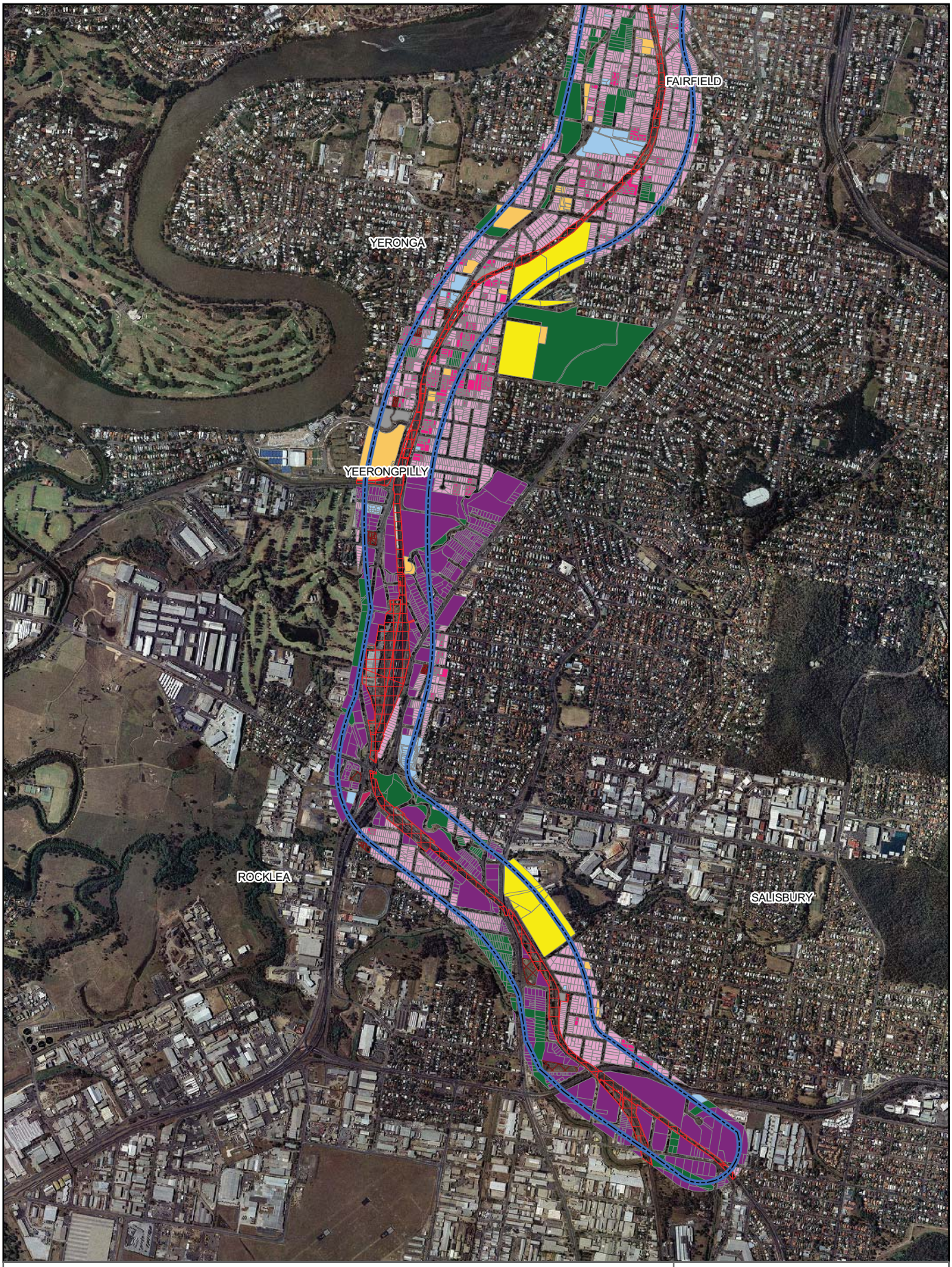
The suburbs of Fairfield, Yeronga and Yeerongpilly primarily comprise low density detached residential uses. Key land uses in these suburbs include:

- Queensland Tennis Centre and adjacent Tennyson Reach residential development
- education facilities, including Yeronga State High School, Yeerongpilly Primary School and Yeronga TAFE
- community uses such as Fairfield Gardens Shopping Centre, RSPCA shelter and Yeronga Services Club
- Queensland Rail infrastructure, including Clapham Rail Yard and stations at Fairfield, Yeronga and Yeerongpilly
- open space areas, including Robinson Park and Brisbane Golf Club.

Residential uses are the predominant land use type, with these generally comprising low density detached character houses. Many residential streets are lined with well-established trees that contribute to the character and amenity of the area and that are representative of Brisbane's older suburbs. Multiple unit dwellings of varying ages are also scattered throughout this section of the study corridor, particularly around key transport nodes and major road corridors. The Tennyson Reach development is also located adjacent to the Brisbane River and comprises a number of medium to high density residential apartments (refer to **Photograph 9-6**). Further high rise residential apartments are proposed to be developed in this area as part of the Yeerongpilly TOD.

Photograph 9-6 Tennyson Reach development

Light industrial and commercial uses, comprising a mix of car yards and vehicle maintenance and repair businesses, warehouse and wholesale activities, commercial uses, community support uses and other business are located south of the existing Yeerongpilly Station. A small area of light industry/commercial development is also located adjacent to the south-east corner of the South Brisbane Cemetery.



LEGEND

- Study Corridor

Existing Landuse

- Residential - Detached
- Residential - Multiple Unit
- Residential - Accommodation
- Mixed Use (Resid/Comm/Retail)
- Mixed Use (Commercial/Retail)
- Commercial/Retail
- Office Space
- Industry
- Community
- Education
- Health Care
- Car Park
- Open Space/Park/Recreation
- Vacant
- Transport Infrastructure

CROSS RIVER RAIL
ENVIRONMENTAL IMPACT STATEMENT

Figure 9-10

Existing Land Use (Southern Section)

0 0.25 0.5 0.75 1 km

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CrossRiverRail

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Fairfield Gardens is the main shopping centre servicing this area. It provides a range of retail, community and service uses and was identified during consultation for the Project as an important local centre for residents in Fairfield and neighbouring suburbs. A small local shopping centre is also located at Fairfield Road, while a number of small convenience businesses are located on Wilkie Street near the existing Yeerongpilly Station.

A number of community facilities are located throughout this section of the study corridor. Educational facilities include Yeronga TAFE and Yeronga State High School at Villa Street and Yeronga Primary School at Park Road. Robinson Park and JF O'Grady Memorial Park at Fairfield and Yeronga Park at Yeronga are important open space areas providing both organised and passive recreational activities (refer to **Photograph 9-7**).

Photograph 9-7 Fairfield open space

Areas and features of environmental significance identified in BCC NAPS Policy are located throughout this area. These are described further in **Chapter 11 Nature Conservation**.

Moorooka, Rocklea and Salisbury

The suburbs of Moorooka, Rocklea and Salisbury contain a mix of residential and industrial uses. Land use mix indicates the transitional role the area plays between industrial suburbs to the west and residential suburbs to the east.

Key land uses in this area include:

- education uses such as the Skills Tech Salisbury Campus and Nyanda State High School
- transport uses, including Moorooka, Rocklea and Salisbury Stations
- general industry uses.

Industrial uses are the predominant land use in these suburbs, with this comprising manufacturing, production, processing, repairing, storage or transport businesses. Industrial land uses are primarily located near major transport networks, such as the rail line, Beaudesert Road and Granard Road.

Residential uses also feature prominently within Rocklea and Salisbury, with residential areas located south of Rocklea Station and east of Salisbury Station. These generally comprise detached houses, although some multiple unit dwellings are located in areas close to Rocklea Station. Open space is primarily situated along Rocky Waterholes Creek and Stable Swamp Creek. Peter Scott skate park is located adjacent to Rocky Waterholes Creek while Kookaburra Park and Brothers St Brendans are located adjacent to Stable Swamp Creek.

9.3.5 Prominent proposed developments

A number of key development sites are located across the study corridor, which are identified for a range of residential, commercial or mixed use developments. These sites require good access to efficient transport networks. Prominent developments are outlined in **Table 9-4**.

Table 9-4 Prominent proposed developments

Name	Address	Lot and plan	Summary of proposed development	Development application (status)
Wexford Green	22 Morris Street, Wooloowin	19 RP170266	272 residential units and 17 townhouses complemented by retail, commercial and community uses.	Yes (Approved 1/06/10)
The Mill	The site is located on 1.3 hectares and is bound by the rail corridor, Albion Road and Hudson Road, Albion	129, 130, 131, 134, 135, 136 RP19306, 1, 2, 132 RP48402, 1, 2, 3 RP59681	Mixed use TOD accommodating a mix of residential apartments, commercial offices, residential and retail uses.	Yes (Approved)
RNA Showgrounds Redevelopment	The site is located within the RNA Showgrounds, Bowen Hills	481 SP196765 600, 3 SP190738, 2 SP144596, 487 SP196776, 484, 486 SL 4553, 641 SP196755, 485 SP192466, Alexandria Street Road Reserve	Development of an additional 310,000 to 340,000 m^2 of gross floor area of mixed use development.	Yes (Approved 1/12/2010)
Metro (Bowen Hills No. 1)	16 Hamilton Place, Bowen Hills	1, 4 RP99817	194 residential units and shop space.	Yes (Approved 25/10/2010)
Metro (Bowen Hills No. 2)	29-35 Campbell Street, 12 Hazelmount Street, 29 Mayne Street, Bowen Hills	1 RP78299, 1 RP89174, 46 RP9895, 49 SP110353	286 residential units and shop space.	Yes (Approved 29/4/2011)
Metro (Bowen Hills No. 3)	37 Mayne Street, Bowen Hills	1 RP110079	242 residential units.	Yes (Lodged 20/12/2010)
Unknown	151-171 Roma Street, Brisbane	1SP100562, 2,3,4,5,6 SP100562, 50SP136610	New office, centre activities and car park within the Roma Street Transit Centre. Uncertain as to future timings.	Yes (Approved 12/12/2007)
Brisbane City Hotel	40 Elizabeth Street, Brisbane	1 RP883066	27 storey, 289 apartment hotel.	Yes (Approved 22/9/2010)

