

CHAPTER 2 PROJECT INTRODUCTION AND BACKGROUND



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CHAPTER SUMMARY AND RECOMMENDATIONS:

- Brisbane's busway network was conceived in the mid-1990s as a public transport system that would complement Brisbane's existing heavy rail network and could be readily delivered as a cost-effective and fast trunk style rapid transit public transport system.
- The South East Busway in particular carries high volumes of customers to the Central Business District (CBD), peaking at 12,000 customers per hour. In 2015, the South East Busway was ranked eighth in the world in terms of vehicle frequency (buses per hour in the peak direction) and was identified as the highest frequency segregated busway in the world.
- However since 2008, Cultural Centre busway station has been over capacity resulting in increasing travel times and unreliability of service for customers. Critical parts of Brisbane's existing bus infrastructure have reached capacity and cannot accommodate significant growth. The reliability and operational efficiency of the bus network is also reducing due to the constraints of the network, particularly within the inner-city.
- In January 2016, Council announced the Brisbane Metro to address Brisbane's inner-city bus network congestion issues. A preliminary alignment was released, proposing sections of the South East and Inner Northern Busways be augmented with a rubber-tyred metro service that would link stations at Woolloongabba and Herston.
- An options assessment process was completed in March 2017 and served as the first stage of Brisbane Metro's feasibility assessment. A revised Brisbane Metro was announced, being a high-frequency metro network across 21 kilometres of existing busway linking key areas of regional economic significance within South East Queensland (SEQ).
- Connecting Eight Mile Plains, the Royal Brisbane and Women's Hospital and University of Queensland Lakes busway stations, and delivering two new high-frequency, high-capacity Metro lines serviced by Metro vehicles, Brisbane Metro will support vital access to jobs, and economic and lifestyle precincts as the city and SEQ grows into the future. Metro underpins Brisbane's future liveability and attractiveness as a place to do business.
- There are a range of projects within, or in close proximity to the Brisbane Metro that have been considered, including the proposed Cross River Rail Project (CRR). Brisbane Metro and CRR are considered complementary, as coordinated delivery of both projects would induce passenger demand and provide substantial benefits by making significant improvements to, and integration of, the public transport network, stations and station precincts.
- This Business Case has been developed using endorsed Queensland and Australian Government best-practice infrastructure and project evaluation frameworks.
- A strong governance, administrative and project management framework is in place to manage the delivery of the Business Case. The outcomes of the Business Case were confirmed through the government and project governance arrangements established for the Brisbane Metro.

2.1 Purpose and Overview of this Chapter

The purpose of this chapter is to provide an overview of the history of Brisbane's busways and the Brisbane Metro, and to provide a brief background on Brisbane Metro's progression to date.

This chapter outlines:

- The background of busways in Brisbane, and the development of the Brisbane Metro
- Previous projects, studies and business cases that have identified the requirement for additional bus network capacity in inner Brisbane
- Projects under development which may have an impact on the Brisbane Metro, and vice versa
- The purpose, development and structure of this Business Case, including a short overview of each chapter.

Particular attention is given to the outcomes of previous planning studies that have investigated the requirement for a high-frequency transport system for inner Brisbane. Discussion is also provided on the critical relationship between the Brisbane Metro and the CRR Project.

2.2 Project Background

The SEQ public transport network consists primarily of heavy rail and bus services. The rail network spans almost 810 kilometres of track, through nine separate lines and 149 stations, which transport customers and freight traffic throughout the major metropolitan area surrounding Brisbane. With the opening of the Redcliffe Peninsula line in October 2016, a further six stations have been added to the network.

However, compared to other major Australian cities, Brisbane's rail network has limited capacity and coverage. This is partly due to the limited number of inner-city stations and a single crossing across the Brisbane River.

Brisbane's busway network was conceived in the mid-1990s as a public transport system that would complement the existing heavy rail network and could be readily delivered as a cost-effective bus-based public transport system to deliver fast 'trunk' style services for customers.

Since the late 1990s, significant investment by the Queensland Government and Council was made into Brisbane's busways and key bus connections including:

- South East Busway from Cultural Centre to Eight Mile Plains, a distance of approximately 16 kilometres, completed in 2001
- Inner Northern Busway from King George Square busway station to Gilchrist Avenue, Herston, a distance of approximately four kilometres, completed in December 2005
- Eleanor Schonell Bridge from Annerley Road to the University of Queensland (UQ) Lakes busway station, a distance of approximately one kilometre, completed in 2006
- Eastern Busway, from Ipswich Road to Eleanor Schonell Bridge, completed in 2009
- Eastern Busway, from South East Busway to Main Avenue, completed in 2011
- Northern Busway, from Herston to Windsor, completed in 2009; and Windsor to Kedron, completed in 2012.

