EXECUTIVE SUMMARY

TRANSFORMING THE PUBLIC TRANSPORT SYSTEM

Cross River Rail will create the foundation for a world-class, integrated public transport system in South East Queensland (SEQ). It will alleviate the constraints at the core of the rail network so it can grow and evolve to benefit communities across the region.

SEQ is growing, with an extra 1.9 million people expected by 2036. While most residential growth is forecast to be outside Brisbane in areas such as the Gold Coast, Moreton Bay, Ipswich and the Sunshine Coast, almost half of all new jobs will remain in Brisbane. This means more people travelling longer distances to and from work in Brisbane each day.

Cross River Rail will release the capacity of the rail network so it can meet SEQ's future transport needs, particularly for these longer distance commutes. It will also unlock the potential for smarter integration of rail and bus networks through a broader restructuring of the public transport system. SEQ will be positioned for a more sustainable and competitive future with Cross River Rail accelerating sustainable regional growth and urban revitalisation, offering a framework around which Brisbane can grow.

At an estimated cost of delivery of $5.4 billion, Cross River Rail will deliver a new 10.2-kilometre rail line between Dutton Park and Bowen Hills, with 5.9 kilometres of tunnel under the Brisbane River and the CBD. New, high-capacity stations at four inner-city locations and upgrades of Dutton Park and Exhibition stations will provide direct access to more places of work, study and recreation.

Protecting the quality of life that attracts people from across the globe to live, work and play in SEQ as it grows is critical. But roads are already reaching capacity, costing the state nearly $2 billion a year, with no room for new roads into the inner city. Commuters face the choice of adding to congestion or swapping to a bike, bus or train, yet SEQ's public transport system cannot deliver the fast, frequent and reliable services commuters need now and into the future. Despite the introduction of strategic reforms and operational efficiencies, the rail network is reaching its limits, constrained by infrastructure that is nearing capacity.

By delivering new rail infrastructure to the inner city, Cross River Rail will release the capacity of the entire rail network. Clearing the bottleneck on the Merivale Bridge through a second CBD river crossing will allow for rail extensions to growing parts of the region and additional services on existing lines, bringing relief to the city's most crowded services. A regional spine for fast, frequent rail services will be formed, setting the foundation for a new type of travel in SEQ. Local bus networks will be able to build on and integrate with this spine, with many future services feeding directly to rail. Brisbane City Council's Brisbane Metro would further support the strategic evolution of the network.

All transport users across SEQ will benefit. Passengers will access faster, less crowded and more reliable services. Car users who spend less time in traffic jams will enjoy faster and more efficient trips. Road freight operators will share in the benefits of future congestion relief.

Cross River Rail is an economical and efficient transit solution. With a benefit cost ratio (BCR) of 1.41, for every $1 of total expenditure Cross River Rail is expected to return $1.41 of benefits. The benefits of the project exceed costs by $1.9 billion in net present value terms. This does not take into account $1.2 billion (present value) of wider economic benefits, such as greater density of economic activity, reduced transport cost for business or more people participating in the workforce. Cross River Rail is expected to generate about 1,500 jobs a year during construction and 500 jobs a year during its operation.

With a procurement and delivery timeframe of seven to eight years, and rail demand forecast to almost double in this time, there is justification to invest in Cross River Rail now to ensure SEQ's transport infrastructure network can meet the demands of expected future growth.