Name	Address	Lot and plan	Summary of proposed development	Development application (status)
Unknown	111 Mary Street and 222 Margaret Street, Brisbane	1-6 RP123433	A 90 storey residential and hotel tower and a 34 storey office tower.	Yes (Lodged 24/5/2011)
99-103 Mary Street	99-103 Mary Street, Brisbane	17 RP129686	31 storey hotel with 216 hotel rooms and 15 serviced apartments.	Yes (Approved 8/12/2010)
Camelot Residential Development	30 Albert Street and 131 Margaret Street, Brisbane	10 SP218967, 11 RP1073, road reserve	37 storey tower comprising 420 residential units and retail and commercial space.	Yes (Lodged 23/12/2010)
Carrington Tower	140 Alice Street and 16 Albert Street, Brisbane	12 SP231766, 1 RP40587	43 storey tower comprising 223 residential units. Proposed completion by December 2014.	Yes (Approved 15/2/2011)
Century Apartments	460 Vulture Street, Woolloongabba	1, 2, 3 RP78979, 98RP11335	Residential development comprising 34 apartments.	No. Proposed development.
Unknown	9 Hubert Street, Woolloongabba	18, 22, 26, 30, 34, 38, 42, 46, 50 and 54 RP11205, 5 RP 11205, 1 RP11210, 1, 2 RP 74662, 7, 8 RP11205. 9, 3 RP 838591	Three towers (30, 25 and 20 storeys) comprising a total of 502 residential units.	Yes (Lodged 18/5/2011)
Yeerongpilly TOD Site	Located on approximately 14 hectares of land and bound by Fairfield Road, King Arthur Terrace, Tennyson Memorial Avenue and the Brisbane River in Yeerongpilly.	566 SP214202	Mix of residential densities and retail uses, characterised by TOD principles to capitalise on the sites location to Yeerongpilly Station. Several sites have been released for early development, with development applications submitted to Brisbane City Council for approval.	No. Development is being undertaken by the State Government.

Note: Information in this table is correct as of 16/06/2011

9.3.6 Land tenure

Land tenure for the study corridor is shown in **Figure 9-11** to **Figure 9-14.** This is based on the tenure codes described under the Digital Cadastral Data Base (DCDB) and include:

- freehold
- lands lease (leasehold)
- railway
- reserve
- State land
- Council land
- port and harbours boards.

Further information on each of these codes is provided in *Technical Report No.3 – Land Use and Tenure.*

The majority of land within the study corridor is held in freehold title. This includes a number of properties held in freehold by Brisbane City Council or various State Government departments. Freehold land required for the Project would be acquired in accordance with the provisions of the *Acquisition of Land Act 1967*.

The existing railway line is currently held as leasehold land (lands lease). Land identified as 'State land' includes Roma Street Park Land and land occupied by the Eastern Busway, adjacent to South Brisbane Cemetery. State land (including lands lease) would require agreement from the party entitled to tenure.

Land in the study corridor held in reserve generally includes:

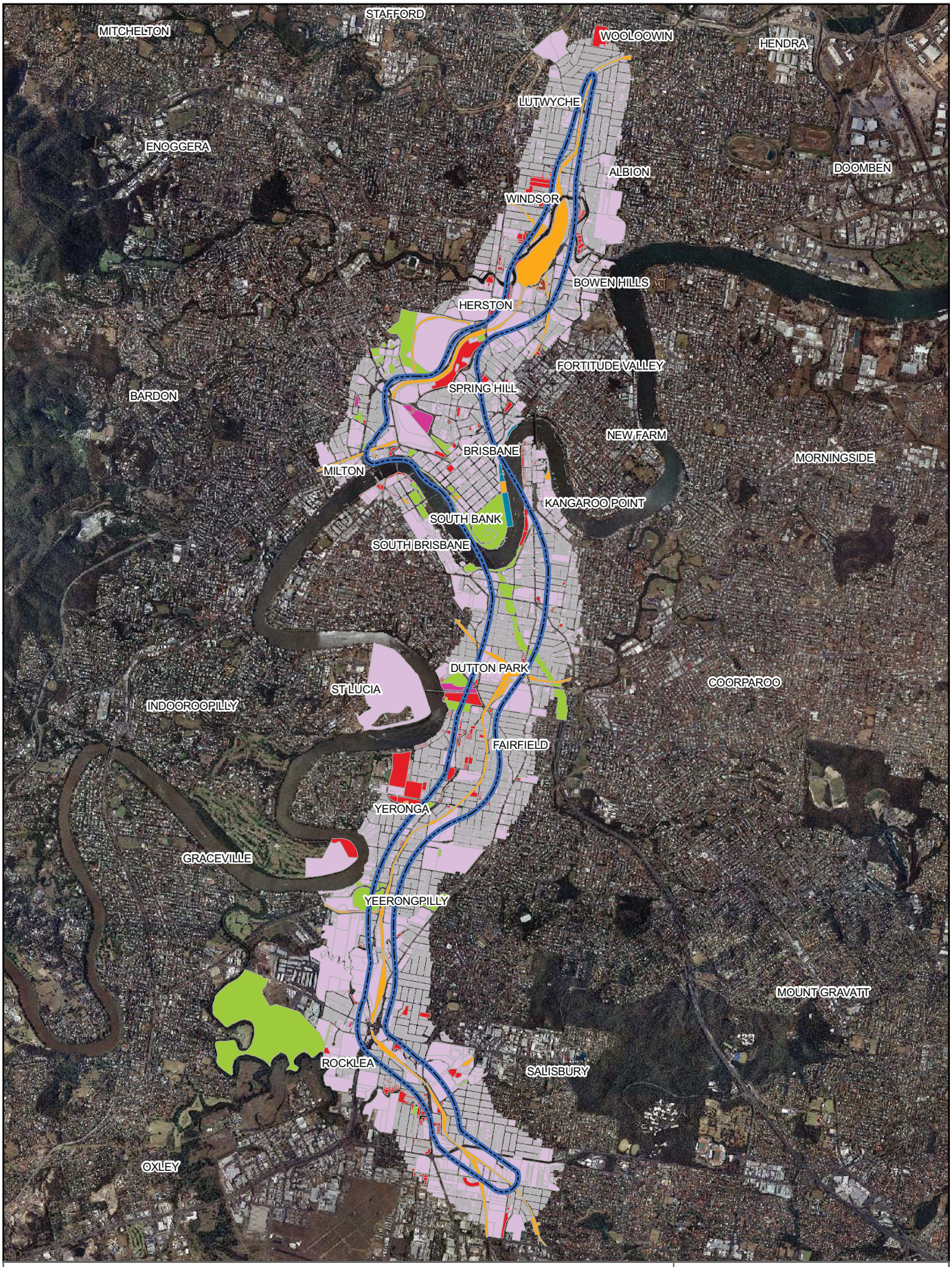
- open space areas, such as City Botanic Gardens and Kangaroo Point Cliffs
- State-controlled roads such as the Pacific Motorway, including the Riverside Expressway
- land identified for future TOD at Yeerongpilly.

There are four properties located within the study corridor that are held in freehold and owned by the Commonwealth, including:

- Commonwealth Law Courts at 119 North Quay, Brisbane
- Victoria Barracks at 83-129 Petrie Terrace, Brisbane
- General Post Office at 261 Queen Street, Brisbane
- Naval Offices at 3 Edward Street, Brisbane.

Council land in the study corridor generally comprises areas of park and open space, including Victoria Park at Spring Hill, South Brisbane Cemetery, Yeronga and Fairfield Parks and Rocklea Park.

Moorings currently located in the Brisbane River adjacent to the City Botanic Gardens are under the control of the Transport and Main Roads.



LEGEND

- Study Corridor

TENURE

- Freehold
- Council Land
- State Land
- Crown Land
- Action Pending
- Lands Lease
- Reserve
- Housing Commission Lease
- Port and Harbour Boards
- Railway

CROSS RIVER RAIL
ENVIRONMENTAL IMPACT STATEMENT

Figure 9-11

Land Tenure - Overview

0 0.5 1 1.5 2 2.5 km

N

1:75,000 at A4

CrossRiverRail

SKM aurecon CRR JOINT VENTURE

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LEGEND

- Study Corridor

TENURE

- Freehold
- Council Land
- State Land
- Crown Land
- Action Pending
- Lands Lease
- Reserve
- Housing Commission Lease
- Port and Harbour Boards
- Railway

CROSS RIVER RAIL
ENVIRONMENTAL IMPACT STATEMENT

Figure 9-12

Tenure (Northern Section)

0 0.25 0.5 0.75 1 km

1:30,000 at A4

N

CrossRiverRail

SKM aurecon CRR JOINT VENTURE

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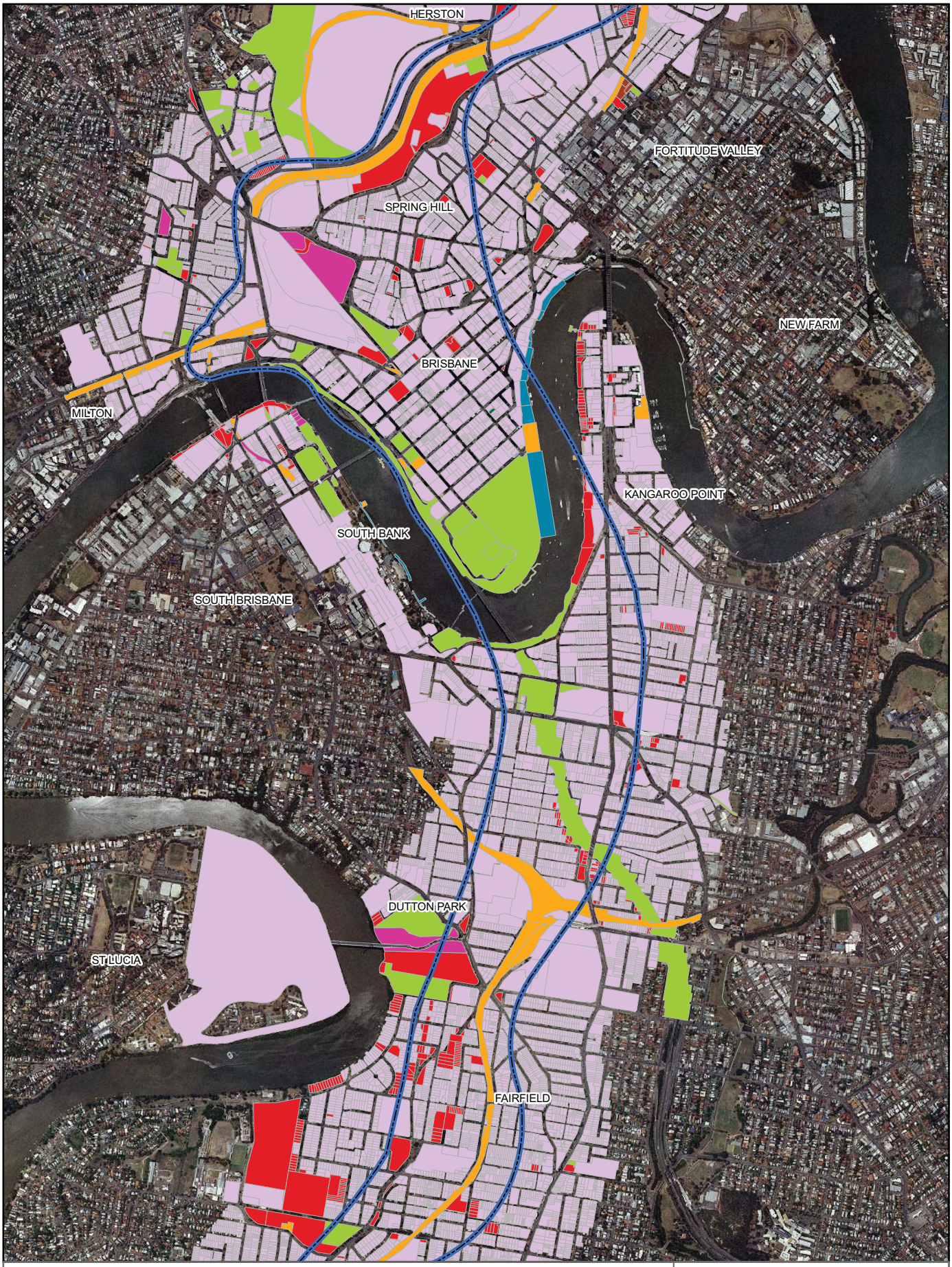