The entire busway network is 25 kilometres of dedicated bus corridor with 27 stations, and covers large parts of Brisbane, with corridors running north, south and east of the city centre. The South East Busway corridor is a critical public transport commuter corridor, with a peak of 12,000 customers passing through the Woolloongabba junction in the AM peak¹.

Brisbane's bus network is an important component of the region's public transport system. Two-thirds of public transport users are bus users with more than 76 million passenger trips in 2015-2016.

The high level of patronage on the South East Busway has led to it being recognised as a prime example of best practice in rapid transit. A high level benchmarking exercise in 2015, ranked Brisbane's South East Busway eighth in the world in terms of vehicle frequency (buses per hour in the peak direction) and the highest frequency segregated busway in the world.

The northern extent of the South East Busway is at Brisbane's arts and cultural precinct, next to the South Bank Parklands. There is a short, yet extremely significant missing link from here to the southernmost station on the Inner Northern Busway at King George Square, with the Brisbane CBD and Victoria Bridge spanning the gap.

Without priority, bus services compete with other traffic at intersections and sit in queues, particularly during peak periods.

Since 2008, the Cultural Centre Busway station has been over capacity, resulting in increasing travel times and unreliability of service for customers over past 10 years.

Within and on approach to the city, other constraints are particularly evident and visible on key parts of the busway network, including Buranda, Mater Hill and South Bank stations. As a result, bus services have been directed away from the segregated busway corridor to the Captain Cook Bridge in an attempt to improve journey times; however heavy road congestion in peak times is placing the performance of these services under pressure. Figure 2.1 provides an overview of the current bus network issues and constraints.

¹ goCard data.

