CHAPTER 1
EXECUTIVE SUMMARY

1 EXECUTIVE SUMMARY

1.1 Introduction

Brisbane is a thriving new world city, with a strong and productive economy. Forecasts show that over the next 25 years, our population and economy will continue to grow. Our Central Business District (CBD) and inner-city precincts will be the driving force of the region's economy with job growth set to increase to accommodate more than 630,000 jobs by 2041.

Brisbane City Council (Council) plays a fundamental role ensuring our city remains accessible and provides for the safe and efficient movement of people and goods into and throughout our city. Currently two-thirds of public transport customers are bus users, with more than 76 million passenger trips in 2015-2016 being on Brisbane's bus network. Constrained infrastructure, rising demand and ongoing congestion are impacting travel times and reliability, and limiting the ability of the network to cater for future growth.

Providing high-quality, frequent services from the suburbs to the inner-city is a critical step towards transforming the public transport network, ensuring it can support population and jobs growth into the future.

In 2016, Brisbane's Lord Mayor announced the Brisbane Metro concept, which envisioned repurposing existing busway infrastructure to increase the capacity and reliability of the public transport network in the inner-city.

Council was tasked to critically examine the feasibility and viability of Brisbane Metro through the development of a Business Case. This Business Case (May 2017) outlines the comprehensive process Council undertook to assess Brisbane Metro. It examines the strategic and current issues facing the transport network and the problems, and options identified to achieve Council's objectives for Brisbane Metro.

It also demonstrates how the solution strategically aligns with a number of local, state and federal government policy frameworks. These include, but are not limited to the *Australian Infrastructure Plan*, *Smart Cities Plan*, *State Infrastructure Plan*, *ShapingSEQ* (Draft South East Queensland Regional Plan), *Brisbane City Centre Master Plan* and the draft *Connecting Brisbane* strategy all of which have played a vital role in shaping Brisbane Metro.

Following the options analysis process, a revised Brisbane Metro option was selected as the preferred option to take forward for critical examination using endorsed Queensland and Australian Government best-practice infrastructure and project evaluation frameworks.

The revised Brisbane Metro comprises two new high capacity lines linking the Eight Mile Plains busway station to Roma Street busway station (Metro 1) and the Royal Brisbane and Women's Hospital (RBWH) busway station to the University of Queensland (UQ) busway station (Metro 2). With a fleet of 60 new vehicles, each carrying up to 150 customers each, improved services and systems, new and upgraded infrastructure, and policy and operational changes, Brisbane Metro presents a unique opportunity to revise Brisbane's bus network.

This Business Case outlines the considerable benefits Brisbane Metro will deliver to Brisbane's public transport customers and to the Brisbane economy. It confirms Brisbane Metro is an affordable, cost-effective solution that will provide significant economic, transport and social benefits for both the city and the region.

1.2 Need for the Project

1.2.1 Strategic Context and drivers of change

Brisbane is an economic powerhouse for the State of Queensland and is its gateway to the global economy. The prosperity of Brisbane's economy is critical to the prosperity of industry within Queensland and Australia.

Transport is an enabler of economic activity, through providing access for workers to jobs and for goods and services to markets. Ineffective or inefficient movement of people and goods to and within inner cities, has the potential to reduce productivity and impact economic growth at local, state and national levels.

By 2041, Brisbane's city centre will have further expanded beyond its traditional peninsula location to become a network of inner-city precincts. These will host much more diverse and mobile forms of employment. The ability of businesses and workers to move quickly and easily within and between these inner-city precincts will be essential to the success of Brisbane's and Queensland's economy.

South-East Queensland's (SEQ) transport network must cater for increased demand to Brisbane's CBD by better linking outlying residential areas to the region's key employment hubs. Employment growth in the CBD and inner-city – and related economic outcomes – depends on residents across the region being able to get to workplaces in a reliable and reasonable time, particularly during peak periods.

Brisbane's rail network does not have coverage in many areas in Brisbane. The overall impact of the functional deficiencies and constraints in the SEQ rail network is that rail travel caters for only around one third of morning peak travel into the CBD. Other forms of transport (such as private vehicle and bus) must therefore transport larger proportions of customers than other cities. As a result, the busway network has been progressively developed, supplementing the traditional radial line haul role of rail within the public transport network.

Ongoing demand for bus services has reached capacity in peak periods and will not be able to accommodate significant additional growth. The reliability and operational efficiency of the bus network is also reducing due to constraints of the network, particularly within the inner-city.

In response to the above, objectives were developed, which includes:

- delivering high-frequency 'turn-up-and-go' services
- increasing the capacity of the busway network
- reducing bus congestion on the busway in the CBD and inner-city
- reducing the number of buses in the CBD
- improving travel times and reliability
- freeing up buses to allow more services to the suburbs.

Understanding community and stakeholder views and finding a cost-effective solution to addressing bus congestion issues have also been key objectives for Council.

1.2.2 Problem

Numerous past studies have identified critical constraints and issues for Brisbane's bus network. Through consultation and research, bus customers are highly aware of these issues and that capacity constraints impact their journeys.

In addition to these well-known issues, it is critical to develop a sound understanding of the extent, scale, cause and effect of problems in order to provide a strong evidence-based foundation for developing a project solution.

The identification, assessment and prioritisation of problems has been developed through the consideration of the Brisbane Metro objectives, as well as the numerous studies, strategies and proposals developed by the Australian Government, Queensland Government and Council.

The long term demographic forecasts and strategic challenges also provide context for the problem analysis. This process resulted in the development of an initial list of problems associated with Brisbane's growing transit system, falling within the following categories:

- Strategic problems facing Brisbane and the SEQ region, considering the interrelationships between transport, land use, and economic productivity and prosperity.
- Transport problems facing Brisbane and SEQ as a region, including car dependency, congestion and the impact of Brisbane's topography on the efficiency of the transport network.
- Bus problems experienced on the Brisbane network, particularly around increasing demand, capacity constraints and reducing reliability.
- Rail problems experienced on the SEQ network, including its limited footprint across the region that restricts the ability of rail to cater for travel demands from demographic growth areas.

Using the findings from the problem identification process, each problem was assessed to determine the highest priority problems, within the context of the capacity for Council to influence. Table 1.1 summarises the outcomes of this process.

IDENTIFIED PROBLEMS	PRIORITY
Strategic Problems	
Accessibility and connectivity	High
Economic growth and productivity	High
Transport Problems	
Car dependency and road congestion	Medium - High
Inadequate ability to meet public transport demand	High
Brisbane's topography and historic pattern of development impacts on network efficiency	Medium - High
Inefficient supply chains for freight	Low - Medium
Bus Problems	
Role of bus is understated and multi-faceted	Medium - High
Sustained growth and demand	Medium - High
Capacity constraints limit potential growth of bus services	High
Degrading journey times and reliability	High
Operational inefficiencies impact capacity and dwell times	Medium

IDENTIFIED PROBLEMS	PRIORITY
Worsening amenity in the inner-city	High
Rail Problems	
Limited footprint of rail	Medium - High
Sustained growth and demand	Medium - High
Limited capacity	Medium - High
Poor CBD accessibility	Medium - High
Limited frequency	Medium - High
Reduced reliability and resilience	Medium - High
Uncompetitive journey times and cost	Medium - High

Table 1.1 – Identified problems and their priority

The priority problems are:

- Strategic Problem – accessibility and connectivity
- Strategic Problem – economic growth and productivity
- Transport Network Problem – inadequate ability to meet public transport demand without infrastructure intervention and/or service redesign
- Bus Network Problem – capacity constraints limit potential growth of bus services
- Bus Network Problem – degrading journey times and reliability
- Bus Network Problem – worsening amenity in the inner-city.

As a result, the highest 'priority problems' were determined to be the key problems that need to be addressed by the Brisbane Metro. These problems therefore have provided a focus for the development and detailed analysis of the Brisbane Metro.

Critical bottlenecks in the inner-city

The end of the South East Busway's dedicated bus route is a short, yet extremely significant, distance from the southernmost station on the Inner Northern Busway at King George Square, with the Brisbane CBD and Victoria Bridge spanning the gap.

Even with dedicated bus lanes linking the busways, buses must compete with other traffic at intersections, sit in queues and compete with taxis, delivery vans and other vehicles.

Bus constraints are evident and visible on key parts of the busway network, including intersection congestion at each end of the Victoria Bridge, particularly at the Melbourne Street portal.

Station capacity at Cultural Centre, Mater Hill, Buranda and South Bank stations is also reached during peak periods.

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.

A plan of the current bus network constraints is shown in Figure 1.1.

