A MESSAGE FROM THE LORD MAYOR

As Lord Mayor, I want to make sure Brisbane continues to be a great place to live, work, visit and do business.

With much of our inner-city bus infrastructure already at capacity, a significant investment is needed now to keep our city moving.

That’s why I announced Brisbane Metro, a high-frequency public transport system designed to cut travel times and reduce city centre bus congestion.

Brisbane Metro represents the next step in public transport for our city, ensuring we can meet the increasing demand for fast, frequent and reliable travel to the inner-city.

The Business Case for Brisbane Metro, confirms the project is a feasible, value-for-money investment in our public transport network. Brisbane Metro will provide significant benefits for both the city and the region, complementing the Cross River Rail project and existing heavy rail services.

Importantly, it will help support our city’s liveability and economic prosperity into the future, helping to maintain Brisbane’s status as a New World City.

I truly believe Brisbane Metro is the right transport solution for Brisbane, and now is the time to deliver it.

Lord Mayor
Cr Graham Quirk

A MESSAGE FROM THE DEPUTY MAYOR

Quick, regular and reliable public transport is critical if we want to see more people getting on-board.

Brisbane Metro is a key part of Brisbane City Council’s overall plan to fight traffic congestion by making public transport a more attractive option for both residents and visitors.

With two metro routes operating every three minutes during peak periods, this vital project will deliver ‘turn up and go’ services across a 21-kilometre network, linking the suburbs with the inner-city.

By upgrading the existing busway network, fixing major bottlenecks and introducing new, high-capacity vehicles, Brisbane Metro provides a smart and cost-effective solution to Brisbane’s bus congestion issues.

Together with other Council initiatives such as our 10 point plan to improve public transport, Brisbane Metro will help meet the demand for fast, reliable transport services well into the future.

I’m proud to be part of the team that is working hard to deliver this ‘game-changing’ project for Brisbane.

Deputy Mayor
Chairman, Public and Active Transport Committee
Cr Adrian Schrinner
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>The right solution for Brisbane</td>
<td>6</td>
</tr>
<tr>
<td>The need for Brisbane Metro</td>
<td>8</td>
</tr>
<tr>
<td>Developing Brisbane Metro</td>
<td>14</td>
</tr>
<tr>
<td>About Brisbane Metro</td>
<td>16</td>
</tr>
<tr>
<td>A cost-effective solution</td>
<td>26</td>
</tr>
<tr>
<td>A city-making project</td>
<td>28</td>
</tr>
<tr>
<td>Brisbane’s future transport network</td>
<td>34</td>
</tr>
<tr>
<td>Evolution of Brisbane Metro</td>
<td>36</td>
</tr>
<tr>
<td>Next steps</td>
<td>38</td>
</tr>
</tbody>
</table>
Brisbane Metro is a high-frequency, high-capacity public transport system that makes better use of our existing busway infrastructure.

Two new metro lines connecting the inner-city and suburbs

21-kilometre route servicing 18 stations

A fleet of 60 high-capacity metro vehicles

A new state-of-the-art underground station at the Cultural Centre

Interchange opportunities between bus, Brisbane Metro and rail at 11 locations

Upgrades to 17 existing stations, including ticketing improvements to speed up boarding
Better connections between key health, knowledge, education and entertainment hubs

Connections with Cross River Rail at two locations

Victoria Bridge converted to a green bridge for Brisbane Metro and bus services, pedestrians and cyclists
The right solution for Brisbane

The Business Case for Brisbane Metro confirms the project is a value-for-money investment in our public transport network, that will provide significant benefits for both the city and the region.

Constraints on the busway network, along with congestion, increasingly impact on customer travel time and reliability, and detract from CBD amenity.

Without new investment, there will be insufficient capacity to support future population and employment growth and maintain Brisbane’s status as a New World City.

Recognising the need to act, Brisbane City Council announced Brisbane Metro in early 2016 as a way of addressing Brisbane’s inner-city bus network congestion issues.

Through a detailed options assessment process, Council identified a solution that introduces a network of high-frequency, high-capacity metro services over 21-kilometres of existing busway infrastructure.

The Business Case for Brisbane Metro assessed the benefits, impacts and costs of delivering the expanded project.

It confirms Brisbane Metro is a cost-effective solution that unlocks the potential of the existing busway infrastructure and lays the foundation for future growth through five key elements:

1. existing, new and upgraded infrastructure
2. high-frequency, ‘turn up and go’ metro services and a revised bus network
3. a new fleet of high-capacity metro vehicles
4. policy and operational improvements
5. 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 issues.

On a conservative basis, the cost benefit analysis 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 Brisbane region.

Cost estimates for the project indicate the total capital cost to deliver Brisbane Metro is $944 million.