LEGEND

- Study Corridor

TENURE

- Freehold
- Council Land
- State Land
- Crown Land
- Action Pending
- Lands Lease
- Reserve
- Housing Commission Lease
- Port and Harbour Boards
- Railway

CROSS RIVER RAIL
ENVIRONMENTAL IMPACT STATEMENT

Figure 9-13

Land Tenure (Central Section)

0 0.25 0.5 0.75 1 km

1:30,000 at A4

N

CrossRiverRail

SKM aurecon CRR JOINT VENTURE

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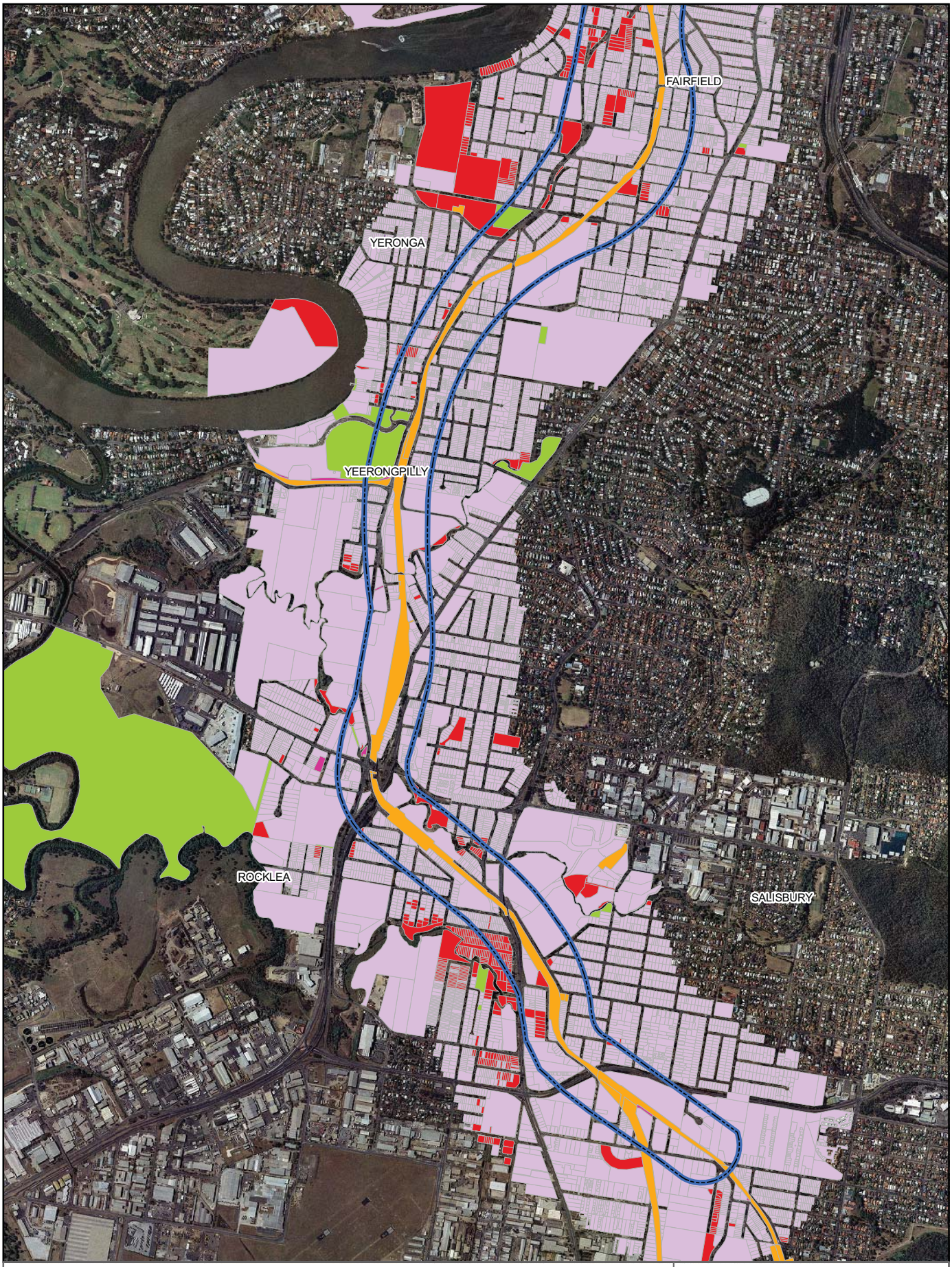

LEGEND

- Study Corridor

TENURE

- Freehold
- Council Land
- State Land
- Crown Land
- Action Pending
- Lands Lease
- Reserve
- Housing Commission Lease
- Port and Harbour Boards
- Railway

CROSS RIVER RAIL
ENVIRONMENTAL IMPACT STATEMENT

Figure 9-14

Land Tenure (Southern Section)

0 0.25 0.5 0.75 1 km

N

1:30,000 at A4

CrossRiverRail

SKM aurecon CRR JOINT VENTURE

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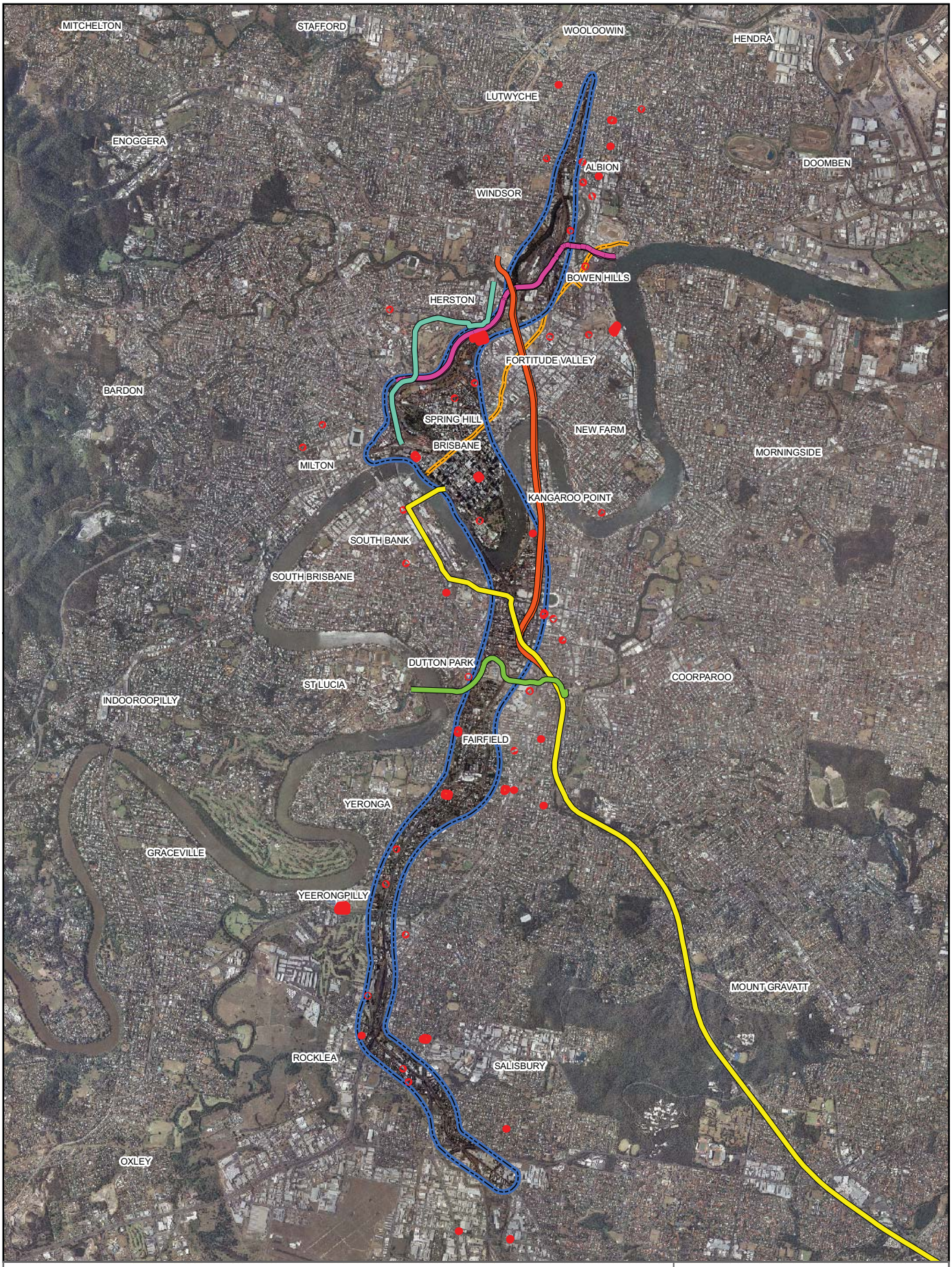
9.3.7 Key infrastructure and utilities

The study corridor also contains numerous easements and corridors for existing or proposed infrastructure and utilities. These have been considered in the development of the reference design. Key infrastructure easements and corridors in the study corridor are described in **Table 9-5** and are shown on **Figure 9-15**.