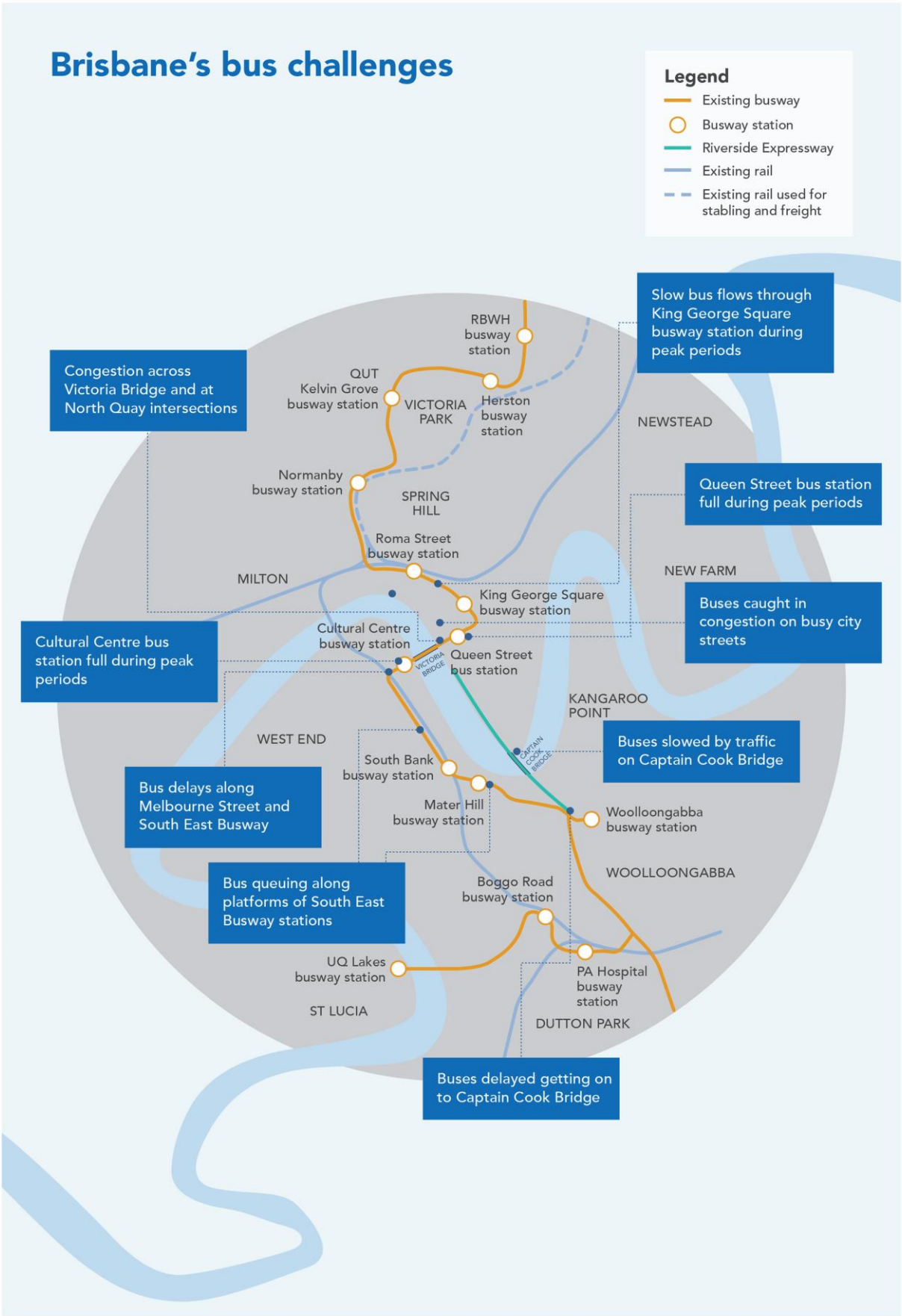

Figure 1.1 – Brisbane bus network constraints and challenges

Degrading travel times and reliability

Existing CBD and inner-city bus congestion impacts on reliability of services and travel time performance. A comparison of current scheduled and actual travel times for journeys between Buranda and King George Square busway stations show travel times can vary significantly. With predicted population and employment growth, bus congestion will increase, further impacting on travel times and reliability[1].

Figure 1.2 provides a graphical comparison of the travel time between Buranda station and Queen Street bus station during the morning and afternoon peaks.

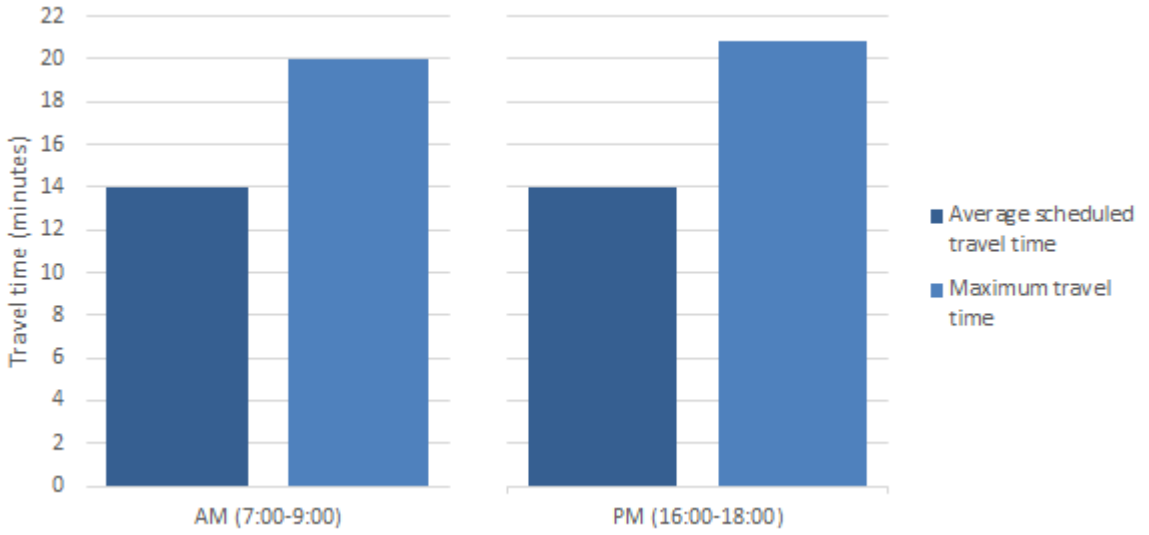

Figure 1.2 – 2016 travel time between Buranda busway station and King George Square (peak direction) – peak 2 hour period

Worsening amenity in the inner-city

To meet customer demand, a high volume of buses currently enter the inner-city, which has substantial amenity impacts at the Cultural Centre, along Victoria Bridge and on CBD streets. The movement of buses from the South East Busway portal on Melbourne Street to and from the Cultural Centre station severely constrains pedestrian movement in the precinct, and detracts from the important east-west connection between the CBD and West End. In the CBD, a large number of service stops along Elizabeth Street, particularly in the morning peak, impacting on the pedestrian environment.

Network and operational inefficiencies

Aspects of current network planning and operations also have an impact on the efficient running of the network. Low-frequency and low patronage bus services use the constrained inner parts of the busway network in peak periods, adding to congestion and contributing to delays for all services.

Current boarding and ticketing practices on busway stations, including single-door boarding and drivers being involved in fare collection and assisting customers, impact on dwell times and ultimately the operational efficiency and capacity of the busway network.

[1] *go*Card data.

Meeting future public transport demand

Due to the forecast increases in travel demand from population and employment growth, the demand for bus travel is anticipated to double from 2016 to 2041, growing to over 730,000 bus customers per day[2].

Providing 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.

Without investment in busway infrastructure, there will be insufficient capacity to meet the projected growth in population and employment.

1.3 Options Assessment and the Preferred Solution

Identification and consideration of a broad range of options drives greater efficiency in the identification and prioritisation of investment of infrastructure. A comprehensive approach to identification and assessment of options was undertaken for the Brisbane Metro which is aligned with Queensland's State Infrastructure Plan (SIP) and the Australian Infrastructure Plan. Both plans encourage the identification and consideration of reform, better use and service improvement options.

The options identification and assessment process undertaken for the Brisbane Metro resulted in 23 distinct options being identified and evaluated against the project objectives to determine which options best addressed the priority problems.

This process concluded that the revised Brisbane Metro was the best option to address the priority problems to deliver an integrated transport solution that delivers the greatest amount of benefits to public transport customers and to Brisbane as a whole. Accordingly, the revised Brisbane Metro was publicly announced in March 2017.

Figure 1.3 presents the Brisbane Metro Options Assessment Process.

[2] Brisbane Metro Transport Model (2017).