Together with other initiatives, such as the Queensland Government’s proposed Cross River Rail project, Brisbane Metro presents a once-in-a-generation opportunity to improve the way people travel to and within Brisbane, supporting future population and economic growth across the region.

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

Brisbane Metro will cut travel times, reduce CBD bus congestion and improve services in the suburbs.

High-frequency services every 3MIN in peak periods and every 5MIN between peaks.
Boosts capacity of the busway to carry up to 22,000 people per hour

Improves amenity by removing 125 buses from the CBD

Fixes critical bottlenecks with a segregated corridor for metro and bus services through the inner-city

Improves travel times by up to 30% in the AM peak and 50% in the PM peak
The need for Brisbane Metro

Ensuring transport networks can support future population and employment growth is a key challenge for cities around the world.

Improved access and connectivity to, and within, the inner-city will be critical in driving economic growth, and maintaining Brisbane’s status as a New World City.

Limited scope exists to further develop the road network into Brisbane’s inner-city. Recent major road investment in Brisbane has been focused on bypassing the CBD (such as Clem 7, the Go Between Bridge and Legacy Way) rather than directly improving access to the CBD.

Without new investment in public transport, there will be insufficient capacity to cater for increases in travel demand from future population and employment growth.

A growing city

Brisbane is an economic powerhouse for the State of Queensland and is its gateway to the global economy. Over the next 25 years, Brisbane’s population and economy will continue to grow.

By 2041, the city will be home to more than 1.4 million people, an increase of more than 27%. Brisbane’s economy will provide 1.2 million jobs for the wider region, with growth in health, education, retail and tourism sectors generating increased travel demand into the city and surrounding precincts.

The importance of inner Brisbane

Brisbane’s city centre is the globally-facing commercial centre for South East Queensland (SEQ). By 2041, Brisbane’s city centre will have expanded beyond its traditional peninsula location to become a network of inner-city precincts.

Brisbane’s CBD and inner-city precincts will continue to be the driving force of the region’s economy, supporting more than 630,000 jobs.

Future population growth will also be greatest in suburbs within five kilometres of the CBD, with approximately 475,000 residents living in the inner-city by 2041.

The ability for workers, residents and visitors to move quickly and easily within and between these inner-city precincts will be essential to the success of Brisbane’s economy.

Supporting jobs and economic growth

While employment growth is expected to remain strong within the Brisbane CBD and surrounding inner precincts, population growth in the wider region over the next 25 years will be greatest in the urban centres outside of Brisbane.

Employment growth in the CBD and inner-city depends on residents from suburbs and centres across the region being able to get to workplaces in a reliable time, particularly during peak periods.

Improving access and connectivity

Providing frequent, high-quality public transport services to Brisbane’s inner-city and CBD from commuter catchments outside of Brisbane, as well as inner-city distribution services, will be critical to supporting population growth across the region and economic growth in Brisbane.

The city’s transport network is now at a critical juncture in its evolution, as emerging issues challenge the region’s growth aspirations.

Promoting public transport as the preferred mode for accessing Brisbane’s CBD and inner-city, especially during peak periods, will be essential to addressing these issues.

---

1 Brisbane Metro Transport Model 2017
The critical role of the bus network

Brisbane’s bus network is an important component of the region’s public transport system. Two-thirds of public transport users travel by bus, with more than 76 million passenger trips in the 2015–16 financial year. Buses have a more significant role in Brisbane’s public transport network than in other major cities, moving 24 million more passengers each year than the entire rail network in SEQ\(^2\).

The bus network is vital for serving areas that do not have convenient access to rail. As shown below, rail trips are highly concentrated in a narrow band along rail corridors, while bus network coverage is extensive, particularly in corridors with high-frequency routes such as the substantial catchment served by the South East Busway.

In addition, a number of significant activity centres in Brisbane are not directly served by rail but well served directly by bus, including the University of Queensland (UQ), Royal Brisbane and Women’s Hospital (RBWH), and Upper Mount Gravatt.

The busway network has progressively developed since 2000, supplementing the traditional role of rail within the public transport network. Today, the busway network provides 25 kilometres of dedicated bus corridors running north, south and east of the city centre.

Mode share between bus and rail in Brisbane and surrounding region (2011)
In 2015, a study completed for the Department of Transport and Main Roads found the South East Busway was ranked 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.

During morning peak periods, the South East Busway carries 12,000 passengers per hour into the CBD. This compares to around 6,500 passengers on rail lines approaching from the south, highlighting the critical role that buses play in this part of the public transport network.

**A network under pressure**

Critical parts of Brisbane’s existing busway 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 CBD.

**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 being 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 periods is placing the performance of these services under pressure.