Table 9-5 Key infrastructure corridors and utilities

Description	Type of infrastructure	Status	Location
Northern Busway/ Inner Northern Busway	Bus corridor	Existing	Elevated busway connection between Gilchrist Avenue, Bowen Bridge Road and Victoria Park. Busway routes also run from Victoria Park, east of Countess Street to the Roma Street Busway Station. From Roma Street, the busway continues in tunnel under Albert Street to the King George Square Busway Station.
South East Busway	Bus corridor	Existing	Underground busway network under Albert Street, between Elizabeth and Albert streets and under Queen Street, between Albert and William streets. The busway travels generally below ground between South Bank Station and Woolloongabba junction and then generally travels at grade adjacent to the eastern side of the Pacific Motorway.
Eastern Busway	Bus corridor	Existing	The Busway travels east to west from the Eleanor Schonell Bridge, under the Boggo Road Urban Village and the existing rail corridor to the South East Busway at Buranda. Stations are located at Boggo Road and at the PA Hospital.
ICB	Road corridor	Existing	The ICB travels through Spring Hill and Bowen Hills. The road corridor is in tunnel under the RNA Showgrounds between Bowen Bridge Road and O'Connell Terrace.
Clem Jones tunnel	Road corridor	Existing	Twin tunnels extending from Ipswich Road and Pacific Motorway under the suburbs of Woolloongabba, Kangaroo Point, Fortitude Valley and Bowen Hills to Lutwyche Road and the Inner City Bypass.
Substations	Electricity Facilities	Existing	Prominent Energex substation facilities are located in Victoria Park at Spring Hill, Brisbane and Yeronga.
S1 Sewer	Water pipeline	Existing	The S1 Sewer extends under Turbot Street from the intersection of North Quay and Turbot Street.



LEGEND

- Study Corridor
- S1 Sewer
- Substation Land (Energex)

Road Corridor

- Inner City Bypass
- Clem Jones Tunnel (Clem7)

Bus Corridor

- Inner Northern Busway
- Eastern Busway
- South East Busway

CROSS RIVER RAIL
ENVIRONMENTAL IMPACT STATEMENT

Figure 9-15

Prominent Infrastructure

0 0.5 1 1.5 2 2.5 km

1:75,000 at A4

N

CrossRiverRail

SKM aurecon CRR JOINT VENTURE

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9.3.8 Native Title

The study corridor is covered by two registered native title claims under the Commonwealth *Native Title Act 1993*. These claims have been made by the Jagera People and the Turrbal People. Each claim covers areas of Crown land across parts of the BCC LGA. Indigenous values and interests within the study corridor are described in **Chapter 18 Indigenous Cultural Heritage**.

The Project would be located within parcels of Crown (State) land and is subject to the provisions of the *Native Title (Queensland) Act 1993*. Section 24KA of the Native Title Act does not require the extinguishment or suppression of native title rights and interests for "facilities for service to public".

Section 24KA would be applied to the Project, meaning native title rights and interests would continue to exist and would not be extinguished. Rights and interests would have no bearing on construction, operation, use, maintenance or repair of the Project.

In accordance with Section 24KA, Traditional Owners have been notified of the Project and have been commissioned to undertake an appraisal of potential Indigenous cultural heritage items within the study corridor. A Cultural Heritage Management Plan (CHMP) would be prepared for the Project prior to commencement of construction. The CHMP would detail processes for identification and management of Indigenous cultural heritage items.

Due to the nature of the Project, the Project's location and the processes to be put in place under Section 24KA, it is unlikely that an Indigenous Land Use Agreement (ILUA) under the Commonwealth *Native Title Act 1993* would be established between the Project and the Traditional Owners.

9.4 Potential impacts and mitigation measures

This section provides an assessment of potential impacts of the Project's construction and operation on planning, existing and likely future land use and tenure in the study corridor and wider South East Queensland.

9.4.1 Strategic planning benefits

Integration of land use and transport infrastructure planning and development is a significant consideration for Cross River Rail. At a regional level, the Project would assist in managing capacity issues associated with the inner city rail network and would thereby assist in building viability of rail within South East Queensland as well as facilitating the continued growth and development of the region.

The Project is strategically located within the urban footprint and would integrate with a number of high growth residential and employment areas and high trip generating land uses, including UDAs, Boggo Road Urban Village, Yeerongpilly TOD and the Brisbane CBD. The development of new stations at these key growth areas would create an improved public transport network, as a result of additional stations, capacity and collocation with high intensity uses, therefore reducing the demand for private vehicle transport. Where existing transport infrastructure already exists, at locations such as Woolloongabba and Boggo Road, a multi-modal transport interchange would be developed through integration with existing busway infrastructure.

The Project would also support a number of regionally significant employment services and community uses that form the planned network of regional centres. In addition to the areas mentioned, these areas include the RBWH, QUT Gardens Point, PA Hospital and Queensland Tennis Centre. The Project would provide improved transport connectivity to these uses, thereby supporting a more sustainable land use pattern.

9.4.2 Property requirements

A total of 411 properties would be acquired, either wholly or in part, for the Project. This includes 108 properties acquired for surface works and a further 303 properties requiring a volumetric acquisition, where the Project passes beneath the property. Volumetric acquisitions require the resumption of land below the surface of the property and no change of ownership or relocation of occupier would be required.

The majority of properties to be acquired for surface works are located in the southern part of the study corridor and include land required for the southern portal and new Yeerongpilly Station, realignment of Wilkie Street, new surface tracks south of Yeerongpilly, and ancillary infrastructure such as substations and worksites. These properties comprise a mix of residential, industrial, commercial and community uses.

Properties required for surface works are also located at Fairfield, Boggo Road, Woolloongabba, Albert Street, Roma Street Station, Spring Hill and Bowen Hills, and generally include land required for the southern ventilation and emergency access building, station entrances, changes to local roads, new tracks north of the northern portal, the Ekka Station and worksites. These properties generally comprise commercial, visitor accommodation and community uses, such as open space.

Volumetric acquisition would also be required where the tunnels pass beneath a property. Properties impacted by volumetric acquisition are mainly located in the central part of the study corridor and predominantly comprise residential land uses, including high-rise residential apartments.

A summary of property requirements is provided in **Table 9-6,** including property type and location. Drawings showing potential property impacts are in *Volume 2 – Reference Design drawings.*

Table 9-6 Property requirements

Land use/ location	Surface acquisition	Volumetric acquisition
Land use		
Residential	48	258
Mixed (commercial, industrial, mixed)	67	58
Other (park, school, religious, etc)	4	23
Total	108	303
Location		
North	8	0
Central	16	158
South	84	145
Total	108	303

Key land uses directly affected by surface works include:

- part of Victoria Park, east of the rail line, for the northern portal worksite and a small portion required permanently for the northern portal itself
- the Royal on the Park Hotel, at the corner of Albert and Alice streets, for a worksite associated with the Albert Street Station with the corner of the lot at ground and basement levels required to permanently house the southern Albert Street Station concourse and access shaft
- commercial uses at the north-east corner of Mary and Albert streets, for a permanent station entrance as well as worksite associated with the Albert Street Station

- the Goprint site at Woolloongabba, for the Gabba Station worksite with the western edge of Goprint site required permanently to accommodate the station itself
- industrial uses at Station Road, Yeerongpilly, for the southern worksite with a small proportion of these sites required permanently to accommodate the new Yeerongpilly Station and relocated Wilkie Road and Lucy Street
- portion of land currently occupied by Energex substation and surrounding Council owned reserve located on land at Railway Road, between Bledisloe and Sunbeam streets and Fairfield Road for the construction and ongoing operation of the ventilation and emergency access building.
- RNA Showgrounds, for the Ekka Station and associated worksite, with a portion of showgrounds land immediately north-west of the current station required permanently for the widened and relocated station footprint
- Boggo Road Urban Village, for construction of the Boggo Road Station underground including two sites required permanently to accommodate station entrances and platform accesses.

Properties directly affected by the Project comprise a mix of tenure types, including lands lease, freehold, including State and Council, and reserve.

It is expected that properties would be acquired (freehold) or leased (non-freehold) by the State, and converted to unallocated State land. This would be subleased for transport corridor purposes to the relevant transport manager for construction and operation. Land acquired for the Project is likely to reflect the lands lease tenure arrangements of existing railway corridors.

State land temporarily required for construction would be freed from the existing parcel in order to allow the necessary activities to proceed. Following construction, the parcel would return to its existing tenure arrangement. Freehold land would be acquired by the State and leased to the relevant transport manager for construction. Following construction, land not required for the Project would be sold and returned to freehold tenure.

Land acquired for the Yeerongpilly worksite and the southern Albert Street Station worksite is likely to be acquired by the State for the purposes of transport and incidental purposes (road, parking, pedestrian walkways, construction activities, storage and services) and 'transport associated development' as defined under the *Transport Planning and Coordination Act 1994* (TPC Act). Following construction, these properties could be developed for the purposes of transport associated development. The redevelopment of these sites would not be part of the Project and would be subject to separate planning processes.

Retail space provided in the Roma Street, Albert Street and Yeerongpilly stations is expected to retain the same tenure arrangement as other Project infrastructure and would be sub-leased for commercial purposes.

9.4.3 Inner City Rail Capacity Study

The Inner City Rail Capacity Study (ICRCS) was undertaken by the Queensland Government in 2007-2008 to investigate how to provide more capacity in Brisbane's inner city rail network. The study recommended three options for further investigation and development as part of the detailed feasibility phase. Each of the three recommended options directly impacted properties at Fairfield for surface works associated with the portal and dive structure and new surface tracks and rail infrastructure. Surface property impacts generally included properties either side of the rail corridor between Dutton Park and School Road at Yeronga.

Surface works associated with the southern portal and new surface tracks for the Project confine property impacts to areas adjacent to the existing Yeerongpilly Station and industrial areas in Yeerongpilly. The only permanent surface requirement for that part of the corridor between Dutton Park and Yeronga is the ventilation and emergency access building at Railway Road, Fairfield.