ABOUT THIS DOCUMENT

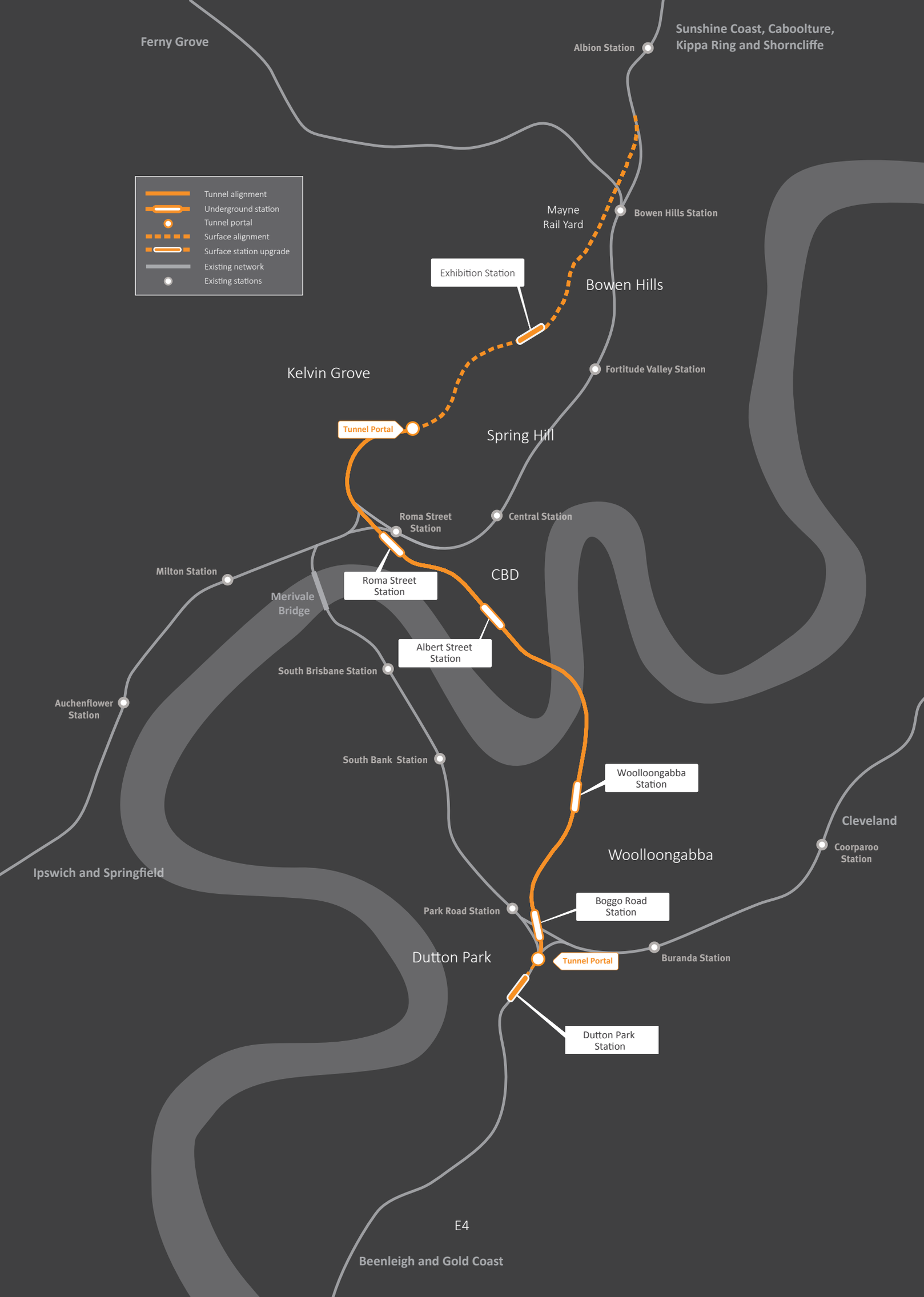
Building Queensland finalised the Detailed Business Case for Cross River Rail in June 2016, the core elements of which are now presented in this document. This document has been prepared in response to the Ministerial direction issued under the Building Queensland Act 2015 on 13 June 2017 by the Deputy Premier, Minister for Transport and Minister for Infrastructure and Planning to make the Detailed Business Case publicly available.

Commercially sensitive information has been removed to protect the state's commercial position during future project stages.