**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.

---

2 Brisbane Metro Transport Model 2017
3 Brisbane Metro Transport Model 2017
4 go card data
Brisbane’s bus challenges

- Congestion across Victoria Bridge and at North Quay intersections
- Cultural Centre bus station full during peak periods
- Bus delays along Melbourne Street and South East Busway
- Bus queuing along platforms of South East Busway stations
- Buses delayed getting on to Captain Cook Bridge
- Slow bus flows through King George Square busway station during peak periods
- Queen Street bus station full during peak periods
- Buses caught in congestion on busy city streets
- Buses slowed by traffic on Captain Cook Bridge

Legend
- Existing busway
- Busway station
- Riverside Expressway
- Existing rail
- Existing rail used for stabling and freight
**Demand for bus travel**

is anticipated to double between 2016 and 2041, growing to more than 730,000 bus passengers per day.

**Rail challenges**

Compared to other major Australian cities, Brisbane’s rail network has limited capacity and coverage, particularly within the Brisbane CBD.

Demand for rail services to and through Brisbane’s inner core will continue to grow as people across the region seek to access jobs and services.

However, the existing inner-city rail system has insufficient capacity to serve the forecast demand for CBD access, due to a number of constraints on the network.

**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 services stop 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 passengers, impact on dwell times and ultimately the operational efficiency and capacity of the busway network.

**Meeting future public transport demand**

Due to the forecast increases in travel demand from population and employment growth, the demand for bus travel in the Brisbane region is anticipated to double between 2016 and 2041, growing to more than 730,000 bus passengers per day.

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.

**Demand for bus travel is anticipated to double between 2016 and 2041, growing to more than 730,000 bus passengers per day.**

Additional cross-river capacity is needed for both bus and rail to accommodate future growth and transport demand in Brisbane.

A number of projects are under development by the Queensland Government to address the constraints facing the rail network. This includes the Cross River Rail project and the European Train Control System – Level 2 (Inner City).

However these projects alone will not solve all future capacity and congestion issues, which is why an additional solution is required.

---

5 Brisbane Metro Transport Model 2017
Today, more than 220 buses an hour pass through the Cultural Centre station in the morning peak.
A range of studies and projects have previously been initiated and investigated to address Brisbane’s bus constraints.

Due to a number of reasons, including affordability constraints and change in government direction, many of these have not progressed past the feasibility stage.

Recognising the need to act, Council announced the Brisbane Metro project in early 2016 as a way of addressing Brisbane’s inner-city bus network congestion issues.

Options assessment

Following the announcement of the project, an options assessment process was undertaken, serving as the first stage of the project’s feasibility assessment.

This process, underpinned by detailed analysis and investigation, and extensive stakeholder and community engagement, examined a broad range of options for the Brisbane Metro project.

These options ranged from the better use of existing infrastructure to the construction of new infrastructure.

Options were assessed against a range of customer-focused criteria, and how they best performed against Council’s objectives for the project which include:

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

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

Based on the outcomes of the options assessment, Council announced the revised Brisbane Metro in March 2017. This is a solution that best meets Council’s objectives for the project and maximises the use of existing infrastructure.

Planning for future growth

Supporting population and employment growth in Brisbane and the SEQ region, through improved public transport, is reflected in key plans and policies at all levels of government. This includes:

- **Australian Infrastructure Plan** – indicates that urban passenger transport networks should be upgraded so they meet future connectivity needs, are more integrated, have higher capacity and can meet the twin demands of population growth and rising expectations for service levels.

- **Smart Cities Plan** – prioritises infrastructure that improves accessibility, promotes agglomeration economies and enhances amenity, housing affordability and sustainability.

- **State Infrastructure Plan** – includes the provision of infrastructure that connects communities to markets and supports growth and productivity, prioritising investments that reform or make better use of existing infrastructure prior to consideration of significant new construction.

- **ShapingSEQ (Draft SEQ Regional Plan)** – highlights the requirements for a public transport service that will improve passenger transport trunk services to and within inner Brisbane.

- **Brisbane City Centre Master Plan** – proposes that public transport will be the best way to commute to the city centre and that investment will be made in high-capacity and high-frequency transit to accommodate strong city growth.
About Brisbane Metro

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

The project features 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 presents a unique opportunity to enhance Brisbane’s bus network, which will provide significant benefits to Brisbane’s public transport users and to the Brisbane economy.

Through the development of the project’s Business Case, Council has undertaken further investigations into the benefits, impacts and costs of delivering Brisbane Metro.

This demonstrates Brisbane Metro provides a cost-effective solution to meeting Council’s objectives through a combination of five key elements.