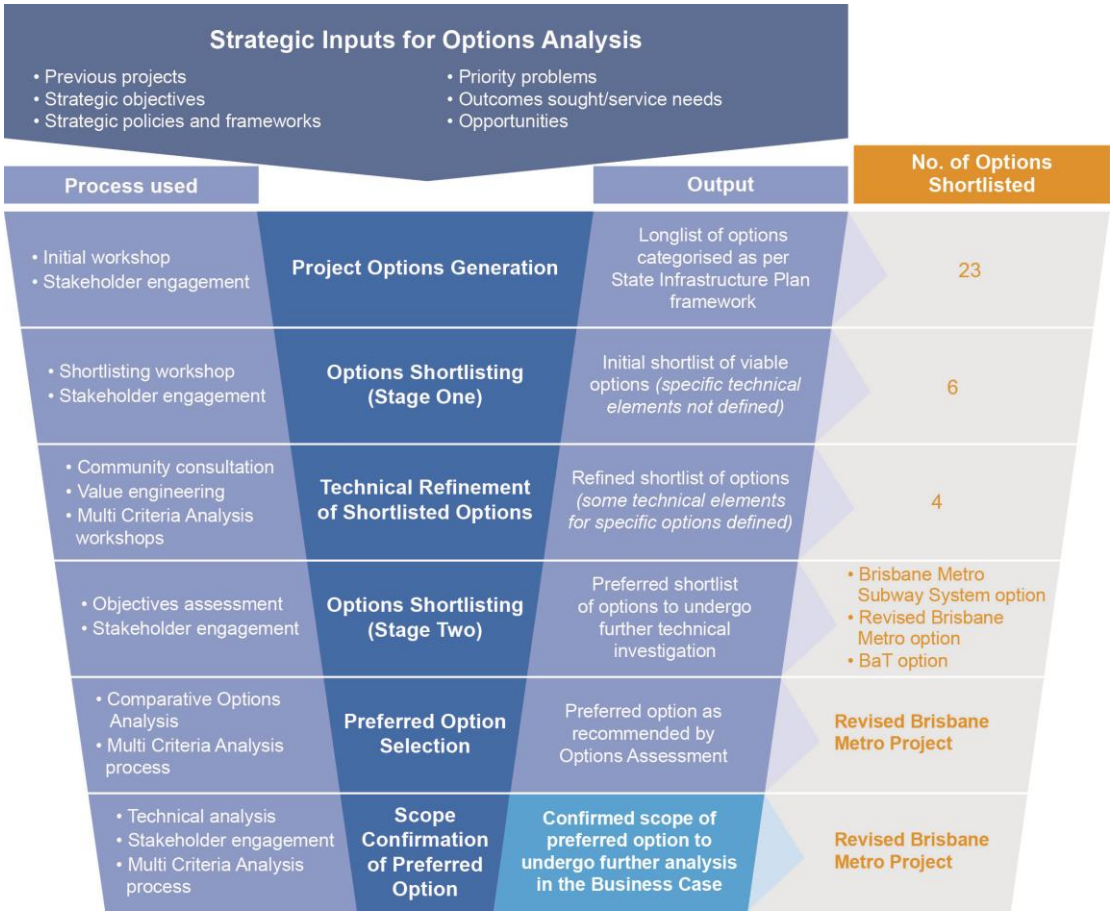

Figure 1.3 – Brisbane Metro Options Assessment Process

1.4 Project Solution

1.4.1 Project Principles

A set of common principles have been developed which respond to the priority problems, and are used to guide the Brisbane Metro solution. These principles were developed through analysis of the policies and strategies along with reflection back to the project objectives.

Table 1.2 provides further context on each principle.

PRINCIPLE	EXPLANATION
Improve accessibility and connectivity	Maximise the ability of customers to be able to access a wide range of destinations in a timely manner.
Improve effective capacity	Improve the utilisation of existing transport infrastructure by maximising carrying capacity (throughput) at optimal levels of reliability.
Improve journey times and reliability	Reduce journey times and improve the reliability of journey times, with less variability between peak and off peak periods and from one day to the next.
Improve the customer experience	Improve the overall quality of the public transport experience for the customer, including: • Improved legibility – i.e. an integrated public transport network that is simpler to use and understand, including where and when to transfer between services and modes, particularly for occasional users. • Improved frequency and span of hours – high-frequency routes (i.e. a minimum of 4 services per hour) with a long span of hours all day, every day, is the core of the public transport network. Good frequency and span of hours also assist in creating a sense of a reliable network for customers. • Improved quality of the vehicles and stations.

PRINCIPLE	EXPLANATION
More efficient operations	A more efficient network is one that moves more people on vehicles, recognising the constraints on our inner-city infrastructure including busways, streets, stops and stations.
Protect and shape the city	Supporting Brisbane's transformation towards a sustainable, diverse, integrated, and productive New World City.
Create identity and legacy	A world class identity is established that is distinct, vibrant, and well defined. A range of activities are supported, local character is celebrated and precincts showcase high-quality public realm and amenity. Stations contribute to a sense of place.

Table 1.2 – Brisbane Metro principles

1.4.2 Project Solution Summary

Brisbane Metro comprises a high-frequency metro network across 21 kilometres of existing busway that links the Eight Mile Plains, Royal Brisbane and Women's Hospital (RBWH) and UQ Lakes busway stations.

Brisbane Metro features two new high-capacity metro lines:

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

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

Brisbane Metro will also deliver:

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

An overview of the Brisbane Metro alignment is provided in Figure 1.4.

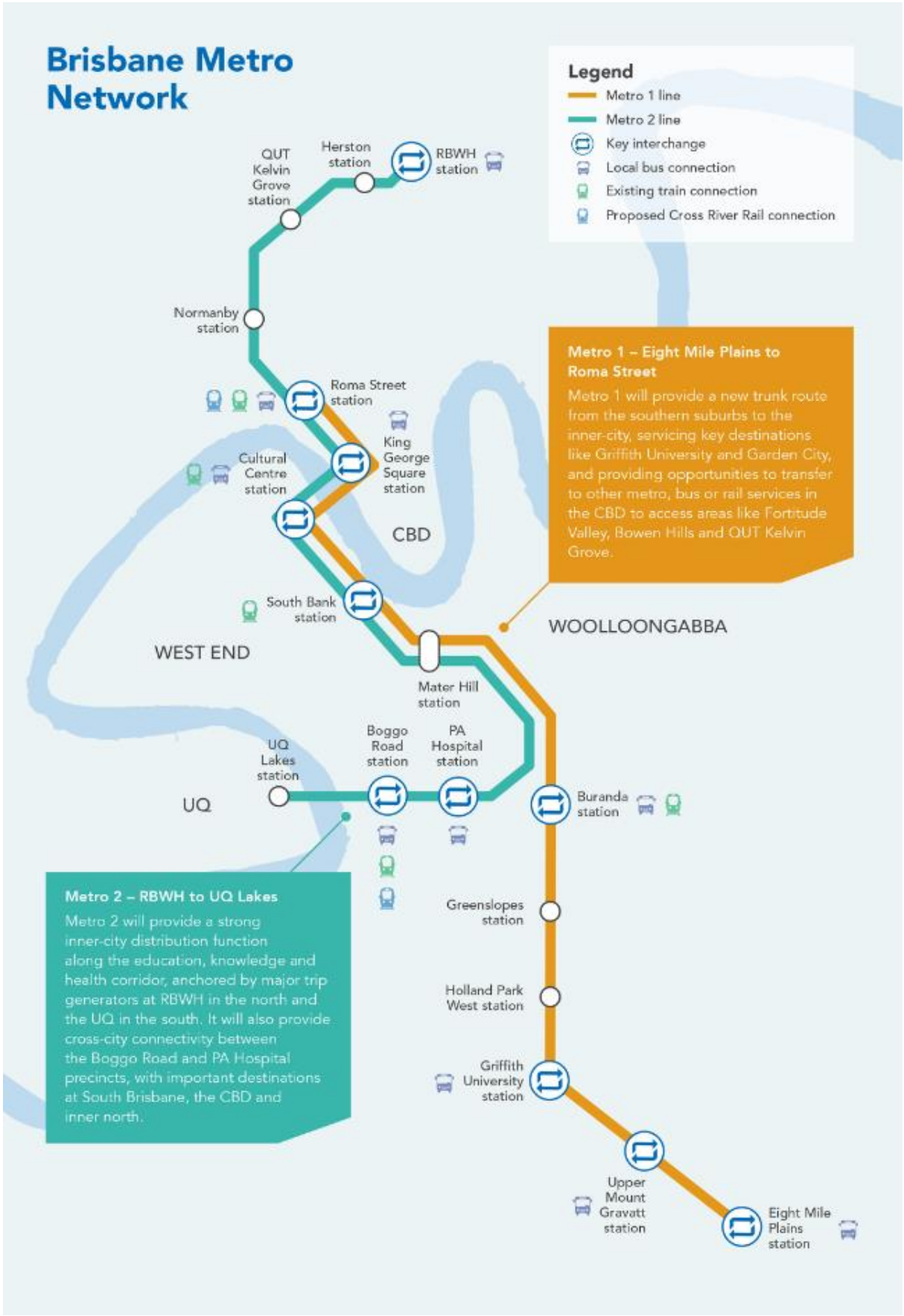

Figure 1.4 – Brisbane Metro alignment

The Brisbane Metro solution is more than an infrastructure solution. In order to successfully address the priority problems; there are a range of elements that are required to complement and work in conjunction with this infrastructure. Together these elements present a unique opportunity to undertake a number of changes and enhancements to Brisbane's bus network, to deliver significant benefits to Brisbane's public transport customers and to the Brisbane economy.