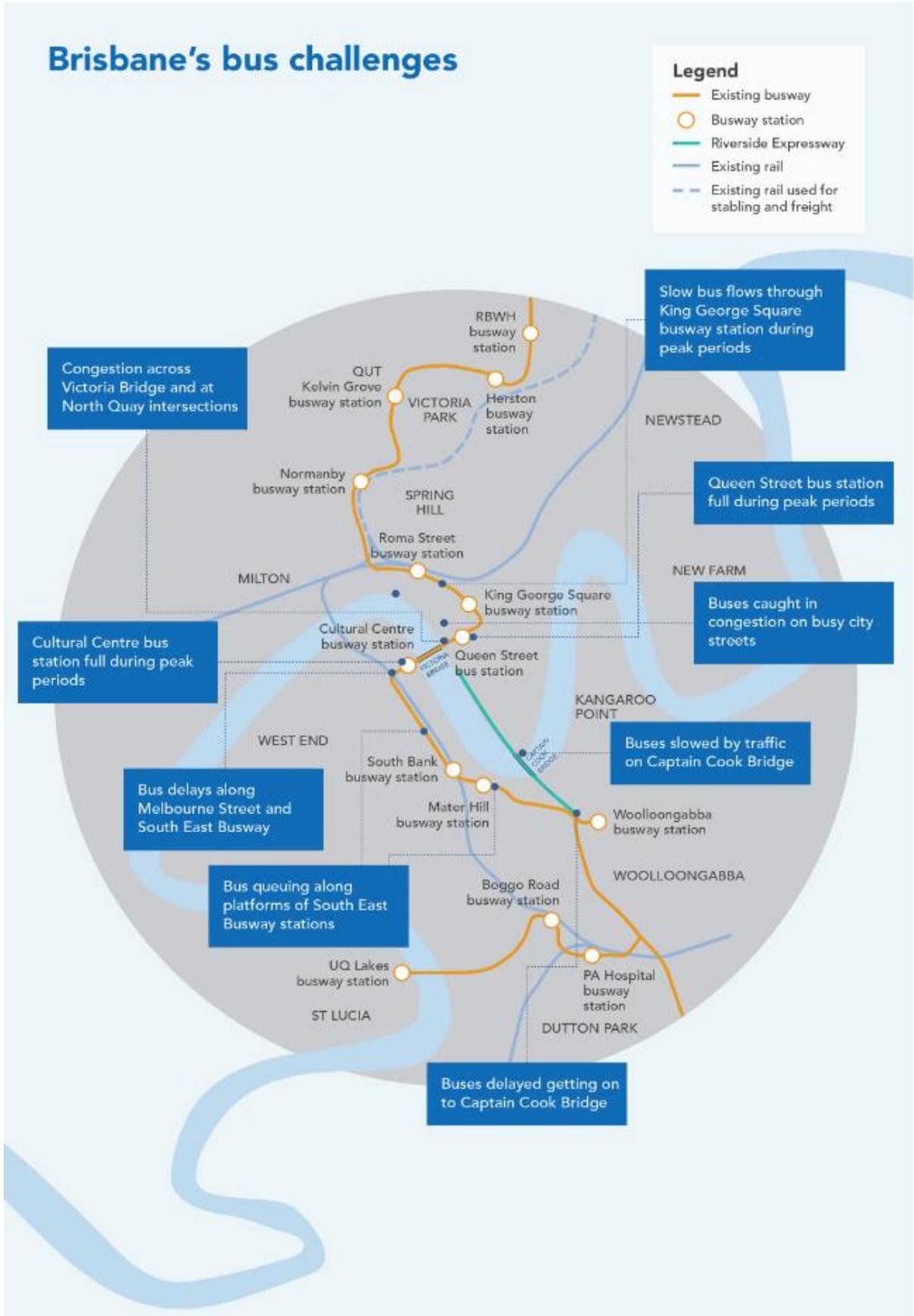


Figure 2.1 – Brisbane bus network constraints and challenges

Providing segregated capacity in and through the inner-city bus network is critical to the effective operation of the wider bus network and the ability to cater for future growth in services and for the city to realise its economic aspirations.

A range of studies have previously been initiated and investigated to address the bus constraints, however to date, these studies have not progressed past feasibility stage due to a range of reasons, including affordability constraints, change in government direction and adverse community reaction.

2.2.1 Brisbane Metro

In January 2016, the Lord Mayor announced the Brisbane Metro to address Brisbane's inner-city bus network congestion issues. A preliminary alignment was released proposing sections of the South East and Inner Northern Busways be converted to a rubber-tyred metro service that would link stations between Woolloongabba and Herston.

Given the range of past studies and emerging solutions to address bus congestion, an options identification and assessment process was undertaken to serve as the first stage of a project feasibility assessment.

Underpinned by evidence, the options assessment considered all potential options for the Brisbane Metro, and identified the preferred project solution. A key driver for revising the announced project solution was the feedback provided from the community and stakeholders on the original proposal.

The options assessment was finalised in March 2017, with endorsement given to proceed to the next stage of the project feasibility assessment, to complete this Business Case.

In March 2017, based on the outcomes of the initial investigation stage, Council announced the revised Brisbane Metro. The revised Brisbane Metro comprises a high-frequency metro network across 21 kilometres of existing busway. It will link the Eight Mile Plains, Royal Brisbane and Women's Hospital (RBWH) and UQ Lakes busway stations and deliver two new high-capacity metro lines:

- Metro 1 – Eight Mile Plains busway station to Roma Street busway station
- Metro 2 – RBWH busway station to UQ Lakes busway station.

It will also introduce a new fleet of around 60 trackless, rubber-tyred metro vehicles, each with the capacity to carry up to 150 customers that can use the busway alongside regular bus services.

The project will also deliver:

- A new state-of-the-art underground metro station at the Cultural Centre
- Upgrades to 18 existing busway stations
- Interchange opportunities at 11 locations
- Victoria Bridge converted to a 'green bridge' for metro and bus services
- A new depot facility for metro vehicles.

Brisbane Metro presents a unique opportunity to revise Brisbane's bus network, which will provide significant benefits to Brisbane's public transport customers and to the Brisbane economy.

A number of 'elements' work together to deliver the Brisbane Metro that meets its objectives, and delivers improvements to the broader public transport network, as well as supporting wider city building goals. The Brisbane Metro comprises the following five elements:

- Policy and operational changes
- New and changed services
- Existing, new and upgraded infrastructure
- New metro vehicles
- new passenger and vehicle management systems.

By combining these elements, Brisbane Metro delivers considerably greater benefits than any single solution to addressing Brisbane's bus capacity and congestion issue.

An overview of the Brisbane Metro alignment is provided in Figure 2.2.