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

**NETWORK AND SERVICES**
- Two new metro lines
- Services every three minutes in peak periods
- Metro services to 18 stations
- Interchange at 11 locations
- Connects to Cross River Rail at two stations

**VEHICLES**
- Around 60 new vehicles
- Capacity for up to 150 passengers
- Four passenger doors
- Low floor entrance

**POLICY AND OPERATIONS**
- Off-board ticketing at busway stations
- All door alighting and boarding
- Reduced vehicle dwell times

**SYSTEMS**
- Dynamic vehicle bay allocation system
- Real-time vehicle location and travel updates
- Passenger information displays and announcements

**INFRASTRUCTURE**
- New underground station at the Cultural Centre
- Victoria Bridge converted to a ‘green’ bridge
- New tunnel under Adelaide Street
- Upgrades to existing stations
- Depot and maintenance facility
Complementing 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 more 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 serviced by rail, including UQ, Queensland University of Technology (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 serviced 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 carefully considered during future stages of planning and development.
Station features include:
- inbound and outbound platforms each about 100 metres long and six metres wide
- escalators and lifts connecting each platform to Grey Street
- platform screen doors for customer safety and easy boarding
- fare gates or platform card readers
- passenger information displays
- passenger seating and security features.

Enhanced Melbourne Street and Cultural Centre public realm

To accommodate the movement of metro and bus services from the new underground station to Victoria Bridge, the existing Cultural Centre busway station will be removed and replaced with new street level bus stops.

New inbound and outbound bus shelters and bus bays will be built on either side of Melbourne Street, with a ramp down to the underground station 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.

This new arrangement will help facilitate public realm improvements and reduce pedestrian and transport conflicts at the intersection of Melbourne Street and Grey Street.

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.

New Cultural Centre underground station

A 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 Brisbane Metro and bus services.

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.

The new station will also allow the closure of the existing Melbourne Street busway portal, significantly reducing the number of buses at street level.
Changes to Victoria Bridge

Victoria Bridge will be converted to a green bridge for Brisbane 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 Brisbane Metro and bus services using the centre two lanes, and other bus services connecting to West End using the outside lanes.

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.
Changes to North Quay

A section of North Quay from Victoria Bridge into the Adelaide Street tunnel will be modified, with two central lanes for Brisbane Metro and some bus services and two outside lanes for other bus services.

The corner from Victoria Bridge to North Quay will be widened slightly toward the river to accommodate the metro and bus lane 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 enhance 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 from the South East Busway will no longer access Queen Street bus station by crossing William Street. Other bus services will continue to access this station via the new Adelaide Street tunnel.

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 ramp connection down to the tunnel will commence at the corner of North Quay and Adelaide Street, with the tunnel portal located before the George Street and Adelaide Street intersection.

The 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, giving priority to Brisbane Metro services.

Single traffic lanes on either side of the tunnel ramp at Adelaide Street will provide general traffic access to Brisbane Square and the Brisbane Quarter development, with some bus services, continuing to travel along Adelaide Street at street level.
Busway station upgrades

Upgrades will be undertaken at 17 existing busway stations, including the installation of off-board ticketing equipment and new passenger information display systems. This will provide customers with real-time 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 busway stations to ensure effective operations from day one 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.

Layovers and turnaround facilities

To suit the operational requirements of the Brisbane 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.

New Brisbane Metro depot and maintenance facility

The planned Brisbane Metro fleet depot and maintenance facility will provide sufficient space for the forecast fleet requirements up to 2041, including the initial 60 vehicles.

The depot will have an administration facility containing Brisbane 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 and storage of Brisbane Metro vehicle parts. Other facilities include garage management office space and amenities, fire services and fuel and waste storage / management. A fuelling, wash-down and cleaning facility is also proposed with associated water storage.

Provision will be made for car parking spaces to cover the requirements for Brisbane 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 will be subject to further investigations by Council.
A new fleet of 60 high-capacity Brisbane Metro vehicles will be introduced, each able to carry up to 150 passengers.

Each vehicle will be approximately 24 metres in length, with up to three passenger compartment sections.

Potential features of the vehicles include:

- four double-leaf access doors
- four axles / 12 wheels
- low floor entrance
- capability to comfortably travel along gradients of up to 10%
- Wi-Fi access and charging facilities
- energy efficient and low-emission operations.

Council is assessing a range of metro vehicles from providers in Australia and around the world to determine their suitability for the project. This includes consideration of the power source for the vehicles, with a potential for hybrid operations using conventional or alternative fuels.

The estimated number of vehicles has been selected based on the peak frequency, forecast journey times, layover times and the number of vehicles required to support servicing and maintenance.

The Brisbane Metro vehicle fleet will expand over time to accommodate growth in services.
Changes to boarding and ticketing policies at busway stations will allow faster and more efficient customer boarding and alighting, helping to improve travel times and reliability.