The 'elements' that work together to deliver the Brisbane Metro are:

- Element 1: Network and service changes
- Element 2: Policy and operational changes
- Element 3: Existing, upgraded and new infrastructure
- Element 4: New vehicle fleet
- Element 5: New vehicle management and passenger information systems.

Figure 1.5 represents the elements of the Brisbane Metro.

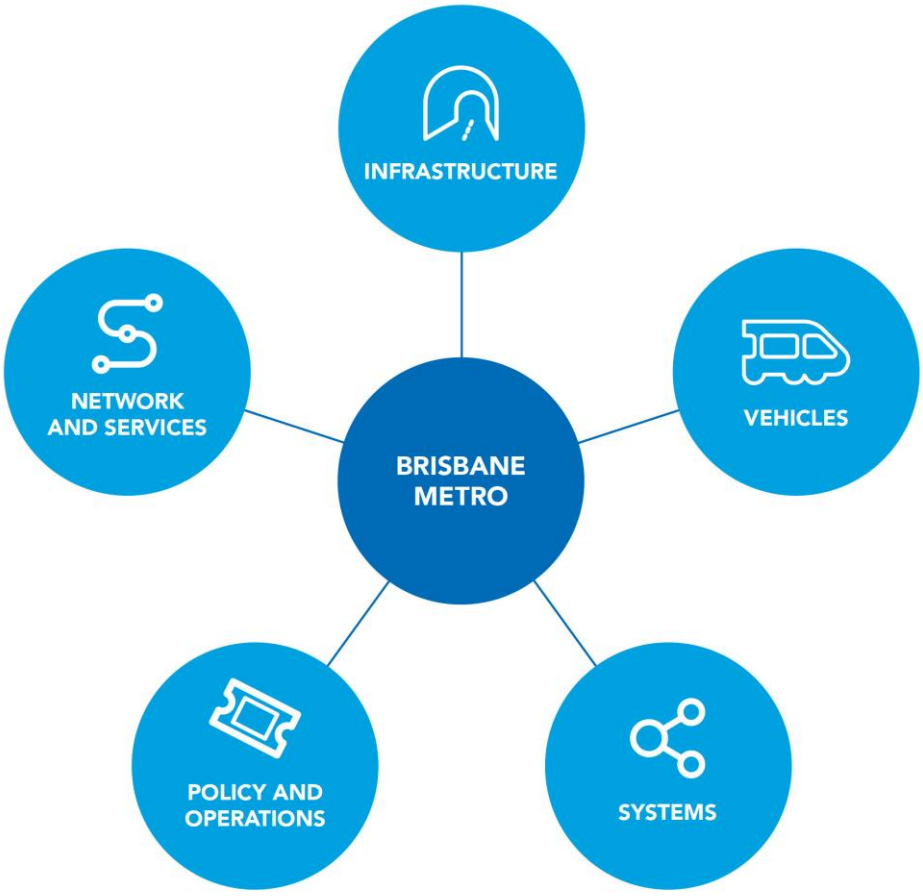

Figure 1.5 – Five elements of the Brisbane Metro

By combining these elements, the Brisbane Metro delivers significantly greater benefits than any single solution to addressing Brisbane's bus capacity and congestion issues. Indeed, without coordinated delivery of each of these elements, the Brisbane Metro objectives may not be fully met and Council may lose this unique opportunity to improve the efficiency and effectiveness of the public transport network.

Table 1.3 describes the key project elements.

DESCRIPTION	DETAILS
Network and Services	*Encourages interchange through a reliable, frequent trunk service, provides the catalyst for a revised network, increasing network efficiency and freeing space on the busway for higher occupancy metro vehicles.*
Metro lines	• Metro 1 – Eight Mile Plains busway station to Roma Street busway station • Metro 2 – UQ Lakes busway station to RBWH busway station
Frequency of services (day one of operations)	• Metro 1 – every three minutes (peak periods) • Metro 2 – every three minutes (peak periods) • Metro service every 90 seconds between Mater Hill and Roma Street busway stations (peak periods)
Hours of operation	• Weekday – 20-21 hours • Weekend – 24 hours (Friday and Saturday nights)
Key metro/rail interchanges	• Roma Street (all lines) (Cross River Rail) • South Brisbane/Cultural Centre (Beenleigh/Gold Coast, Cleveland lines) • Buranda (Cleveland line) • Boggo Road (Cross River Rail)
Key metro/bus interchanges	• RBWH • Roma Street • King George Square • Princess Alexandra Hospital (PAH) • Griffith University • Upper Mount Gravatt • Eight Mile Plains
Metro depot and layovers	Refuelling of metro vehicles to occur at a proposed depot. Additional layover facilities for metro vehicles to be available at: • Ernie's Roundabout (RBWH) • Countess Street (Roma Street) • UQ Lakes • Eight Mile Plains
Policy and operations	*Policy and operational changes reduce vehicle dwell times and, combined with set dwell times at stations, improve busway capacity and reduce travel time variability.*
Ticketing	• Ticketing gates or platform card reads to be installed at metro platforms • No on-board ticket purchases will be available on metro services
Boarding	All door alighting and boarding on metro services and bus services at metro busway stations
Infrastructure	*Targeted investment in new infrastructure, along with upgrades to existing infrastructure, will help address critical inner-city bottlenecks and increase the capacity of the busway.*
Route length	21 kilometres of existing busway
Tunnels/portals	• Cut and cover tunnel along Adelaide Street to connect to King George Square station • Tunnel from busway near South Brisbane train station to underground Cultural Centre station (passing under the Queensland Rail corridor) • Portal and transition from underground Cultural Centre station to Victoria Bridge
Victoria Bridge	• Victoria Bridge becomes a public and active transport only bridge • Modifications to pedestrian access on upstream side of bridge with a connection to Adelaide Street • Modification to pedestrian access on the downstream side with an additional 1.2m width providing increased pedestrian capacity and enhanced connection to Reddacliff Place

DESCRIPTION	DETAILS
North Quay	North Quay closed to general traffic between Adelaide Street and Queen Street, but access to Brisbane Square remains via Adelaide Street.
New stations	Underground station at Cultural Centre
Existing station upgrades	Major station upgrades: • Roma Street • King George Square • Buranda • Griffith University • Eight Mile Plains • Upper Mount Gravatt Minor upgrades to several other busway stations
Maintenance depot	New metro-only depot to be constructed. The location of the depot and maintenance facility will be at a location near Eight Mile Plains busway station.
Vehicles	*The vehicle carries more customers per driver and litre of fuel, increasing efficiency. The vehicle also integrates with the 12.5 metre bus maximising station performance in dual operations minimising need for new infrastructure.*
Vehicle type	Metro vehicle: • 24 metres long, 2.55 metres wide, 3.5 metres high • four double leaf access doors • four axles/12 tyres
Power supply	*To be determined*
Capacity	150 customers
Fleet size	60 vehicles in 2022
Systems	*Station, platform and on-board system improves customer information and will reduce vehicle dwell times by allowing first in-first-out at stations and less customer walk time once the vehicle arrives. This improves the customer experience by providing advance notification of stop location, improves capacity, reduces travel time variability and improves vehicle efficiency.*
Station/Platform systems	• Dynamic vehicle bay allocation system • Platform display information signs advise customers on what services are arriving at each bay • Information screens to advise the next 3 to 5 services and the stopping bay allocation for each service. • Public address system to notify customers that services have arrived, that vehicle doors are closing, and vehicles are departing. • Information screens and public address/voice announcement of travel time from current station to King George Square, Buranda, RBWH and Eight Mile Plains
On-vehicle systems	• Wi-Fi access • Real-time travel updates from current station to King George Square, Buranda, RBWH and Eight Mile Plains • Public address/voice announcements that the next station will be reached in one minute • Real-time vehicle location through Global Positioning System (GPS) or Radio Frequency Identification Tags (RFIT) to support dynamic vehicle bay allocations

Table 1.3 – Description of key elements of Brisbane Metro

1.4.3 Network and Services

Brisbane Metro will introduce high-frequency services to the inner-city and suburbs, along with changes to the bus network that will provide customers with more choice and better connections across the public transport network.