9.4.4 Post-construction land use

Following construction, land occupied by construction worksites that is not required for the Project would become available, where appropriate, for redevelopment, in accordance with the relevant local and state planning policies, ie City Plan or UDA Development Scheme.

Construction worksites used for the operations phase of the Project include:

- Roma Street sites would be used for the Project or reinstated for rail activities and parking
- the Albert Street north worksite, would be used for a station access, including civic plaza
- part of the Albert Street south worksite would be used for a station access
- part of the Woolloongabba worksite, which would be used for the station and station access
- part of the Fairfield worksite would be used for the ventilation and emergency access building and realignment of Railway Road
- part of the Yeerongpilly worksite would be used for the realignment of Wilkie Street, realignment of Lucy Street and the new Yeerongpilly Station.

The majority of the worksite at Victoria Park would be reinstated to open space. Worksites at Boggo Road would be developed in accordance with the structure plan for the Boggo Road Urban Village, while worksites at Woolloongabba not used for the station would be developed in accordance with the structure plan for the Woolloongabba UDA. The worksite at the RNA Showgrounds would be developed in accordance with the RNA Showgrounds Master Plan.

Construction worksites surplus to the Project include:

- part of the Albert Street south worksite which currently contains the Royal on the Park Hotel
- Yeerongpilly worksite, which currently contains a range of industrial and commercial land uses
- construction worksite at Ipswich Road, which currently contains detached dwellings
- Salisbury worksite, which currently contains areas of vacant land and areas of industrial uses.

The Albert Street south worksite is currently included in the multi-purpose centre identified by the City Plan. In accordance with the City Plan, possible redevelopment opportunities include high density commercial, residential, accommodation or mixed use development. The Brisbane City Centre Neighbourhood Plan identifies the Albert Street south site as a Strategic Redevelopment Area for the CBD which is to contain at least 29,000 m^2 of office development. Redevelopment of the residual land would be separate to the Project.

The Yeerongpilly worksite is currently included in the general industry area identified by the City Plan. The intent of a general industry area is to provide a wide range of industries and complementary activities that meet high standards of amenity and environmental standards. Typically, general industry uses can be located near to residential areas and comprise a mix of car yards and vehicle maintenance and repair businesses, warehouse and wholesale activities, commercial uses and community support uses.

Given the site's proximity to the new Yeerongpilly Station and improved transport access, redevelopment of this site for higher order uses such as mixed use residential and commercial, should be considered. This would require a change to the existing land use designation of this site and subsequent revision to the City Plan. This would be undertaken as part of a separate planning process to the Project. This would provide improved land use and transport integration and support increased public transport use and decreased private vehicle use.

9.4.5 Potential constraints on surrounding development

A ‘zone of influence’ has been identified for the purposes of volumetric acquisition, around the tunnels and underground stations to protect the Project from impacts of future development.

The ‘zone of influence’ comprises a buffer of 7 m extending from the outside of each tunnel and 10 m from the outside of station caverns. The buffer would be acquired through a volumetric acquisition process and would be noted on the title documents for land within the buffer. The zone of influence would be design and applied differently in each of the following scenarios, that is for:

- existing structures and development
- future development approved under a current development permit (issued prior to a decision by the Government on whether to proceed with the Project)
- land noted for possible future development, but with no current development permit in place.

Where existing structures are located within the proposed ‘zone of influence’, a reduced buffer or separation would be applied. The Project would be designed to ensure these structures are not impacted by the Project.

Where an approved development application for land adjacent to Project infrastructure exists prior to the Queensland Government decision to proceed with the Project, the approved development has to also be considered in the Project design.

The full zone of influence would be applied to developments not approved prior to the approval of the Project.

The Project alignment has been designated as a ‘railway corridor’ to protect the Project’s alignment and structures from being impacted by new development. This requires that development applications for nearby land to be referred to Transport and Main Roads (as concurrence agency) for assessment to ensure that the Project’s structures are considered in the design of any new developments. Transport and Main Roads is currently a concurrence agency for the Cross River Rail future public transport corridor.

The zone of influence could potentially result in future constraints to development through limiting future basement development. While the Project would influence development along the entire length of the underground works, the influence would be most evident in areas suitable for higher density development such as the Brisbane CBD, Bowen Hills and Woolloongabba UDA areas and Boggo Road Urban Village.

The Project infrastructure through the Brisbane CBD would be aligned under Albert Street. The zone of influence would extend beyond the road reserve to impact properties adjacent to Albert Street. While the design of the tunnels and Albert Street Station could accommodate 100 storey buildings and basement depths of up to 35 m, any new developments on adjacent sites would need to consider the zone of influence and Project infrastructure. The development approved on land situated at 140 Alice Street and 16 Albert Street can accommodate the zone of influence. Future developments along Albert Street would need to consider the tunnel locations when designing basements, foundations and rock anchors.

While the tunnels would influence the redevelopment of sites along Albert Street, not all sites are suitable for redevelopment. The tunnel and station infrastructure within the Woolloongabba UDA has been designed in coordination with the master plan to ensure that the ULDA’s desired outcomes are achieved. In particular, the station cavern has been designed to accommodate the proposed development over the northern end. Basements within this location would need to consider the location of the station cavern.

Redevelopment of sites immediately north and south of the Woolloongabba UDA would need to consider the location of the Gabba Station cavern. Land to the south of Stanley Street is occupied by buildings that form part of a heritage precinct, identified under BCC's development control precinct. Large scale redevelopment at this location would be unlikely.

A coordinated approach to development at Boggo Road Urban Village is required with the Project to allow for tunnel and station alignments to be considered in conjunction with the Ecosciences Precinct and the Department of Public Works (DPW) and Leighton multi-storey project. An allowance has been made in the Project design to accommodate underground car parking from this project, while similar recognition of structural supports and integrity are required in both Cross River Rail and the development project.

At other locations along the tunnel alignment, future redevelopment would be primarily influenced by the City Plan's area classifications. Prominent area classifications along the tunnel's alignment, including low to medium residential areas, character residential areas, general industry areas and open space areas. While the zone of influence would be applied in these areas, it is unlikely to constrain development as the identified area classifications do not allow for developments that would include deep basement or foundation supports.

9.4.6 Northern section

Potential impacts on planning, land use and tenure in the northern section of the corridor would include direct impacts due to the location of construction worksites, development of the Ekka Station and provision of new surface tracks as well as indirect impacts resulting from improved public transport access.

Project works are not proposed north of Breakfast Creek. As such, there is not expected to be any land use impacts, including changes to property access due to the Project's construction or operation in Wooloowin or Albion. South of Breakfast Creek in Bowen Hills, the Project would have both temporary and long term impacts on land use as described as follows.

Implications for existing land use

The Ekka Station and associated surface works would primarily occur within the existing rail corridor. However, some works in this location would result in loss of land within the RNA Showgrounds. This would involve the loss of a number of buildings and features, including some of heritage significance. Further information on potential impacts on heritage buildings is provided in **Chapter 19 Non-Indigenous Cultural Heritage**. Following construction, land within the RNA Showgrounds disturbed by construction activities would be reinstated to its previous use or to be consistent with the RNA Showgrounds Master Plan.

During construction, disruption may occur to pedestrian access and vehicle and rail movement within the RNA Showgrounds. In particular, construction activities would disrupt connectivity between the northern and southern side of the RNA Showgrounds. The staging of construction across roads in the vicinity of construction worksites would help to minimise traffic and pedestrian interruptions.

Construction activities within the RNA Showgrounds are expected to occur for up to three years and would likely extend over two to three annual Ekka events. Connectivity within the RNA Showgrounds would need to be maintained during the Ekka events, including for the movement of vehicles, goods and livestock, and pedestrians.

Construction activities may also impact on amenity for users of the RNA Showgrounds, including through increased noise, dust and traffic. Implementation of environmental management measures, and restriction of construction activities during major events such as the annual Ekka, would assist in mitigating potential amenity impacts.

The Project would directly impact on four vacant properties at O'Connell Terrace for construction worksites. These properties are owned by the Department of Communities and BCC.

The Project would also impact on part of a residential property owned by the Department of Communities (Queensland Housing Commission) at Tufton Street and the Queensland Newspaper property at Campbell Street. However, this would not significantly impact on the use of these sites.

Construction of the Mayne feeder station would impact on land adjacent to the ICB and immediately west of Lanham Street. This land was previously occupied by construction activities for the Clem Jones tunnel and is currently used as a landscape buffer.

Land within Mayne Rail Yard would also be used for construction of the new viaduct adjacent to the ICB. The proposed route alignment has been adopted to minimise impacts on the movement and stabling operations. As such, this would likely have minimal impact on the use of the rail yard or rail operations.

Impacts on residential amenity may occur for the residential property at Tufton Street due to increased noise and dust associated with the upgrade of O'Connell Terrace, although these inputs would be managed through the implementation of appropriate environmental management measures.

Changes to property access

In the longer term, access to properties adjacent to O'Connell Terrace, including the RNA Showgrounds, would be maintained. However, temporary changes may occur to access for some properties due to construction activities associated with the raising of O'Connell Terrace.

Partial closure of O'Connell Terrace would be required at times during construction, which may result in disruption to property access for some properties adjacent to O'Connell Terrace. It is expected that this disruption would be minimal as alternative access is available for these affected properties. Potential impacts of the Project on transport and local traffic are described further in **Chapter 5 Transport**.

During construction, raising of O'Connell Terrace may impact access to the RNA Showgrounds. In particular, O'Connell Terrace is used for the transport of goods and livestock during the annual Ekka. Alternative access arrangements would be required should construction works at O'Connell Terrace coincide with the Ekka or other major events at the RNA Showgrounds.

Disruption to properties adjacent to Mayne Road and Hudd Road may also occur during construction. In particular, construction traffic accessing the construction site may impact on access to commercial businesses on these roads.

Access to Mayne Rail Yard would be maintained during construction from Lanham Street, with the construction of a temporary bridge across the existing rail corridor.

Implications for future land use

The Project has been designed with consideration and in support of the RNA Showground Master Plan land use proposals. Ekka Station would support development proposed as part of Bowen Hills UDA Development Scheme. Development within the Bowen Hills UDA is to occur over the next 10 to 15 years and would be a mix of residential and commercial uses. Impacts on uses that may be developed at the time of construction would be managed through environmental management measures.