All Brisbane Metro station platforms will become pre-paid zones, with the installation of fare gates or platform card readers enabling full off-board ticketing. This will remove the need for customers to tag on and off inside vehicles, which currently impacts on dwell time variability and effects the capacity of the busway network.

In addition, multi-door boarding and alighting for metro vehicles will further reduce dwell times at stations, providing customers with faster and more reliable journey times. It is estimated these changes would reduce the time it takes to board and alight customers at busy stations by up to 50%, with boarding times reduced to 30 seconds on average.

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

Proposed system enhancements within the busway and on platforms include:

- dynamic vehicle bay allocation system, which directs drivers to a platform bay, improving efficiency of operations
- platform display information signs, which inform 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.

Proposed 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 Radio Frequency Identification Tags (RFIT) to support dynamic vehicle bay allocations.
Evolving the bus network

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

Under the proposed hybrid network strategy, many current BUZ (high-frequency) and Rocket (peak-only express) services to the CBD will continue to operate, retaining a strong complementary network of suburbs-to-city services for existing bus customers.

Other current low-patronage bus services will feed high-frequency trunk metro services on the busway. Providing feeder services to Brisbane Metro stations will reduce duplication and provide a more efficient use of the existing bus fleet and infrastructure. This will reduce bus congestion on the busway and in the CBD, helping to improve travel times and reliability.

At the same time, customers will benefit from an easier-to-use network and better, convenient connectivity to a wider range of growth destinations. This will be supported by improvements to other high-frequency distribution services, such as Council’s City Glider network and the Inner City Loop.

New interchange opportunities

The new bus network will provide a wide range of interchange opportunities between Brisbane Metro and other bus services. Interchange opportunities in the CBD will be spread more evenly, with a greater focus on King George Square and Roma Street station, and less need for customers to travel to the Cultural Centre to interchange between services.

Customers will be able to interchange between bus and metro on the same platform at many busway stations, including Eight Mile Plains, Griffith University, Buranda, Boggo Road and RBWH. Interchange between bus, rail and metro will be made even more convenient at stations such as Buranda, Roma Street, Boggo Road and South Brisbane.

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

High-frequency services, every day

In line with metro services around the world, Brisbane Metro will operate a high-frequency service from day one of operation.

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 serviced by both Metro 1 and Metro 2.

During the weekday inter-peak periods, Brisbane 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, Brisbane Metro services will operate every five to 10 minutes in line with customer demand.

High-frequency Brisbane Metro services, along with increased capacity and reliability, will make it easier and quicker for people to move between where they live and where they work, study and play.

This will help support planned growth locations and reduce the pressure on greenfield development and open space, contributing to vibrant, liveable and productive communities along the metro and busway corridor.
Brisbane Metro Network

Legend
- Metro 1 line
- Metro 2 line
- Key interchange
- Local bus connection
- Existing train connection
- Proposed Cross River Rail connection

Metro 1 – Eight Mile Plains to Roma Street
Metro 1 will provide a new trunk route from the southern suburbs to the inner-city, servicing key destinations like Griffith University and Garden City, and providing opportunities to transfer to other metro, bus or rail services in the CBD to access areas like Fortitude Valley, Bowen Hills and QUT Kelvin Grove.

Metro 2 – RBWH to UQ Lakes
Metro 2 will provide a strong inner-city distribution function along the education, knowledge and health corridor, anchored by major trip generators at RBWH in the north and the UQ in the south. It will also provide cross-city connectivity between the Boggo Road and PA Hospital precincts, with important destinations at South Brisbane, the CBD and inner north.
Increasingly, smart cities are looking towards solutions that maximise the potential of existing assets and systems before investing in dedicated new infrastructure, which can often come at a high cost to both governments and the community.

Brisbane Metro provides a cost-effective solution that enhances inner-city public transport capacity by unlocking the potential of the existing dedicated busway system, while also addressing current capacity issues.

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.

**A value-for-money investment**

Detailed analysis and assessment of the cost and benefits of delivering Brisbane Metro have been undertaken as part of the Business Case.

This confirms Brisbane Metro provides a value-for-money investment in our future public transport network for both Council and residents, and contributes to the economic growth of the city.

Cost estimates for the project indicate the total capital costs to deliver Brisbane Metro are approximately $944 million.

**Better use of existing infrastructure**

By combining targeted infrastructure investments, with policy and operational measures and new technology, Brisbane Metro removes the key constraints on our 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 alternative technology, such as light rail.

**Better service delivery**

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

The introduction of high-frequency, high-capacity metro services and a revised bus network has significant scope for future evolution and expansion over time. This will take further advantage of the capacity offered on the new metro lines, and to progressively amend, truncate or redirect other routes, in line with future busway extensions.