Brisbane Metro requires service changes to the busway network and bus services to ensure the capacity and reliability principles are achieved. As metro services will be part of a broader public transport network and will co-locate with bus services on the busway, service changes are required to ensure the metro operates effectively and efficiently.

The service specifications of the Brisbane Metro are outlined in the following sections.

1.4.3.1 Service alignment

The Brisbane Metro routes are contained within the South East Busway, Inner Northern Busway and parts of the Eastern Busway in order to maintain the higher speed and reliability characteristics expected of metro services.

The metro service terminus points were selected based on a range of factors, including demand, operational efficiencies and infrastructure capacity for turning around the metro vehicles.

1.4.3.2 Service frequency

The Brisbane Metro will operate high-frequency services, in line with metro services around the world.

Metro services will operate every three minutes in peak periods on week days, with a metro every 90 seconds between Roma Street and Mater Hill busway stations, which are served by both Metro 1 and Metro 2.

During the weekday inter-peak periods, metro services will operate every five minutes, providing a high level of convenience and reliability throughout the day.

At other times, such as weekends, late night and early mornings, metro services will operate every five to ten minutes in line with customer demand.

1.4.3.3 Public transport network integration

The proposed long term network integration plan for the Brisbane public transport network shows a clear inter-relationship between the different modes and services, each serving a range of destinations and connecting at key interchanges to allow customers to transfer between services.

The Brisbane Metro will form part of the wider SEQ public transport network, and is integral to achieving integration with the wider public transport network in SEQ.

The metro and Glider network will increase the capacity of the bus network, and provides an important distribution and connectivity function to support emerging inner-city precincts and suburban growth precincts. The network will also be supported by the City Loop bus service, which will assist in the distribution of customers throughout the CBD.

Figure 1.6 presents an indicative future metro and Glider network.

Figure 1.6 – Indicative Future Metro and Glider Network

1.4.3.4 Hybrid Transport Strategy

The introduction of the Brisbane Metro provides an opportunity to evolve the bus network from a largely direct service network to a hybrid network.

The hybrid network approach, is a combination of the current 'direct service' model (where customers largely have direct services to, and then along, a major bus corridor or arterial road) and the 'trunk and feeder' model (a high-frequency trunk service operating along a busway or major road that is 'fed' by other services at strategic locations). The hybrid network approach incorporates some services feeding to a simple, higher frequency trunk network of metro services on the busway, while concurrently retaining operation of selected high performing direct services to the CBD.

This strategy will allow flexibility for growth by incorporating some bus route truncations at metro stations to reduce the number of bus services into the CBD, thereby reducing congestion and achieving better utilisation of fleet and infrastructure. At the same time, customers will benefit from improved network legibility and better, convenient connectivity to a wider range of growth destinations.

The hybrid network approach would also be readily expandable if metro coverage was to extend geographically in the future.

1.4.4 Policy and Operations

Changes to a number of current operational policies are required to be introduced as part of the Brisbane Metro. These changes seek to improve dwell times by allowing faster and more efficient customer boarding and alighting, thereby helping to improve travel times and reliability.

The proposed policy and operations changes and the rationale for these changes are discussed in Table 1.4.

PROPOSED CHANGE	RATIONALE
Make all metro stations pre-paid zones to enable full off vehicle ticketing (removal of cash transaction with driver and relocate *go* card tag on/off to the station)	This would result in achieving consistent boarding time of 1.5 seconds per passenger per door.
Multi door boarding and alighting	Loading is currently inefficient as customers board via one door. Unloading is also inefficient as typically on a full standing load the front door is not used effectively, as the seating layout means that most customers are closest to the rear door. It is estimated that using multi-door boarding and alighting along with optimum layout of vehicles could halve the time it takes to board and alight customers at busy stops.
First in-first out operations at stations	Under first in-first out operations, all vehicles will be obliged to follow the same dwell times regardless of whether they need to dwell for that long. This will provide customers with more confidence in the order of vehicles arriving at the station and the position/location they need to stand to catch the correct vehicle. Reducing walk time to the vehicles will reduce dwell times. Furthermore, first in-first out will also assist the metro vehicles to line up parallel to the platform.
Eliminate timing point dwell times at busway stations	This will create more consistent and lower dwell times, making better use of the limited platform capacity, reduce excess wait times, and defer the need for further platform lengthening.

PROPOSED CHANGE	RATIONALE
New passenger platform management systems	This system is principally to inform customers which bay a bus will use at a platform so that customers are standing in the vicinity of the vehicle doors when their vehicle arrives. This system would reduce the walk time impact on dwell time at stops.

Table 1.4 – Brisbane Metro policy and operations elements

1.4.5 Existing, upgraded and new infrastructure

Re-use of existing busway infrastructure aligned with targeted investment in new infrastructure, will help address critical inner-city bottlenecks and increase capacity of the busway.

1.4.5.1 New Cultural Centre underground station

The new state-of-the-art underground station at the Cultural Centre will provide an uninterrupted connection between the South East Busway and Victoria Bridge for both metro and high-frequency bus services, to remove major network delays currently experienced at Cultural Centre.

The new station is proposed to be located about seven metres below the intersection of Grey Street and Melbourne Street, adjacent to the existing South Brisbane train station.

Located in one of Brisbane's most important inner-city precincts, the new station will provide customers with fast and easy access to destinations such as Queensland Performing Arts Centre (QPAC), South Bank and the Brisbane Convention and Exhibition Centre.

It will also allow the closure of the existing Melbourne Street busway portal to scheduled services, significantly reducing the number of buses at surface level.

Station features include:

- Inbound and outbound platforms each approximately 100 metres long and six metres wide
- Escalators and lifts connecting each platform to Grey Street
- Platform screen doors for customer safety and amenity, and easy boarding
- Off-board ticketing such as fare gates or platform card readers
- Real-time passenger information displays (PIDs)
- Passenger seating and security features.

1.4.5.2 Melbourne Street and Cultural Centre public realm

To accommodate the transition structure from the new underground station to Victoria Bridge, the existing Cultural Centre surface bus station will be removed and replaced with new street level kerbside bus stops.

New inbound and outbound bus shelters and bus bays will be built on either side of Melbourne Street with the underground transition structure located centrally between the two bus stops.

The stops will provide access to bus services connecting West End, the CBD and Fortitude Valley, such as Council's Blue CityGlider service.

The new arrangement of bus stops and transition structure facilitates significant public realm improvements and reduces pedestrian and transport conflicts at this location.

1.4.5.3 Changes to Victoria Bridge

The existing Victoria Bridge will be converted to a 'green bridge' for metro and bus services, pedestrians and cyclists. Removing general vehicle traffic will provide an additional two lanes for cross-river public transport, doubling the capacity of this important link.

The configuration of Victoria Bridge will be adjusted, with metro and South-East Busway bus services using the centre two lanes, and other bus services connecting to West End using the outside lanes on either side.

Modifications to the bridge approach will be required to accommodate the transition structure to the new underground station and connections to North Quay.

The existing shared path for cyclists and pedestrians will be maintained on the upstream side, while the downstream side will be widened to provide additional cross-river pedestrian capacity.

1.4.5.4 Changes to North Quay

A section of North Quay from Victoria Bridge into the Adelaide Street tunnel will be rebuilt, with two central lanes for metro vehicles and outside lanes for other surface bus services.

The corner from Victoria Bridge to North Quay will be widened slightly toward the river to accommodate the metro and bus alignment.

North Quay will be closed to general traffic between Adelaide Street and Queen Street, with the exception of traffic entering and exiting Brisbane Square.

Removing general traffic at North Quay along with public realm improvements will improve pedestrian connectivity from Reddacliff Place to Queens Wharf Road and the downstream path on Victoria Bridge.

On the upstream side of Victoria Bridge, pedestrian and cyclist access to North Quay will be via a crossing at Adelaide Street, replacing the existing crossing to Reddacliff Place.

Buses travelling across Victoria Bridge will no longer access Queen Street Bus Station by crossing William Street. These bus services will continue to access this station via the new Adelaide Street tunnel, and from William Street eastbound.

1.4.5.5 New Adelaide Street tunnel

A new tunnel underneath Adelaide Street will provide a dedicated connection for metro and bus services from North Quay to King George Square station.