Both the RNA Showgrounds Master Plan and establishment of the worksite for the Project would require the removal of the existing RNA cattle pavilions. The RNA Showground Master Plan proposes that these facilities be relocated within the RNA site. To ensure that RNA Showgrounds maintains its existing capacity, the Project would need to coordinate with the RNA to ensure that the new cattle pavilions are constructed prior to the establishment of the Project worksite.

9.4.7 Central section

The Project would have direct and indirect impacts on land use and planning in this section of the study corridor.

Spring Hill and Brisbane CBD

Implications for existing land use

The Project would directly impact on land currently accommodating the BCC's Local Asset Services central compound at Gregory Terrace, Spring Hill. During construction, this would be used for the construction worksite for the northern portal, while in the longer term, this would be used to accommodate the Exhibition feeder station. This facility would be required to be relocated in consultation with BCC.

A part of Victoria Park adjacent to the railway corridor and a small area of land currently accommodating the Queensland Health Biomedical Technology Service facility at Gregory Terrace, Spring Hill, would also be directly impacted by construction activities and surface infrastructure for the northern portal. While this would include the permanent loss of a small area of both the park and the Queensland Health property, the Project would not affect the use of either of these properties.

Within Victoria Park, a section of the existing access road and bikeway connecting from Gregory Terrace, an area of open park space, some trees and a playground would need to be removed or relocated for the Project. Impacts on flora and fauna within Victoria Park are discussed in **Chapter 11 Nature Conservation**, while potential impacts on traffic and transport are discussed in **Chapter 5 Transport**. Following construction, the area of Victoria Park and facilities disturbed by construction activities, and not required for Project infrastructure, would be rehabilitated and the facilities reinstated.

The Centenary Pool and tennis courts used by St Joseph's College, Gregory Terrace, would not be directly impacted by the Project. However, users of these facilities may experience impacts on amenity due to their proximity to the Victoria Park worksite and its associated activities.

The worksite is proposed to include a number of measures to mitigate potential impacts of construction activities on local amenity, such as noise barriers and screening. These would require a small footprint and are not expected to impact on the use of Victoria Park or surrounding facilities.

A number of sensitive uses, such as health and education facilities, are located in Spring Hill. These uses have little potential to be affected by vibration and noise generated from tunnelling works. Potential vibration impacts for sensitive uses are discussed further in **Chapter 16 Noise and Vibration**.

Throughout the Brisbane CBD, the Project would be in tunnel, with underground stations and station accesses to the surface located at Roma Street and lower Albert Street. Land uses to be acquired within the Brisbane CBD for either surface or volumetric acquisition, would primarily be commercial, with some land also comprising residential and open space uses. Roma Street and Albert Street stations would require the acquisition of freehold land, including land owned by BCC. A total of 22 businesses at Albert Street (10 properties) would be acquired for surface works, while no businesses or residential properties would be acquired for surface works at Roma Street.

Works for the new Roma Street Station would involve four separate worksites, including:

- **Roma Street A,** which comprises land currently used for Queensland Rail car parking at Parkland Boulevard adjacent to the Central Parkland apartments
- **Roma Street B**, which comprises land currently used for Queensland Rail car parking, adjacent to the Roma Street heritage station building and station Platform 2 and Platform 4

- **Roma Street C**, which comprises land currently used for Gallipoli Place, part of Emma Miller Place and an access road to Roma Street Parkland, adjacent to the Roma Street Transit Centre, Inner Northern Busway and Roma Street. The access road would be reconfigured to maintain access during construction.
- **Roma Street D**, which comprises land at Parkland Crescent that is currently used as car parking for the Roma Street Park Land.

Construction works at Roma Street Station would result in the temporary loss of approximately 137 pay and display car parking spaces at the College Close car park for Roma Street Park Land, and about 41 pay and display car parking spaces at the car park adjacent to platform 10. These car parking spaces are expected to be reinstated following construction. Construction of the central Roma Street station shaft would also result in the permanent loss of 37 car parking spaces located adjacent to Platform 3 that are currently used for Queensland Rail employees.

Works for the new Roma Street Station would be located primarily within Queensland Rail land and are likely to have few indirect impacts on nearby businesses.

Works at Albert Street would occur at two sites, including:

- **Albert Street north**, which comprises land located at the corner of Albert and Mary streets and currently contains low rise commercial buildings. This site would be the location of the northern station entry.
- **Albert Street south**, which currently comprises the Royal on the Park hotel, located at the corner of Albert and Alice streets. During construction, this site would be used for construction of the Albert Street underground tunnel and following construction, would be the location of the southern station entry.

Indirect impacts may occur for some land uses adjacent or near to construction activities associated with the Albert Street Station, such as the potential decline in amenity, or changes to pedestrian and vehicle access.

The worksites would generate indirect impacts to adjacent and nearby land uses. In particular:

- 30 premises containing a wide mix of residential, commercial, retail and government uses located adjacent to, or directly across the road from construction worksites
- 89 premises, consisting of similar mixed land uses, would potentially be impacted by changes to local road and pedestrian impacts around Albert Street. These premises' may experience a decline in amenity and accessibility as a result of Project activities, including changes to local road and pedestrian networks.

During construction, pedestrian and vehicle access near construction worksites would be maintained, although temporary disruptions may occur to movements on Roma Street, Albert Street, Alice Street and Mary Street, including by construction vehicles accessing worksites. The staging of construction in these locations along with the implementation of traffic management measures would assist in minimising disruption to vehicle and pedestrian movements. Further discussion about potential impacts on traffic and transport is provided in **Chapter 5 Transport**.

Permanent changes to the road network would occur in Albert Street, between Alice and Elizabeth streets, to facilitate increased pedestrian traffic from the Albert Street Station. This would involve the relocation of some loading areas and taxi ranks in Albert Street in order to widen footpaths. These changes are not anticipated to significantly impact traffic flows along Albert Street or impact surrounding uses. For further analysis see **Chapter 5 Transport**.

Following construction, pedestrian access in Albert Street would be improved through widened footpaths and increasing pedestrian standing areas at intersections with Margaret, Mary and Charlotte streets.

Once construction has been completed, the work sites would be decommissioned and rehabilitation of these sites would occur. Public spaces such as footpaths and roadways would be reinstated to meet necessary Brisbane City Council requirements.

Implications for current development proposals

A 43 storey residential tower (Carrington Towers) has been approved for development by BCC at 140 Alice Street and 16 Albert Street, opposite the proposed Albert Street south worksite and station entrance. The development involves demolition of the existing building and construction of 223 residential units and a restaurant. Demolition of the existing building is to commence in 2011, with development of the new tower to be completed by December 2014, prior to the construction of the Project.

The development has been designed with consideration of the Project development.

The prospective tenants of Carrington Towers are likely to be affected by the Project's construction activities. Similarly, the development at 99 - 103 Mary Street is also likely to be fully developed prior to commencement of construction of the Project.

During construction of the Project, the prospective tenants of these developments may experience impacts on amenity due to increased noise, dust and traffic from construction activities. The implementation of environmental management measures would assist in mitigating impacts on residents of these developments.

Cumulative impacts

There may be a short overlap from the commencement of construction activities for the Project and the completion of construction activities for Legacy Way (Northern Link) in 2014 at Victoria Park. While both projects would be located near to the ICB, cumulative impacts on nearby land uses, such as reduced amenity, are likely to be minimal. However, nearby land uses potentially affected by both projects may experience impacts due to the extended period of construction activity in this area from both projects.

Cumulative impacts are discussed further in **Chapter 23 Cumulative Impacts**.

Changes to property access

Access to the construction worksite at Victoria Park would be via an access road from Gregory Terrace. During construction, this access would be shared by the Biomedical Technology Service facility. While it is not expected to change property access to this facility, management of construction traffic would be required to ensure impacts on non-project related traffic are minimised.

Access to properties in Albert Street would generally be maintained during construction, Where temporary changes to access may be required, alternative access would be determined in consultation with property owners, residents and businesses.

Implications for future land use

The Project is not expected to influence the future development in Spring Hill due to its distance from rail infrastructure. However, for the area immediately north of Roma Street Station, increased accessibility may support a change in intensity of land use. Existing area classifications in this area comprise low-medium and high density residential, with development likely to occur in line with these designations.

Project stations at Roma Street and Albert Street would support changes to density or mix of nearby land uses. As these are located within the city centre area classification of City Plan, future development would not be constrained by density or building height restrictions.

Opportunities also exist for redevelopment in areas near Albert Street and Roma Street stations. The Project would support the ongoing process for urban renewal in the Brisbane CBD, particularly around the Roma Street Transit Centre, which proposes a mix of land use types including commercial, retail, residential, community, civic and recreation.

The access to the Albert Street Station would result in the loss or relocation of 22 retail businesses. The provision of space for retail purposes near to the station entrance would assist in offsetting the loss of this retail space.

Kangaroo Point, Woolloongabba and Dutton Park

Implications for existing land use

In Kangaroo Point, Woolloongabba and Dutton Park, the Project would be constructed primarily in tunnels, with above ground components at the Gabba and Boggo Road station sites.

Land uses above the tunnels are predominantly residential, but also comprise a mix of commercial, industrial, community and open space. The tunnels pass under two potentially sensitive uses which could be susceptible to vibration from tunnelling, being the eastern corner of the South Brisbane Cemetery and the Ecosciences Precinct at the Boggo Road Urban Village. Potential impacts on these structures are described in **Chapter 16 Noise and Vibration**.

The station and worksite at Woolloongabba would be located on land currently occupied by the Queensland Government Goprint facility, between Vulture and Stanley streets. The station cavern would extend under Stanley and Vulture streets and commercial properties adjoining Stanley Street. These commercial properties would not experience any direct surface impacts.

The Boggo Road Station and associated construction works would be located on land owned by the DPW, at the Boggo Road Urban Village. The station would be located between the Boggo Road Gaol and the Ecosciences Precinct. The location of the station allows direct access to the existing and proposed developments within the urban village as well as to the Boggo Road Busway Station and Park Road Station.

Vehicle movements on major roads surrounding the Woolloongabba and Boggo Road worksites would be maintained during construction, but may experience some disruption due to construction vehicle access. The implementation of traffic management measures would assist in minimising disruption to vehicle movement near the worksite. Further discussion about potential impacts on traffic and transport is provided in **Chapter 5 Transport**.

During construction, pedestrian access near worksites would be maintained. The Boggo Road Station is proposed to be constructed using ‘cut and cover’ methods, which would temporarily impact the pedestrian plaza between the Ecosciences Precinct and the Boggo Road Gaol. During construction, alternative pedestrian access would be required in the vicinity of these construction works. Following construction, the pedestrian plaza would be reinstated.