**Better customer experience**

By introducing new services and new systems, 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 bus network.
**A positive economic case**

The economic cost benefit analysis for 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 cost benefit analysis results show a discounted 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.

This captures the critical benefits of the coordinated delivery of the five key elements of the project, namely:

- existing, new and upgraded infrastructure
- high-frequency, ‘turn up and go’ metro services, and a revised bus network
- a new fleet of high-capacity metro vehicles
- policy and operational improvements
- passenger and vehicle management systems.

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 Brisbane 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.

**Summary of financial and economic assessment**

<table>
<thead>
<tr>
<th>Benefit cost ratio</th>
<th>1.91</th>
<th>Brisbane Metro will return $1.91 of benefits for every $1 of total expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated capital cost</td>
<td>$944 million (P90)</td>
<td>Risk-adjusted capital costs</td>
</tr>
</tbody>
</table>

Brisbane Metro will deliver **$1.91** of benefits for every $1 of total expenditure.
Council’s investment in Brisbane Metro will deliver significant benefits for the city and the wider region. It will provide a better experience for customers, support forecast economic growth and increasing demand for public transport across the region, and unlock city and place opportunities around key station locations.

**SUPPORTING EASY JOURNEYS**

Brisbane Metro will deliver a high-quality experience that makes travelling by public transport as easy and comfortable as possible. It 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.

**Improved accessibility and connectivity**

- Improves access and public transport capacity to the city’s employment, education, knowledge and health hubs including RBWH, UQ, the Mater Precinct, Boggo Road Ecociences Precinct, South Bank TAFE, QUT Kelvin Grove and the CBD.
- Increases the number of people who can access key destinations within 30 minutes.
- Makes multi-seat journeys easier by providing better connections between services.

**Unlocking the potential of the busway network**

- Increases capacity of the busway to carry up to 22,000 people per hour.
- Fixes critical inner-city bottlenecks, providing a segregated corridor for Brisbane Metro and bus services.
- Addresses platform capacity constraints across the busway network.

**Faster journeys and more reliable services**

- 50% faster trips between King George Square station and Buranda station in the PM peak.
- 30% faster trips between Buranda station and King George Square station in the AM peak.
- Regular commuters save up to one hour each week in reduced travel times.

**More choice and a more integrated network**

- ‘Turn up and go’ services at 18 stations across the Brisbane Metro network.
- A more connected network with interchange between metro, bus and rail at 11 locations, including Roma Street, Boggo Road and King George Square stations.
- Allows rail capacity to cater more for longer distance travel by providing a complementary public transport mode for short inner-city distributor travel.

**Easier connections with shorter waits between services**

- Services every three minutes in weekday peak periods and every five minutes between peak periods.
- Reduces crowding on services and at platforms.
- Reduces wait times at stations.

Note: Artist’s impression (opposite) is indicative of a concept design for a future vision of the Cultural Centre Precinct subject to further engagement with stakeholders and approved funding.
A CATALYST FOR SHAPING NEW GROWTH

Brisbane Metro will help position the city as a world-class destination for business, investment, tourism and talent attraction by providing improved access and public transport capacity to the city’s key employment hubs.

Driving economic growth and business interaction

Brisbane Metro better links Brisbane’s key economic, education, knowledge, innovation, health and research clusters by:

- facilitating convenient and efficient movement between places of employment
- encouraging and enabling new transit supportive urban development, in and around station precincts
- connecting the city’s regional centres to the inner-city, including integration with the proposed Cross River Rail project at key interchanges.

A better public transport network to keep the city moving

Brisbane Metro increases frequency and capacity across the network and a dedicated bus and metro corridor through the CBD and inner-city to:

- connect workers with jobs more efficiently
- reduce the impacts of unplanned events, such as extreme weather
- increase the reliability of public transport.

Supporting growth in the city and the region

Brisbane Metro connects areas of regional economic significance, including the inner five kilometres of the city and the Pacific Motorway corridor, and complements projects of citywide significance including:

- $1.1 billion Herston Quarter redevelopment
- redevelopment of Woolloongabba and Bowen Hills Priority Development Areas
- $3 billion Queen’s Wharf Brisbane development.
Enhancing access to global precincts

Productive and liveable cities around the world have a common characteristic, in that they are easy to move around. Research has shown that people in these types of cities generally have access to all their needs within 30 minutes travel time, including work, education, shopping and health6.

Brisbane’s nationally and regionally significant economic precincts have a high concentration of tradeable industries that contribute to the economy through the export of goods and services. This trade generates employment and economic opportunities for Brisbane above what can be generated by local consumption alone.