The transition structure will commence at the corner of North Quay and Adelaide Street, with the tunnel portal located on the southern side of the George Street and Adelaide Street intersection.

The 'cut and cover' tunnel will be approximately 13 metres wide and located directly under George Street and Adelaide Street, with a signalised intersection underground at the Albert Street tunnel intersection, with priority for metro services.

Single traffic lanes on either side of the transition structure will provide general traffic access to Brisbane Square and 300 George Street, with some bus services, continuing to travel along Adelaide Street at surface level.

1.4.5.6 Existing Busway station upgrades

Upgrades will be undertaken at existing busway stations, including the installation of off-board ticketing equipment (such as fare gates or platform card readers) and new Passenger

Information Display (PID) systems. This will provide customers with real-time metro and bus arrival information, helping customers know where to stand on the platform.

Extensions to platform lengths will be required at Eight Mile Plains, Upper Mount Gravatt, Griffith University, Buranda, Mater Hill and Roma Street stations to ensure effective operations from December 2022 and into the future.

Some modifications will be required to the existing platform screen doors at King George Square busway station, along with minor changes to pedestrian areas and access at some stations.

1.4.5.7 New metro depot and maintenance facility

The planned metro fleet depot and maintenance facility provides sufficient space for the forecast fleet requirements up to 2041, including the initial 60 metro vehicles in 2022.

The depot will have an administration facility containing metro fleet operational office space, vehicle dispatch and training rooms, driver facilities and end of trip facilities.

A 15 bay maintenance garage is proposed, along with provision for maintenance tools and equipment, storage of metro vehicle parts, garage management office space and amenities, fire services, fuel and waste storage/management. A fuelling, wash down and cleaning facility is also proposed with associated water and fuel storage and waste management.

Provision has been made for car parking spaces to cover the requirements for metro drivers, garage and depot staff plus visitors. The depot will also feature site landscaping, drainage and bio retention basin infrastructure.

The location of the depot and maintenance facility, at a location close to Eight Mile Plains station, will be subject to further investigations by Council.

1.4.5.8 Layovers and turnaround facilities

To suit the operational requirements of the metro vehicles, a number of existing bus turnarounds will be utilised, along with the addition of some new layover areas and modification to existing layover areas. In other locations, new turnarounds and/or modification of layover areas are required for termination of interconnecting local bus services.

1.4.6 New metro vehicle fleet

The Brisbane Metro will introduce a new high capacity vehicle type to operate the flagship Metro 1 and Metro 2 services on the busway. The functional requirements of the metro vehicles are:

- High-capacity – to allow for the replacement of existing services, provide capacity for customers from truncated/feeder services and provide capacity for growth
- Low-floor and accessible – for any *Disability Discrimination Act 1992* (DDA) compliance and for quicker boarding and alighting
- Multiple, large (double) doors – to allow for efficient boarding and alighting
- Capability to comfortably traverse gradients of up to 10 per cent
- Metro-like style and quality.

The vehicles have the capacity to carry up to 150 customers and are approximately 24 metres in length.

The actual vehicle type has not been selected to avoid precluding future suppliers and delivery methods.

1.4.7 Management and Information Systems

New vehicle and passenger management systems proposed as part of Brisbane Metro will help improve the efficiency and reliability of busway operations, and provide a better experience for customers.

System enhancements within the busway and on platforms include:

- Dynamic vehicle bay allocation system, which improves efficiency by providing more information to drivers.
- Platform display information signs, which informs customers in advance where their service will arrive on the platform.
- Information screens to advise the next three to five services and the stopping bay allocation for each service.
- Public address system to notify customers that services have arrived, that vehicle doors are closing, and vehicles are departing.
- Information screens and public address/voice announcement of travel time from current station to King George Square, Buranda, RBWH and Eight Mile Plains.

Systems on board metro vehicles include:

- Wi-Fi connectivity, helping customers access real-time travel updates from their current station to their destination station.
- Next stop voice announcements.
- Real-time vehicle location through GPS or RFIT to support dynamic vehicle bay allocations.
- Real-time travel updates from current station to King George Square, Buranda, RBWH and Eight Mile Plains.

For the Brisbane Metro, it is envisaged that these systems are to work in conjunction with existing systems on the busway such as:

- Real-time PIDs at all busway stations. This provides customers with up to date bus route timetable information and ‘next arrival’ information.
- Monitored Closed Circuit Television (CCTV) security cameras located throughout the busway stations and along the entire busway, and are monitored 24 hours a day, seven days a week, by the Busway Operations Centre (BOC).
- Emergency Help Telephones (EHT) at key locations on all busway station platforms to assist customers in the event of an incident. The emergency phone system is responded to by the BOC and is linked to the CCTV security system to observe and record the emergency help telephone location.
- A dedicated and secure Ultra High Frequency (UHF) radio system links all busway buses with the BOC.
- A public address system is installed at all busway stations.

As well as new management systems to support improved passenger information and management, several other systems will be required to support the Brisbane Metro.

The new Cultural Centre underground station as well as the proposed modifications to the King George Square station will require controlled access through Platform Screen Doors, which separate the waiting customers from the vehicle environment.

Off-board ticketing systems will also need to be provided at all 18 busway stations served by metro services.

1.5 Benefits of the Brisbane Metro

The Brisbane Metro delivers significant customer, city and place benefits to Brisbane. It will improve regional accessibility to Brisbane, increase the attractiveness of public transport, and reduce dependence on private vehicle travel; supporting jobs and population growth across the wider region. Brisbane Metro also provides a cost-effective solution that enhances inner-city public transport capacity by unlocking the greater potential of the existing dedicated busway system.

The Brisbane Metro is also complementary with the Queensland Government's Cross River Rail Project, with the combined projects offering significant benefits to public transport users and the SEQ region generally.

These benefits translate into significant economic benefits, delivering an estimated net economic benefit to the city and customers.

1.5.1 Customer and Product Analysis and Benefits

The customer and product analysis considered the changes and benefits to the transport system that have been forecast as a result of the introduction of the Brisbane Metro, relative to the forecast conditions without Brisbane Metro.

The customer and product analysis and commentary indicates that the Brisbane Metro will enhance inner-city public transport peak capacity and unlock the potential for the existing dedicated busway system to allow for growth in the wider region. Furthermore, it contributes to wider transport objectives by improving regional accessibility, increasing public transport attractiveness and integration, reducing the dependence on private transport and enhancing the region's economic vitality.

Table 1.5 outlines the key benefits identified in the customer and product analysis.

PRINCIPLE	BRISBANE METRO OUTCOMES AND BENEFITS
Improve accessibility and connectivity	• Improves accessibility to jobs at a local and regional level. • Provides improved access and public transport capacity to the city's employment hubs. • Increases the distance able to be travelled to and from the CBD within a 30 minute timeframe, thereby allowing for more people to have a 30 minute travel time to/from key travel generators. • Introduction of transfer opportunities between metro, bus and rail, and so creating a more connected network including improved interchange opportunities such as at Roma Street with rail, Boggo Road with rail and bus, and King George Square with bus. • Reduced wait times across the Brisbane Statistical Division for public transport customers.
Increase effective capacity	• Removes critical inner-city busway bottlenecks of Melbourne Street portal, Cultural Centre, Victoria Bridge and North Quay, as well as platform capacity constraints at Buranda, Mater Hill, Griffith University and Eight Mile Plains. • Boosts system capacity with the busiest point on the South East Busway able to carry up to 22,000 customers per hour at opening in 2022 and up to 29,000 by 2041. • Provides better utilisation of the dedicated, segregated busway on the inner

PRINCIPLE	BRISBANE METRO OUTCOMES AND BENEFITS
	South East Busway. • Allows the inner South East Busway to perform a higher order mass transit function. • Protects and improves overall public transport network capacity, by allowing rail infrastructure across the Brisbane River and through the CBD to cater more for longer distances travelled from the south by providing a complementary public transport mode for short inner-city distributor travel.
Improve journey times and reliability	• Delivers strong travel time benefits for travel to key generators. • Increases service reliability in terms of both on-time running and the variability of the journey time. • By providing a fully segregated corridor through the inner-city, Brisbane Metro reduces the likelihood of disruptions caused by major road traffic incidents.
Improve the customer experience	• Creates a more legible and attractive public transport network for customers to the CBD. • Reduces the number of services at Cultural Centre, while increasing customer capacity. • Cultural Centre station would also offer a simple, legible, easy to understand structure of frequent routes to and from the south-east; while the surface stops would support frequent services to and from West End, the City and Fortitude Valley/New Farm. • Reduces crowding at Cultural Centre station. • Improves frequency and span of hours over the services being replaced. • Spreads customer demand at stations in the inner-city more evenly, resulting in improved customer comfort and perceived safety. • Improved distribution of customers throughout the CBD through increased frequency of the City Loop service. • Improves the on-vehicle experience, particularly relating to faster dwell times and improved on-vehicle accommodation for all customers, with less chance of customers being 'left behind'. • Improved passenger information on the station platforms will provide a greater sense of customer comfort and confidence.
Deliver more efficient operations	• Removes over 125 buses from CBD streets during the morning peak hour. • Provides the foundation for a bus network that is more flexible and efficiently expandable to support population growth in outer suburbs and offer services with attractive public transport travel times to the CBD and inner-city generators. • Allows bus network operational changes and more efficient use of the bus network and existing busway infrastructure.