Noise barriers would be established at construction worksites to mitigate potential impacts of construction noise for surrounding land uses. These are not expected to generate further significant impacts on land uses in these areas.

The Gabba Station would enhance access to the Gabba stadium and has been designed to accommodate an influx of passengers during events at the Gabba stadium. The station would also enhance accessibility to the Mater Hospital complex and nearby medical services precinct. Considering the regional significance of the hospital, the increased accessibility would provide a community benefit beyond the immediate locality of the hospital or the station.

The location of the Boggo Road Station would create a key transport hub with the Park Road Station, Boggo Road Busway Station and services from the University of Queensland (UQ) at St Lucia. This hub would enhance access to the PA Hospital complex and nearby medical services.

The connection would be further enhanced through the possible future provision of direct pedestrian access between the Boggo Road Station and the hospital complex. The location of the station would also help to strengthen the knowledge-based ties between the UQ and the PA Hospital.

Changes to property access

Property access to residential and commercial properties near the Project on Vulture Street and Stanley Street would be maintained during construction and operation. The location of the construction worksite would not impact on access to the Gabba during major events or on access to the Woolloongabba Busway Station. In particular, access between the Busway Station and the Gabba Stadium would be maintained during construction. Further assessment of transport impacts are described in **Chapter 5 Transport**.

The Boggo Road work site would require the partial closure of Railway Terrace, north of Rawnsley Street and temporary closure of Peter Doherty Street. Alternative access is available for uses located on these streets and these closures would not impact on any current land uses in this area.

Implications for future land use

The Gabba Station would be located in the western part of the Woolloongabba UDA. The Woolloongabba UDA Development Scheme recognises that future residential and commercial development could be accommodated on land currently occupied by the Goprint and Land Centre buildings. The Project would support the development of medium to high density residential and commercial development consistent with the development scheme, through the provision of high quality public transport services.

Access to high quality public transport infrastructure provided by the Project would also support proposed land use changes at other nearby locations, such as Gabba Central and Kangaroo Point south. Land use changes stimulated by enhanced accessibility to Woolloongabba would identify a need for planned changes in conjunction with implementation of the Woolloongabba UDA Submitted Development Scheme.

The Project also provides an opportunity to support the Boggo Road Urban Village's aim of providing a high density, mixed use development. Improved accessibility, provided by the Project, may result in further demand for residential and commercial uses to be accommodated within the urban village. Enhanced accessibility at Boggo Road may also stimulate pressure for redevelopment on land located immediately south, ie Rawnsley Street. This area is mostly classified as character residential, as well as a small area designated as multi-purpose – convenience centre.

Similarly, pressure for redevelopment on land west of Annerley Road could arise as a consequence of enhanced accessibility. Possible land use changes could include low-medium density, medium density residential and commercial development.

9.4.8 Southern section

The Project would have direct and indirect impacts on land use in this section of the study corridor, including from the location of surface infrastructure and tunnels.

Fairfield, Yeronga and Yeerongpilly

Implications for existing land use

The Project would involve both tunnel and surface works in Fairfield, Yeronga and Yeerongpilly. Surface works include the ventilation and emergency access building at Fairfield and the southern portal and new station at Yeerongpilly. A major worksite would also be located at Station Road, Yeerongpilly, with access to Ipswich Road via Lucy Street.

The construction worksite to support the ventilation and emergency access building at Fairfield would be located across two properties, including a landscaped median between Fairfield Road and Railway Road and an undeveloped portion of land occupied by an existing Energex substation. The site would front Sunbeam Street, Railway Road and Bledisloe Street. Occupation of the undeveloped portion of land occupied by the Energex substation would be used for the permanent realignment of Railway Road. This would allow construction of the southern ventilation and emergency access shaft and building on the land bounded by Fairfield Road, Railway Road and Bledisloe Street.

The ventilation and emergency access building is situated in a predominantly residential area, although a number of non-residential uses are also present, including the Yeronga Vet Surgery, Fairfield Christian Family Church and Energex substation. During construction, nearby properties may experience reduced amenity due to increased noise, dust and construction traffic. Following construction, the ventilation and emergency access building is not expected to significantly impact on the amenity of these properties, which is already affected by the location of the existing Energex substation and traffic on Fairfield Road.

Wilkie Street is required to be realigned further east to accommodate the southern portal at Yeerongpilly. This would require the acquisition of residential, commercial and industrial uses fronting the existing Wilkie Street alignment, as well as some properties on Green and Livingstone streets, near to Wilkie Street. A major construction worksite is also proposed to be established at Station Road. This would directly impact on a number of industrial uses.

During construction, residential properties near to worksites and construction activities would experience potentially adverse changes to amenity, particularly due to increased noise and dust. Residential uses backing onto existing industrial uses are currently affected, to some extent, by noise and other industrial effects. However, proposed construction activities would be undertaken on a greater scale than existing industrial activities. Consequently, specific mitigation measures to address noise, dust, night lighting, traffic and other impacts of construction activities would be required around the worksite and construction activities. Retention of the existing industrial building along the northern boundary of the Yeerongpilly worksite would assist in mitigating construction noise impacts on the residential land to the north.

The provision of additional surface tracks and stabling facilities Yeerongpilly would require widening of the existing rail corridor as well as works within Clapham Rail Yard. These works would require full or partial acquisition of properties accommodating industrial and residential uses on Evesham Street, Unwin Street, Ipswich Road and Fairfield Road. Acquisition of land used by Weston Milling for storage and car parking west of Clapham Rail Yard would also be required. Associated buildings are not proposed to be used for the Project.

During operation, the Project would result in some residential properties, particularly in Livingstone, Green, Stamford and Crichton streets, becoming exposed to increased rail and road noise with the removal of existing buildings on Wilkie Street. Visual screening and noise barriers would be provided, where required, to mitigate potential noise and visual impacts from the rail operations. These would be accommodated within land acquired for construction activities and would not require the acquisition of additional land.

The Project would change existing access and mobility at Yeerongpilly Station including:

- widening of the existing pedestrian bridge over the rail corridor to the Queensland Tennis Centre and proposed Yeerongpilly TOD site
- provision of kiss ‘n’ ride facilities adjacent to the proposed station plaza at the realigned Wilkie Street
- relocation of the local bus stop at Fairfield Road to achieve better integration with the new Yeerongpilly Station.

Project works would increase the width of the rail corridor. Existing pedestrian crossings of the rail corridor would be maintained and improved as part of the Project to offset the potential risk of increasing the existing severance effect of the rail corridor. Further discussion of potential impacts on traffic and local access is provided in **Chapter 5 Transport**.

Changes to property access

The realignment of Wilkie Street would be constructed as part of the Project early works and would reinstate similar connectivity and circulation in the area. However, during construction of the new road, use of Wilkie Street would be temporarily disrupted. Alternative access to arterial roads, such as Ipswich Road and Fairfield Road, would be available via School Road, Cardross Street and Gow Street.

During construction, Station Road and part of Lucy Street at Yeerongpilly would be closed to general traffic and realigned to provide direct access to the worksite. Access would be maintained to properties on Lucy Street east of Moolabin Creek. Land fronting the closed section of Lucy Street, west of Moolabin Creek, would be acquired for construction purposes. Existing through traffic would be required to use alternative routes for access to and from Ipswich Road. Following construction, Lucy Street and Station Road would be realigned and reconnected to Wilkie Street providing access to future land uses and for through traffic.

Access to the southern ventilation and emergency access building work site would be via Fairfield Road, Bledisloe Street and Railway Road. Access to properties surrounding the worksite would be maintained during the construction phase. Appropriate traffic management measures would be implemented to ensure that potential impacts on local access in this area are managed.

Implications for future land use

The Project would support the implementation of planning for the Yeerongpilly TOD by providing a high quality public transport service to the Brisbane CBD with linkages to other parts of the rail network and other public transport modes.

The Yeerongpilly TOD concept plan provides for a mix of commercial, retail, residential and community uses that rely on the linkage between the proposed Yeerongpilly Station and the Queensland Tennis Centre. The existing community living and working around the TOD would also support the development. The high quality transport services provided by the Project, integrated with other modes, and connecting with strategic employment centres, would support or ‘underwrite’ the future implementation of the concept plan for the Yeerongpilly TOD.

The area surrounding the Yeerongpilly worksite and new station may experience pressure for redevelopment to high density residential or mixed use commercial to take advantage of the transport advantages expected from the Project. Land use change in Yeerongpilly would continue to be managed by the BCC through the Stephens Local Plan and other elements of the City Plan. A change to the planning instruments would be required to facilitate land use change, should BCC consider such changes to be warranted.

BCC has sought to retain character housing in Yeerongpilly through land use designations and planning measures. Increased residential densities would need to reflect this intention.

The Project is unlikely to generate redevelopment within Yeronga given there is no additional surface rail infrastructure within this area.

Moorooka, Rocklea and Salisbury

Implications for existing land use

Project works in Moorooka, Rocklea and Salisbury would include minor widening of the rail corridor and realignment of some local roads.

Surface works in Moorooka, Rocklea and Salisbury, would require the full or partial acquisition of land at Fairfield Road, Annie Street, Railway Parade, Fairley Terrace and Dollis Street. Existing land uses are mostly industrial, but also include motel accommodation at the corner of Fairfield Road and Medway Street, Rocklea and one property currently used for a BCC services facility at Dollis Street, Salisbury.

During operation, the amenity of residential land uses at Annie Street, Rocklea may be impacted due to the removal of existing industrial buildings adjacent to the rail corridor. The removal of these buildings may result in these properties becoming exposed to increased rail noise.

The Project would involve the following changes to local access and traffic movement:

- closure of the Beaudesert Road Service Road open level crossing at Rocklea, including realignment of Heaton Street and Fairlie Terrace
- realignment of the Fairfield Road southbound entry ramp to the Ipswich Motorway at Rocklea, including realignment of the intersections of Fairfield Road with Muriel Avenue and Medway Street
- realignment of Dollis Street at Salisbury.

These changes would impact on local traffic movements and may reduce local access for nearby residential, commercial and industrial land uses.

Disruption to local access may also occur during construction of these road network changes, potentially impacting on nearby land uses. Further discussion about potential impacts on local traffic and access is in **Chapter 5 Transport**.