Many tradeable industries are concentrated in inner-city locations like South Brisbane, Toowong and Fortitude Valley. Many of Brisbane’s suburbs, such as Eight Mile Plains, also contain significant concentrations of business, innovation and advanced manufacturing. These locations need skilled workers who can easily commute to work and meet with colleagues and clients in other precincts.

Brisbane Metro enhances connections between the city’s global precincts, linking major points of activity, including key employment destinations, universities and TAFEs, major hospitals and cultural, recreation and entertainment facilities.

6 Smart Cities Plan, Commonwealth of Australia 2016
CREATING MEMORABLE PLACES AND SPACES

By introducing a high-frequency transport system in the inner-city, Brisbane Metro will provide better connections between residential, employment, entertainment and lifestyle precincts.

It will support the delivery of memorable places and spaces that are attractive and provide safe and convenient accessibility, promote walking and cycling, and contribute to the city’s identity and reputation.

Improved CBD and inner-city amenity

Reduced bus numbers on city streets and reduced congestion will help improve the pedestrian environment, cyclist safety and enhance opportunities for ground-level retail amenity.

Enhancing the Cultural Centre Precinct

Improving the pedestrian environment and streetscape at Melbourne Street and Grey Street will help establish a gateway to the world-class cultural precinct and provide better access to the city’s arts venues, including QPAC and the Queensland Art Gallery, South Bank and the Brisbane Convention and Exhibition Centre.

A redeveloped Roma Street station

The introduction of Brisbane Metro services, in addition to the Cross River Rail project, will support the potential redevelopment of Roma Street station, ensuring the precinct is a vibrant city destination as well as a key regional transit interchange.

Note: Artist’s impression is indicative of a concept design for a future vision of the Cultural Centre Precinct subject to further engagement with stakeholders and approved funding.
A new vision for the Cultural Centre Precinct

Brisbane Metro presents the opportunity to reimagine the Cultural Centre Precinct as a highly connected place that celebrates Brisbane’s culture, river’s edge and subtropical lifestyle.

The precinct is the city’s pre-eminent visitor destination and is a gateway to South Bank, West End and Queen Street Mall. It is also a launching point to Queen’s Wharf Brisbane, the city’s newest entertainment destination.

Under the vision, Melbourne Street and Grey Street are transformed into subtropical boulevards, stitching the precinct together while the river’s edge and CBD provides a fitting backdrop.

Victoria Bridge and future cross-river connections support easy movement, and provide an inviting experience where people pause and take in the city sights.

Leveraging off high quality underground transit, the precinct is people-focused, and movement is comfortable and convenient.

The historic values of QPAC, the Queensland Museum and South Bank station are revered. Activity spills into the street, providing a lively atmosphere during night and day when indoor and outdoor events take centre stage.
Brisbane’s future transport network

Council is committed to ensuring Brisbane Metro provides an integrated public transport solution to meet the city’s long-term transport requirements.

Consideration of a range of other initiatives has played a vital role in planning for Brisbane Metro. This includes the Queensland Government’s Cross River Rail project, which is designed to increase rail capacity across the SEQ region.

Continued collaboration between the Department of Transport and Main Roads, the Cross River Rail Delivery Authority and Council will be critical to the success of both projects.

Other important initiatives include:

**Council’s 10 Point Public Transport Plan**

The 10 Point Public Transport Plan was announced in September 2016 as a proposed new public transport alliance model between Council and TransLink. The alliance model would replace the commercial contractual arrangements that had previously existed and result in a more collaborative approach to deliver quality public transport outcomes for Brisbane.

A number of principles within the plan will assist with the development of Brisbane Metro including:

- a progressive review of the Brisbane bus network, involving staged and systematic localised reviews
- route simplification and re-branding of routes to improve network legibility for passengers
- developing a clear strategy for the use of high-capacity vehicles on the bus network.

**Connected City: Brisbane Metro and Glider Network Strategy**

Council is developing Connected City: Brisbane Metro and Glider Network Strategy, which provides a long-term vision for coordinating future growth and public transport investment. It proposes new metro lines and improved glider services to provide fast and frequent movement between precincts, reducing commuter times, optimising business activity and providing better connections to the regional transport network. Brisbane Metro is the next step in delivering the strategy, with the potential for metro services to be expanded to other areas of the city in the future.

**Connecting Brisbane**

The effectiveness of Brisbane’s passenger transport system, as the core of the regional passenger transport system, is paramount to the success of broader regional outcomes. Jointly developed by the Queensland Government and Council, Connecting Brisbane outlines a shared vision for Brisbane’s customer-centric approach to public transport, land use and infrastructure, which will lay the foundations for the city and region’s social and economic growth. As a project that addresses a range of significant issues within the Brisbane public transport system, Brisbane Metro forms a key part of the strategy.