Table 1.5 – Customer and product outcomes and benefits of the Brisbane Metro

1.5.2 City and Place Analysis and Benefits

Brisbane is emerging as Australia's newest major world city, with significant planning and investment creating a vibrant, liveable and productive city. New world cities are defined by key characteristics including:

- Easy to move around with efficient infrastructure and low congestion
- High levels of amenity including open spaces and cultural destinations
- Advanced levels of health and education services
- Appropriately sized, affordable, and offering an optimal work-life balance
- Being safe, secure and accessible.

Public transport has a direct impact on the liveability and economic competitiveness of a city. New public transport infrastructure presents a significant city building opportunity, potentially triggering land use development and urban renewal.

The Brisbane Metro will reduce bus congestion in the inner-city. Reduced bus numbers on key CBD streets will also alleviate some pedestrian congestion and noise, air and visual pollution associated with many existing CBD bus stops. This reduction in congestion and pollution will directly improve the pedestrian environment, improve cycle safety and enhance ground level retail amenity.

The Brisbane Metro links Brisbane's key economic, knowledge, innovation, health and research clusters. The high-frequency, high capacity metro will provide an accessible and reliable public transport service, which will drive economic growth, business interaction and support efficient connectivity. Key employment and economic precincts that will be directly accessible by the Brisbane Metro include the RBWH, Queensland University of Technology Kelvin Grove, the City Centre, South Bank, Mater Hospital, Lady Cilento Children's Hospital, UQ, PAH, and the Boggo Road Ecosciences Precinct.

The Brisbane Metro can also increase the attraction of the inner-city by both supporting access to areas of high density living and by connecting economic precincts together. The Brisbane Metro will achieve this outcome by enhancing connections between the city's key precincts, linking major points of activity and destinations via a high-frequency passenger transport system.

Table 1.6 outlines the key benefits as determined through the city and place analysis.

PRINCIPLE	BRISBANE METRO OUTCOMES AND BENEFITS
Improve accessibility and connectivity	• Brisbane Metro provides convenient multimodal interchanges at a number of locations, including proposed Cross River Rail (CRR) stations. • The new station works will provide significant public realm improvements and reduce transport and pedestrian conflicts. This includes reimagining the Grey Street and Melbourne Street intersection at the Cultural Centre. • The future redevelopment of the Roma Street Precinct will significantly enhance accessibility and connectivity of the precinct and to other parts of the inner-city including the CBD, Roma Street Parkland and City West.
Protect and shape the future	• Brisbane Metro will increase liveability across the city and enhance the attraction of the inner-city by connecting living, employment, entertainment and lifestyle precincts. • Brisbane Metro links Brisbane's key economic, knowledge, innovation, health and research clusters. The high-frequency, high capacity metro will provide an accessible and reliable public transport service, which will drive economic growth, business interaction and agglomeration. • Brisbane Metro connects areas of regional economic significance including inner Brisbane and Pacific Motorway Corridor. Significantly, the metro corridor can be extended to Springwood creating a high-quality rapid public transport connection between Brisbane CBD and Logan. • Brisbane Metro supports planned growth in Brisbane and will provide much needed public transport capacity for planned regional growth. • The additional capacity, frequency and shorter travel times delivered by Brisbane Metro will encourage additional public transport patronage to and within the city. Furthermore, Brisbane Metro will encourage public transport usage by conveniently linking major points of activity and recreation with a high-frequency 'turn-up-and-go' passenger transport system. • Brisbane Metro complements the Queensland Government's proposed CRR Project and Brisbane Metro and CRR are catalysts to reimagine the Roma Street station precincts. • The Brisbane Metro supports and is consistent with Queensland Government

PRINCIPLE	BRISBANE METRO OUTCOMES AND BENEFITS
	policy. The metro supports identified economic clusters, optimises the use of existing infrastructure, and delivers a high-frequency and high capacity public transport solution to the inner-city. • The Brisbane Metro supports and is consistent with Brisbane City Council policy. The metro connects the key areas of the city including employment precincts, specialised clusters, growth nodes, and entertainment and lifestyle precincts. Brisbane Metro will reinforce Brisbane's New World City status. • The Brisbane Metro supports an integrated public transport vision and connects the city's regional centres to the inner-city, and integrates with existing and planned bus and train services, including the Queensland Government's CRR Project.
Identity and legacy	• The Brisbane Metro supports the principles of a '30 Minute City' reinforcing Brisbane's status as a New World city that is easy to move around with efficient infrastructure and low congestion. • Brisbane Metro provides a more attractive and legible transit system for residents and visitors. • A new underground Cultural Centre metro station and refurbished surface level bus stops will enhance the reputation of the Cultural Centre as a world class cultural and entertainment precinct. • Brisbane Metro supports the future redevelopment at Roma Street station ensuring the precinct is a vibrant city destination as well as a regional transit interchange. The redevelopment will establish Roma Street as a pedestrian friendly and activated city boulevard, create a city gateway and provide an improved transition for pedestrians when moving between the interchange and the city. • Brisbane Metro will encourage and/or enable new development in and around station precincts consistent with established planning policy. Brisbane Metro supports city significant projects including Herston Quarter and Queen's Wharf Brisbane. • Reduced bus numbers on CBD streets will alleviate some pedestrian congestion and noise, air and visual pollution associated with many existing CBD bus stops. This reduction in congestion and pollution will directly improve the pedestrian environment, improve cycle safety and enhance ground level retail amenity. • Brisbane Metro will reduce bus congestion in the inner-city, and the removal of cars from Victoria Bridge and closure of North Quay to general traffic will also reduce vehicle congestion in these areas.

Table 1.6 – City and place benefits of the Brisbane Metro

The city and place aspects of two distinct precincts, namely the Cultural Centre and Roma Street can be revitalised by the delivery of the Brisbane Metro. Improved pedestrian connectivity, public spaces, and station precincts will support the emergence of Brisbane as a New World City.

Cultural Centre

A new underground Cultural Centre metro station, removal and replacement of existing Cultural Centre station with new street level bus stops, and associated reconfiguration of the public realm at Grey Street and Melbourne Street will establish the Cultural Centre as a gateway of civic quality commensurate with a world class cultural precinct. The new Cultural Centre station works will specifically facilitate significant public realm improvements and reduce transport and pedestrian conflicts.

Roma Street

Roma Street station redevelopment, potentially catalysed under the Cross River Rail Project and supported by the Brisbane Metro, will reconnect Roma Street and the city to Roma Street Parkland and Spring Hill, extending its catchment and supporting enhanced pedestrian accessibility in this part of the city. The redevelopment will reposition Roma

Street as a pedestrian friendly and activated city boulevard, providing both a gateway to the city and an improved transition for pedestrians and transport interchange to the city.

1.5.3 A cost-effective solution

1.5.3.1 Better use of infrastructure

By combining targeted infrastructure investments, with policy and operational measures and new technology, the Brisbane Metro removes key constraints on the existing busway infrastructure and bus fleet without the cost and community impacts of delivering a major new dedicated transport corridor.

It also avoids extensive and costly re-routing of current busway services that would be required during construction and implementation of a complete conversion of the busway corridor to alternate technology, such as light rail.

1.5.3.2 Better service delivery

By addressing key bottlenecks in the inner-city and improving the efficiency of the busway network, the Brisbane Metro provides the opportunity to increase public transport capacity, accessibility and connectivity in the inner-city and knowledge corridor.

The high-frequency, high capacity metro services and revised bus network have significant scope for future evolution and expansion over time. This will provide the opportunity to take further advantage of the capacity offered on these new trunk routes to progressively amend, truncate or redirect other routes in line with future growth.

1.5.3.3 Better customer experience

By introducing new services and new systems, the Brisbane Metro will deliver an improved customer experience with faster and more reliable journey times and an easier to use network with more choice for customers.

New passenger and vehicle information systems will improve the availability of information to customers both along the busway and at other key locations across the network.