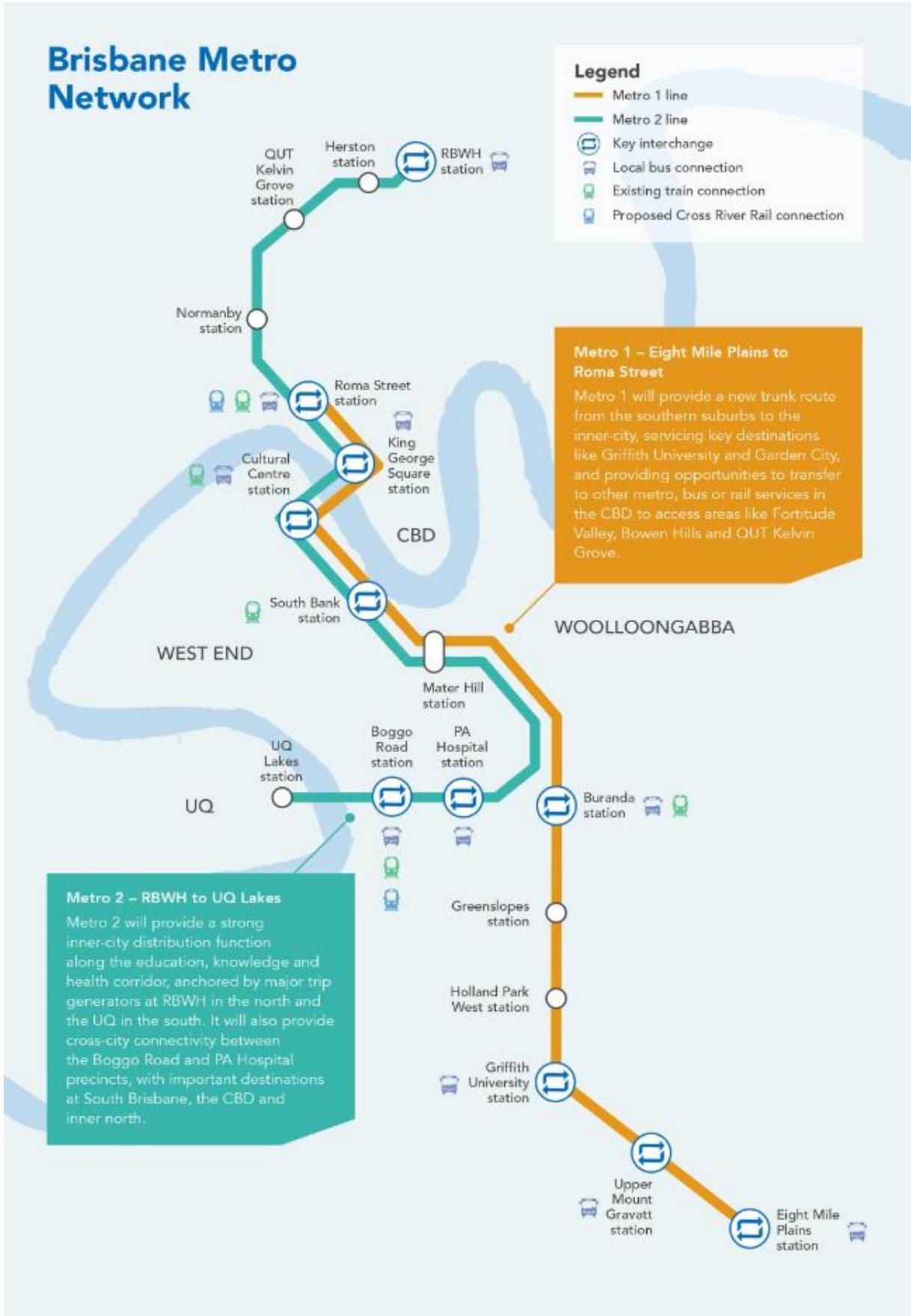


Figure 2.2 – Brisbane Metro alignment

2.3 Past Studies

2.3.1 Suburbs 2 City

In 2013, Council developed the Suburbs 2 City (S2C) Buslink initiative to investigate options to improve the performance of Brisbane's bus services through the busiest parts of the inner-city at the Cultural Centre precinct and the CBD.