**Transport Plan for Brisbane**

Council is developing a new transport plan to outline how it intends to address the transport challenges facing Brisbane over the next 20 years and beyond. The plan is due to be released in late 2017, and will provide an overarching framework to guide Council’s transport policies and future investments. Brisbane Metro will feature within the new plan as an initiative to improve connectivity and accessibility to, from and within the CBD, and support the growth of the Brisbane economy.
Indicative Future Metro and Glider Network

*Future metro lines are subject to extension of Queensland Government busway infrastructure.
Evolution of Brisbane Metro

A number of previous investigations have identified the need to act on Brisbane’s inner-city public transport capacity constraints.

Building on these, Council announced Brisbane Metro in early 2016 as a way to address Brisbane’s bus network issues by making better use of existing busway infrastructure.

Following a comprehensive options assessment process, which included detailed technical analysis, Council announced the revised Brisbane Metro in March 2017.

With the Business Case for Brisbane Metro clearly demonstrating the benefits and costs of the project, Council is now proceeding to the next stages of project planning.

Subject to funding and government approvals, construction of Brisbane Metro could commence in 2019, with the project completed in 2022.

The Queensland Government proposes the Cross River Rail project to address Brisbane’s rail capacity and congestion issues.

Building on previous projects, Council and the Queensland Government propose the Bus and Train (BaT) project, a joint bus and rail solution to the capacity constraints at key inner-city locations.

Queensland Government decides to progress a Business Case for a revised Cross River Rail project in place of the BaT project. A Business Case for the Cross River Rail project is submitted to the Australian Government and the Cross River Rail Delivery Authority is established to progress the project.
Council announces Brisbane Metro, a solution to Brisbane’s inner-city bus network congestion issues, proposing sections of the busway be converted to a dedicated Metro corridor.

Based on a detailed options assessment, Council announces the revised Brisbane Metro which will introduce high-frequency, high-capacity Metro services to 21 kilometres of existing busway.

Council will work with stakeholders to secure funding for the project, progress government approvals, and finalise detailed planning in preparation for procurement.

Project completion, operational testing and commissioning, and commencement of Brisbane Metro services.

Early 2016

Based on a detailed options assessment, Council announces the revised Brisbane Metro which will introduce high-frequency, high-capacity Metro services to 21 kilometres of existing busway.

Early 2017

Council will work with stakeholders to secure funding for the project, progress government approvals, and finalise detailed planning in preparation for procurement.

Late 2017–18*

Late 2022*

Future Phases of Brisbane Metro

Early 2017

Council announces Brisbane Metro, a solution to Brisbane’s inner-city bus network congestion issues, proposing sections of the busway be converted to a dedicated Metro corridor.

May 2017

Council releases the Business Case for Brisbane Metro, and the project proceeds to the next stages of planning.

2019–22*

Detailed design and construction of Brisbane Metro staged over four years, with ongoing community and stakeholder engagement.

* Subject to government approvals.
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.

Working with stakeholders

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.

Involving the community

Feedback from the community has played a critical role in the development of Brisbane Metro.

Over the past 12 months, Council has provided a range of opportunities for residents to learn more about the project and provide their input.

This has included community information sessions, formal market research and briefings with individual stakeholder groups.

Feedback has indicated strong support for improved high-frequency public transport between the inner-city and suburbs, and recognition of the need to address Brisbane’s bus congestion and capacity issues.

It has also helped to identify a range of important issues for Council to consider, including:

- the need for Brisbane Metro to be part of a long-term plan for a broader metro network
- the need for Brisbane Metro stations to facilitate easy transfers between bus, rail and metro
- the need for all levels of government to work collaboratively to address Brisbane’s public transport issues.

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.

Investing in our future

The challenges facing Brisbane’s transport network are not new. Further delays in addressing these issues will slow down the economy and hamper the city’s ability to grow.

Brisbane Metro represents an affordable, cost-effective solution that will provide significant economic, transport and social benefits for both the city and the region.

Together with other initiatives, such as Cross River Rail, it presents a once-in-a-generation opportunity to improve the way people travel to and within Brisbane, supporting future population and economic growth across the region.

It will drive growth of major economic and knowledge clusters, encourage development along key transit corridors and help create vibrant neighbourhoods with improved access to public transport.

A key priority for Council is working with all levels of government to secure investment and cooperation for the project to proceed.

While Council has committed to funding the majority of Brisbane Metro, initiatives such as the Australian Government’s new funding for improved public transport infrastructure in cities presents an opportunity for all levels of government to invest in the future of our region.
Brisbane Metro is the right solution for Brisbane, and now is the time to deliver it.