1.5.3.4 Better land use outcomes

By enhancing connections between the city's key precincts, and linking major activity generators, the Brisbane Metro will increase the attraction of the inner-city as a place to live, to work and study.

1.5.4 Complements Cross River Rail

Previous investigations have identified that additional river crossings are needed for both bus and rail to accommodate future growth and transport demand in Brisbane. Together, Brisbane Metro and Cross River Rail significantly improve the integration of the public transport network, attracting increased demand for public transport than either solution on its own.

Brisbane Metro complements Cross River Rail by:

- Providing an inner-city distribution function that connects to key destinations not served by rail, including UQ, QUT Kelvin Grove and RBWH
- Providing interchange opportunities between bus, metro and rail at Boggo Road and Roma Street, and the opportunity to develop a world class inner-city precinct at Roma Street station

- Avoiding impacts on land in the Cross River Rail corridor, including the GoPrint site at Woolloongabba
- Increasing public transport capacity in parts of the inner-city not served by Cross River Rail, including the Mater Hospital precinct, South Bank, Cultural Centre, Queen Street and King George Square.

The Business Case has examined impacts and interdependencies between Brisbane Metro and Cross River Rail, and these will be further considered during future stages of planning and development.

1.5.5 Economic Analysis and Benefits

Detailed analysis and assessment of the cost and benefits of delivering the Brisbane Metro have been completed. The economic cost benefit analysis (CBA) for the Brisbane Metro demonstrates this targeted capital investment in an existing asset, combined with a redesigned, more efficient network will deliver significant ongoing benefits to the economy.

On a conservative basis, the CBA results show a benefit cost ratio (BCR) of 1.91. That is, for every $1 of total expenditure, Brisbane Metro is expected to return $1.91 of benefits to the local economy.

A significant portion of these benefits are delivered to public transport users, reflecting changes in access time, wait time, interchange time and in-vehicle time. These can be attributed to a redesigned public transport service that offers:

- high-frequency services
- shorter journey times across the metro and bus network
- increased connectivity across public transport modes
- the ability to avoid delays caused by congestion due to separated corridor infrastructure.

Brisbane Metro will also deliver considerable economic benefits to private vehicle users including reduced journey time and vehicle operating costs, improved safety and improved reliability of journey times.

1.6 Community Consultation

Engagement with the community and stakeholders has played an important role in helping to shape the Brisbane Metro.

Three rounds of communication and engagement activities were held between May 2016 and May 2017, with each round of engagement based on specific project milestones, allowing for the outcomes of engagement to help inform future stages of project development.

Feedback from engagement activities and market research undertaken indicated there was strong support for more frequent, reliable public transport in Brisbane, and high awareness and recognition of existing bus congestion issues in Brisbane's inner-city, particularly around the Cultural Centre bus station and the CBD.

However, community members and stakeholders identified a number of issues with the initial Brisbane Metro. Consideration of these issues played a critical role in the options assessment process and selection of the preferred Brisbane Metro option.

As part of the next phase of activity, Council will focus its engagement efforts on working closely with key stakeholders to further clarify potential impacts and requirements that need to be considered as Brisbane Metro progresses.

A Concept Design and Impact Management Plan CDIMP will also be undertaken as part of future project planning, including engaging with community and stakeholders. The CDIMP provides a breakdown of the project's anticipated benefits and impacts, including typical mitigations for potential impacts that will be addressed in future detailed design and construction phases.

1.7 Project Costs

Cost estimates were developed for the Brisbane Metro based on the principles outlined in the guidelines of the Queensland Government Department of Transport and Main Roads (TMR) Project Cost Estimating Manual (PCEM) (Sixth Edition): September 2015.

The estimated nominal P50 and P90 risk adjusted capital costs for the Brisbane Metro are presented in Table 1.7.

DESCRIPTION	COST ($M)
TOTAL NOMINAL P50 CAPITAL COSTS	**$868**
TOTAL NOMINAL P90 CAPITAL COSTS	**$944**

Table 1.7 – Estimated Brisbane Metro Capital Costs

The estimated nominal, risk adjusted operating costs for the first year of operation of the Brisbane Metro is presented in Table 1.8. The estimates are for Year 1 of operations of the metro services only, which commence in December 2022.

DESCRIPTION	COST ($M)
TOTAL NOMINAL P50 CAPITAL COSTS	**$38**
TOTAL NOMINAL P90 CAPITAL COSTS	**$41**

Table 1.8 – Estimated Brisbane Metro Year 1 Operating Costs

1.8 Delivery Options and Value-for-Money Analysis

A delivery options and Value-for-Money (VfM) assessment was undertaken for the Brisbane Metro to consider whether there is opportunity for private sector investment in Brisbane Metro, or if Brisbane Metro should be delivered under a traditional government delivery model.

The delivery options and VfM assessment was undertaken in accordance with the Queensland Government Project Assessment Framework (PAF) Guidelines and the Building Queensland Business Case Development Framework.

A Design and Construct (D&C) delivery model was chosen as the traditional delivery model to be assessed as it is well understood by key stakeholders and provides a good basis for understanding the advantages and disadvantages of a traditional model.

An availability model was chosen to be the Public Private Partnership (PPP) delivery model to be assessed, based primarily on the fact that market (demand) risk relating to the Brisbane Metro is unlikely to be able to be transferred to the private sector given the Queensland Government's responsibility for public transport delivery and revenue collection.

A comparative VfM assessment was completed for the two options. Table 1.9 outlines the results of this assessment.

VALUE-FOR-MONEY DRIVER	TRADITIONAL MODEL (D&C)	PPP MODEL (AVAILABILITY PAYMENT)
Output based service requirement encouraging innovation	✓	✓✓
Risk allocation	✓✓	✓
Whole-of-life costing	✓	✓✓
Asset utilisation	✖	✖
Competitive market	✓✓	✓

Table 1.9 – Brisbane Metro Value-for-Money Assessment Results

Based on an initial assessment, the traditional model:

- Offers reasonable opportunities to drive a VfM outcome in respect of risk allocation and competitive market in the context of the Brisbane Metro
- Offers some opportunities to drive a VfM outcome in respect of innovation and whole-of-life costing in the context of the Brisbane Metro
- Offers no opportunities to drive a VfM outcome in respect of asset utilisation in the context of the Brisbane Metro.

In comparison, based on the initial assessment, the PPP model:

- Offers reasonable opportunities to drive a VfM outcome in respect of innovation and whole-of-life costing in the context of the Brisbane Metro
- Offers some opportunities to drive a VfM outcome in respect of risk allocation and competitive market in the context of the Brisbane Metro
- Offers no opportunities to drive a VfM outcome in respect of asset utilisation in the context of the Brisbane Metro.

The initial assessment concluded that additional analysis is required in order to determine a preferred delivery model. Therefore, it is recommended both the PPP and traditional delivery options undergo further VfM analysis.

As part of ongoing work, the delivery models will be re-assessed against the VfM drivers, with a range of other analysis outcomes available (including a detailed packaging assessment) to inform the analysis.

1.9 Recommendations

This Business Case recommends that Council:

- Approves developing a CDIMP
- Notes the Brisbane Metro has a positive impact against the projects objectives of:
    - delivering high-frequency ‘turn-up-and-go’ services
    - increasing the capacity of the busway network
    - reducing bus congestion on the busway in the CBD and inner-city
    - reducing the number of buses in the CBD
    - improving travel times and reliability
    - freeing up buses to allow more services to the suburbs
- Notes the strong economic merit of Brisbane Metro, noting that on a conservative basis this BCR is 1.91

- Notes the estimated capital cost of Brisbane Metro is $944 million (nominal, P90)
- Notes both a PPP and traditional delivery options will be considered further
- Notes Brisbane Metro and Cross River Rail are considered complementary, and that coordinated planning of both projects would provide Brisbane with significant benefits
- Approves ongoing stakeholder engagement to support the development of Brisbane Metro.

1.10 Next Steps

Initial assessments of the project's benefits and impacts have identified a range of opportunities for Council to work with stakeholders and the community to deliver the project.

The next phase of activity will focus on further defining the impacts, benefits and opportunities of the project in partnership with key stakeholders, with a particular focus on:

- integration with Cross River Rail and other major projects
- opportunities and impacts at important inner-city precincts, such as the Cultural Centre and Roma Street
- detailed planning for changes to the bus network
- managing changes to general traffic at Victoria Bridge and North Quay
- understanding the impacts of construction at key work sites and planning appropriate mitigation measures
- industry engagement and market sounding.

Council is committed to working closely with the Queensland and Australian Governments, and other important stakeholders, to fully realise the benefits of Brisbane Metro.

Additionally, Council will continue to keep the community informed about Brisbane Metro, and provide opportunities for residents to have their say during future stages of project planning.