Stage 1 of the S2C Project proposed to improve connections between Brisbane's northern and southern busways across the Brisbane River and through the CBD, via a dedicated busway link to increase bus capacity across the river into the city centre and alleviate bus capacity issues along Adelaide Street, and free up city streets for people.

Stage 1 proposed a segregated busway connecting the South East Busway to the Inner Northern Busway at King George Square comprising tunnels and a new busway bridge shared with pedestrians and cyclists.

This was part of a broader, long-term busway concept consisting of Stage 2 extending from the Inner Northern Busway to Centenary Place, Fortitude Valley and Stage 3 from Centenary Place, Fortitude Valley to the Northern Busway at RBWH.

Council completed and released the results of the S2C Project pre-feasibility assessment, however it was recognised that economic and efficiency benefits could be achieved if the S2C Project was combined with a second river rail crossing solution. As such, the Bus and Train (BaT) Project was progressed to business case phase in conjunction with the Queensland Government.

2.3.2 Bus and Train (BaT) Project

From late 2013, the Department of Transport and Main Roads (TMR), as part of an integrated project team including Queensland Treasury, Queensland Rail and Council, developed a reference design and draft business case for the BaT Project. Concurrently, an Environmental Impact Statement (EIS) process commenced, including several rounds of community consultation on the draft reference design.

The BaT Project combined previous planning for the 2011 Cross River Rail Project with Council's S2C Project. It proposed a joint bus and rail solution to the capacity constraints at key inner-city locations, including the inner-city rail network, Merivale Bridge, Central Station, Cultural Centre bus precinct and Captain Cook Bridge.

The BaT Project proposed a 6.7 kilometre integrated bus and rail link, including a five kilometre tunnel, extending from Dutton Park (in the south) to Spring Hill (in the north). Passing under the Brisbane River and CBD, the BaT Project included new underground bus and rail stations at Woolloongabba, George Street and Roma Street.

The BaT Project was afforded 'threshold status' by Infrastructure Australia (IA) in 2014².

Following the Queensland Government election in 2015, the Queensland Government decided to discontinue consideration of the BaT Project and re-investigate the CRR Project.

² 'Threshold status' was a status Infrastructure Australia previously provided to projects on its Infrastructure Priority List (the four statuses in order of least developed to most developed being 'Early Stage', 'Real Potential', 'Threshold' and 'Ready of Proceed'). Projects that have reached 'Threshold Status' have completed Infrastructure Australia's first six stages of project development and are well into the final stage (being development of a business case, cost benefit analysis and deliverability assessment).

2.4 Related Projects

2.4.1 Cross River Rail

The CRR Project is a proposed rail link from Dutton Park to Bowen Hills, including 5.9 kilometres of tunnel under the Brisbane River and CBD, connecting existing northern and southern rail networks.

The second inner-city rail river crossing will remove a bottleneck across the Brisbane River, and free up the rail network across SEQ. It will provide better connections for public transport users, get commuters home faster, and help manage population growth. The proposed alignment will deliver services to stations at five key locations: Boggo Road, Woolloongabba, Albert Street, Roma Street and Exhibition showgrounds.

Additional river crossing capabilities are needed for both bus and rail to accommodate future growth and transport demand in Brisbane. However, the CRR Project does not provide a solution to resolve the growing demands on the bus network.

Council is committed to working with the Queensland Government to ensure the CRR Project and the Brisbane Metro provide an integrated public transport solution to meet Brisbane's long term transport requirements. Council is continuing to engage with the Queensland Government on how best to align the Brisbane Metro and CRR. Any critical impacts to the CRR Project (and vice versa) have been carefully considered and highlighted throughout this Business Case.

2.4.1.1 Complementing Cross River Rail

Additional river crossing capacity is needed for both bus and rail to accommodate future growth and transport demand in Brisbane. CRR and Brisbane Metro overlap at two strategic points, being Roma Street and Boggo Road stations, which act as interchange points for customers to move between the corridors. This is as a result of the two projects seeking to solve different problems, and to serve different customer markets. Indeed, the combined projects are anticipated to induce passenger demand, and would provide greater benefits to Brisbane as a result of both projects being undertaken together, by making significant improvements to (and integration of) the public transport network, stations and station precincts.

The Brisbane Metro can improve the reliability of the combined public transport network, and can provide a highly flexible service strategy that can be modified to assist during unplanned rail outages and incidents reducing the impact on customers.