Upgrading of pedestrian access to Rocklea and Moorooka stations to be compliant with the *Disability Discrimination Act 1992* (DD Act) requirements is also proposed as part of the Project. This would result in improved pedestrian access and connectivity to both Rocklea and Moorooka stations.

Implications for future land use

The Project is not expected to result in either direct or indirect changes to future land use in Moorooka, Rocklea or Salisbury.

9.4.9 Industrial land

Industrial uses and land zoned for industry within Brisbane's inner suburbs is important for the economic viability of the city.

The inner south-western suburbs of Fairfield and Rocklea were identified in the *Economic and Employment Development Strategy* of the draft *Local Growth Management Strategy* for Brisbane as key economic zones. Some industrial areas in these zones would be impacted directly by the Project.

Availability of appropriate areas of industrial and commercial land is identified in the draft CityShape Implementation Strategy as an important consideration for the future growth and viability of Brisbane's economic zones.

The development of major infrastructure projects, land use changes and redevelopment in the inner Brisbane area, has impacted on available industrial land stock. The Project would impact on industrial land at Station Road, Yeerongpilly and Lillian Avenue and Dollis Street, Salisbury.

Industrial land in Yeerongpilly is classified for general industry and currently contains a range of industrial activities, including vehicle service, metal working, food processing and warehousing and storage. Commercial office space accommodating a range of small scale commercial and community uses is also provided in this area.

A total of 107 businesses located in industrial areas would be acquired for the Project, the majority of which involve light industrial activities.

Lucy Street would be realigned to provide a more efficient worksite arrangement while maintaining a reasonable utility for the land subsequent to Project requirements. The existing industrial building along the northern boundary of the Yeerongpilly worksite is proposed to be retained for Project purposes, including mitigation of construction noise impacts on the residential land to the north. Following construction, the industrial sites used for construction work site at Yeerongpilly may be redeveloped for higher order uses, such as mixed use residential and commercial, to benefit from the improved transport access. This would result in the permanent loss of industrial uses in this area.

The land at Dollis Street is currently used for car parking and storage. This would be used as a worksite mostly for plant and equipment storage and materials lay-down during the construction phase. Following construction, this site would be returned to its existing use.

9.4.10 Spoil placement and haulage

Spoil from tunnel construction would be generated in varying quantities at Project worksites. The total estimated volume of spoil from project works is approximately 3.4 million tonnes.

The Woolloongabba and Yeerongpilly worksites would be used to remove spoil from the TBMs, and would have the largest volumes of spoil for disposal. The northern approach portal and Boggo Road Station would also generate significant volumes of spoil. Volumes of spoil generated at each worksite are described in further detail in **Chapter 4 Project Description**.

Spoil placement sites

Land within Swanbank at Ipswich is proposed as the spoil placement site for the Project.

Assessment of land suitability within the Swanbank area identified a precinct for spoil placement situated to the south of Swanbank Road and north of Cumner Road. The precinct comprises an area of approximately 370 ha and includes disused mine voids. It is served by Abrahams Road and is removed from sensitive receptors.

If land within the spoil placement precinct is not available for commercial reasons, there are a number of suitable alternatives in the general Swanbank area. Such alternatives are also well removed from sensitive receptors and have access from State-controlled roads. The spoil placement precinct is located within an area identified on the Ipswich City Plan Mining Influence Area Overlay Map as having been subjected to prior surface and potential underground mining activities. The mine voids in the precinct are of sufficient size to accommodate the volume of spoil generated by the Project.

The area surrounding the spoil placement precinct is sparsely populated and primarily occupied by industrial or waste disposal activities or land that is unable to accommodate development due to mining disturbance. The nearest potential residential property is located approximately 1.7 km to the north-east.

Spoil haulage

Spoil haulage from construction worksites to Swanbank would be primarily via Ipswich Road/ Ipswich Motorway or the ICB/ Milton Road/ Centenary Motorway with both routes travelling along the Ipswich Motorway, Cunningham Highway and Redbank Plains Road to Swanbank.

A number of local roads would also be used to access Ipswich Road including Fairfield Road and Lucy Street, and to the Centenary Motorway, including Roma Street, Margaret Street, Alice Street, Gregory Terrace and O'Connell Terrace.

At Swanbank, haulage trucks would leave the Cunningham Highway and follow Redbank Plains Road and Swanbank Coal Road to access the spoil placement precinct. The haulage route has been selected to minimise the potential impact on residential land uses within the area.

9.4.11 Summary of impacts

The regional and local planning frameworks provide an overarching view that transport networks within South East Queensland and Brisbane require continual development to accommodate the future growth forecast for the Region. Generally, a range of transport responses would be required to ensure that the Region is able to operate efficiently. The Project would assist in improving regional and local passenger movements and support these regional and local planning frameworks.

The Project would support sustainable population growth both in Brisbane and in South East Queensland by providing enhanced accessibility and connectivity between residential areas and places of employment and services. By supporting the establishment of high density centres in designated locations around some of the stations, the Project would relieve travel demand pressures on the regional and local transport systems, eg road, bus.

The integration of Project infrastructure and services with existing and planned public transport and land use in key locations, such as Yeerongpilly, Boggo Road, Woolloongabba, Albert Street and Roma Street, would also support regional planning and sustainable growth.

The Project would require the acquisition of land on the surface and underground. Surface land requirements would coincide with worksites, stations, including underground stations, surface tracks and other associated infrastructure. The volumetric acquisitions would coincide with the mainline tunnels, cross-passages and underground stations. The volumetric acquisition would include the zone of influence.

The Project would require the acquisition of land used for State and local government, residential, open space and recreation, industrial and commercial purposes. While most of these uses could re-establish at alternative locations, there are a small number of uses that may be compromised as a result of acquisition. A number of ancillary facilities, such as car parking or regional service centres, are location dependent land uses and relocating them may not be possible.

Through the provision of improved public transport accessibility and efficiency, the Project would be likely to support intensification of land uses around stations. Any redevelopment would be managed by the relevant planning and assessment manager. Redevelopment would be in line with the aims of the development schemes for Bowen Hills and Woolloongabba UDAs, the City Centre Neighbourhood Plan, Boggo Road Urban Village and Yeerongpilly TOD.

Once operational, the Project would lead to an improvement to amenity and pedestrian accessibility for the neighbourhoods served by those stations that form part of the Project and other stations with consequential increased frequency of service. However, during construction land uses near to worksites and construction activities may experience a temporary decline in amenity and accessibility as a result of road and footpath closures, noise, vibration, air quality and visual implications. These issues are addressed in **Chapter 16 Noise and Vibration**, **Chapter 15 Air Quality and Greenhouse Gas Emissions** and **Chapter 10 Visual Amenity and Lighting**.

9.4.12 Mitigation measures and recommendations

The following outlines measures to manage land use impacts from the construction and operation of the Project. They include measures to be undertaken as part of the Project as well as recommended measures to be undertaken separate to the Project to maximise the benefits provided by the Project through improved public transport access and land use and transport integration.

As discussed in **Section 9.4.3**, consideration should be given to the redevelopment following construction of the Yeerongpilly construction worksite to maximise the benefits of improved transport access. A separate planning process should be implemented by the Queensland Government or Brisbane City Council, in consultation with the local community, to determine the preferred future land use pattern for this area. This should include consideration of the provision of commuter car parking to support the proposed Yeerongpilly Station. This process would not be undertaken by the Project.

Improved access to the PA Hospital and nearby medical services provided by the location of the proposed Boggo Road Station, would be further enhanced by the provision of direct pedestrian access between the station and the hospital complex. Consideration should be given in the future planning and development of this area by Brisbane City Council, the Queensland Government or other private developer(s), to the provision of this connection.

Environmental Management Plans (EMPs) would be prepared for the construction and operation phases of the Project which identify measures to ensure that potential impacts of the Project are minimised and environmental values of the study corridor are protected and enhanced where possible.

Draft outline EMPs for the construction and operations phases are provided in **Chapter 24 Draft Outline EMP**. The draft outline EMP also includes design guidelines to be implemented through the detailed design process to avoid or manage the Project's environmental impacts.

Recommended mitigation measures to avoid or minimise potential impacts on adjoining land uses are outlined as follows. Further mitigation measures to manage land use impacts are also outlined in **Chapter 24 Draft Outline EMP**.

Design and operation

During the detailed design phase, the following measures are recommended to avoid or minimise potential land use impacts of the Project's design and operation:

- Ongoing consultation would be undertaken with the RNA and Lend Lease with regard to the design, access, heritage and construction schedules of the Project and RNA Showgrounds redevelopment to assist in managing potential impacts for both projects.
- Ongoing consultation would be undertaken with key stakeholders in relation to the future development of the Bowen Hills and Woolloongabba UDAs (ULDA), Boggo Road Urban Village (DPW and Leighton) and Yeerongpilly TOD (Department of Local Government and Planning) to ensure that the objectives of the Project and these developments continue to be achieved through increased transport and land use integration.
- Opportunities to minimise the loss due to the Project of pre-1946 character housing, particularly at Yeerongpilly, would be investigated.
- Opportunities to minimise the loss of retail space within the CBD through the provision of retail space within the Albert Street station would be investigated.
- Ongoing consultation would be undertaken with BCC in relation to the relocation of the Local Asset Services central compound at Gregory Terrace, Spring Hill.
- Opportunities to minimise the temporary loss of land within Victoria Park for the worksite would be investigated through detailed construction planning and site layout.

Construction

The following mitigation measures are recommended to manage potential impacts on land uses near to construction activities:

- Access to adjoining properties would be maintained, where practicable. Where changes to access are required, alternative access arrangements would be identified in consultation with property owners and occupants.
- Access for delivery vehicles to commercial and industrial land uses near to the Project works would be maintained, where practicable. Where changes are required, alternative access arrangements are to be identified in consultation with local businesses.
- Safe and efficient access to major land uses such as the RNA Showgrounds, Gabba Stadium, Roma Street Parkland, Suncorp Stadium and the Queensland Tennis Centre would be maintained during major events.
- Impact on the amenity of land uses surrounding construction worksites would be maintained during construction through the implementation of appropriate environmental measures aimed at reducing potential construction impacts such as noise and vibration, dust, emissions and odours and construction traffic.
- Access for emergency services vehicles would be maintained for the duration of construction works to the RBWH, PA Hospital and Mater Hospital.
- Impacts on access to or the use of community uses would be avoided or minimised, including through the implementation of appropriate environmental management measures and ongoing consultation with the owners/ managers of the community uses.