2.4.2 ETCS – Inner City

The European Train Control System (ETCS) – Inner City Project delivers a complete overhaul of the inner-city rail signalling and communications system with new, state-of-the-art equipment. ETCS Level 2 is a new generation of train protection and control for the rail network in SEQ, providing automated train protection (ATP) and communications-based signalling. Geographically, ETCS Level 2 will be installed within the area of the network between Northgate and Milton stations. This area encompasses the key area of the network through which all trains must pass, and includes Roma Street, Central, Fortitude Valley and Bowen Hills stations.

The ETCS – Inner City Project will increase inner-city rail capacity by 20 per cent, allowing an extra 12,000 people through the CBD each peak period, equating to an extra 21 million

additional commuters per year. The project will be delivered by Queensland Rail, with operations under ETCS Level 2 expected to commence by 2021.

The increases in passenger movements through the CBD triggered by the ETCS – Inner City Project will be taken into consideration for the Brisbane Metro, particularly at Roma Street station where rail and metro will interchange.

2.4.3 Queen's Wharf Brisbane

Queen's Wharf Brisbane (QWB) is an Integrated Resort Development located in the CBD. The \$3 billion precinct development will deliver a range of new attractions and facilities including redeveloped and enhanced public realm areas, a new pedestrian bridge to South Bank, a new department store, and a riverfront moonlight cinema.

QWB is anticipated to open in 2022, including hotels and public realm areas. In 2022, the conversion of the Treasury building and beneath Queen's Gardens to create a retail zone linking Queen Street Mall to the heart of the precinct will commence. The anticipated opening of the repurposed Treasury building is 2024.

The Brisbane Metro's Cultural Centre Station, King George Square Station and proposed urban realm improvements at North Quay support the Queen's Wharf Brisbane development by improving accessibility to key parts of the city, Queen's Wharf Precinct and South Bank.

2.4.4 Herston Quarter

Herston Quarter is an approximately five-hectare site adjacent to RBWH that became available for redevelopment following the relocation of children's health services to the Lady Cilento Children's Hospital in South Brisbane.

The Queensland Government has selected a preferred tenderer to complete the approximately \$1.1 billion development of the Herston Quarter into a new mixed use precinct for health, residential, commercial and recreational activity.

Staged construction of the Herston Quarter development is proposed to commence in 2017. There is the potential for extensive construction works on the Herston site to occur in close proximity to, and at the same time as, construction works for the Brisbane Metro at Herston and RBWH.

The high levels of accessibility and connectivity provided by the Brisbane Metro fundamentally support the stated vision of the Herston Quarter to establish 'a diverse, vibrant and connected community'.

2.5 Development of this Business Case

The purpose of this Business Case is to confirm the preferred project option, and demonstrate the merit and justification for the Brisbane Metro. The Business Case presents benefits, costs and risk analysis outcomes for the Brisbane Metro to inform decision making processes by:

- Identifying the problems and visions for the Brisbane transport network, and the preferred option for the Brisbane Metro
- Confirming Brisbane Metro's scope, and benefits through technical investigations
- Confirming Brisbane Metro's capital and operating costs
- Analysing the economic and delivery considerations of Brisbane Metro.

While the Business Case has acknowledged earlier studies, extensive and rigorous additional investigations and analysis has been undertaken. The evaluation frameworks used to assist with the development of the Brisbane Metro Business Case include:

- The Queensland Government's Project Assessment Framework
- Building Queensland's Business Case Templates and Guides (December 2016)
- Building Queensland's Cost Benefit Analysis Guide (2016)
- Building Queensland's Social Impact Evaluation Guide (2016)
- National Public Private Partnership (PPP) Guidelines
- The Department of Infrastructure and Regional Development's Australian Transport Assessment and Planning (ATAP) Guidelines.

All frameworks used to complete evaluations for this Business Case have been specifically referenced where applicable.

2.5.1 Project Governance

A strong governance, administrative and project management framework is in place to manage the delivery of the Business Case, and covers high level governance and management arrangements, including the governance structure and decision-making roles and responsibilities.

Council and the Queensland Government have established a Government Reference Group (GRG) to provide a central point of contact for Council to receive strategic advice from Queensland Government representatives on processes, strategies and the design of the Brisbane Metro. The purpose of the GRG is to provide input and advice from government representatives on a range of matters regarding the development of Brisbane Metro. The GRG facilitates valuable information flow, with GRG members acting in an advisory role to Council to share information and ideas that will contribute to the effective development of Brisbane Metro.