In line with the Ministerial direction, an independent peer review was undertaken to ensure the Business Case appropriately facilitates public awareness of, and accessibility to, information about Cross River Rail.

In preparing the Detailed Business Case in June 2016, expert advisors were engaged to undertake transport patronage modelling (Jacobs/PwC) and economic modelling (KPMG), which contributed to the key findings of the Detailed Business Case. The transport patronage and economic modelling were subject to independent peer review by leading industry experts including Bitzios Consulting (transport patronage modelling) and Douglas Economics (economic modelling).

The same expert advisors and independent peer reviewers were engaged to review recent updates to the modelling undertaken to account for policy and other changes that have occurred over the past year. For example, government population and employment projections reflecting most recent information from the Queensland Government Statistician have been updated; the capacity of the rail network is being increased through the European Train Control System – Inner City Project; and public transport patronage is up due to reduced fare prices introduced through the Fairer Fares package. Related assumptions that previously underpinned the Detailed Business Case have been updated and have resulted in a stronger economic case for the project.


Ferny Grove
Albion Station
Sunshine Coast, Caboolture, Kippa Ring and Shorncliffe
Tunnel alignment
Underground station
Tunnel portal
Surface alignment
Surface station upgrade
Existing network
Existing stations
Mayne Rail Yard
Bowen Hills Station
Exhibition Station
Bowen Hills
Kelvin Grove
Fortitude Valley Station
Tunnel Portal
Spring Hill
Roma Street Station
Central Station
Milton Station
Roma Street Station
CBD
Merivale Bridge
Albert Street Station
South Brisbane Station
Auchenflower Station
South Bank Station
Woolloongabba Station
Cleveland
Coorparoo Station
Woolloongabba
Ipswich and Springfield
Park Road Station
Boggo Road Station
Dutton Park
Tunnel Portal
Buranda Station
Dutton Park Station
E4
Beenleigh and Gold Coast

10.2 kilometre north-south rail line

from Dutton park in the south to Bowen Hills in the north.

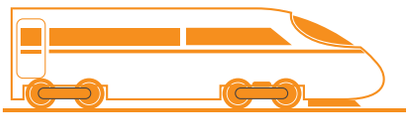
5.9 kilometre twin tunnels

crossing under the Brisbane River and CBD.

4 new underground stations at Boggo Road, Woolloongabba, Albert Street and Roma Street.

2 upgraded surface stations at Dutton Park and Exhibition.

Innovative systems with platform screen doors, world-class signalling and accommodation for new generation rollingstock.



Designed to allow for **nine-car trains.**

CROSS RIVER RAIL WILL:

2X the rail capacity across the Brisbane River and through the CBD from the south

reduces travel time from jobs to home so more people live within **30** minutes of where they work

improve rail services with less train crowding, shorter waiting times and better reliability

provide turn-up-and-go rail services in the inner city

take rail into new parts of Brisbane's city centre with the first new CBD station in more than 120 years

provide capacity to connect new cities and SEQ regional centres such as Caloundra, Flagstone and Coomera to the CBD by rail

enable greater integration of bus and rail services

free up road space for commercial vehicles, enabling faster speeds and quicker trips

generate about 1,500 direct and indirect jobs each year during construction

Support urban revitalisation in key inner-city growth areas such as Woolloongabba and Bowen Hills

manage congestion and reduce greenhouse gasses by shifting more people onto public transport

position Brisbane and SEQ for a more sustainable and competitive future

A growing region

More people living outside Brisbane and commuting to the city every day for work will see demand for longer distance trips continue to grow over the next 20 years (see figure 1).

As Queensland's capital city and primary commercial, industrial and services hub, Brisbane is the state's most significant employment precinct. Moving people easily into and around the inner city will be critical to sustaining Queensland's future economic vitality as the region grows. Governments at all levels are committed to better linking major population centres to their neighbouring capital cities, as highlighted in the Australian Government's Smart Cities Plan and the Queensland Government's draft regional plan, ShapingSEQ.

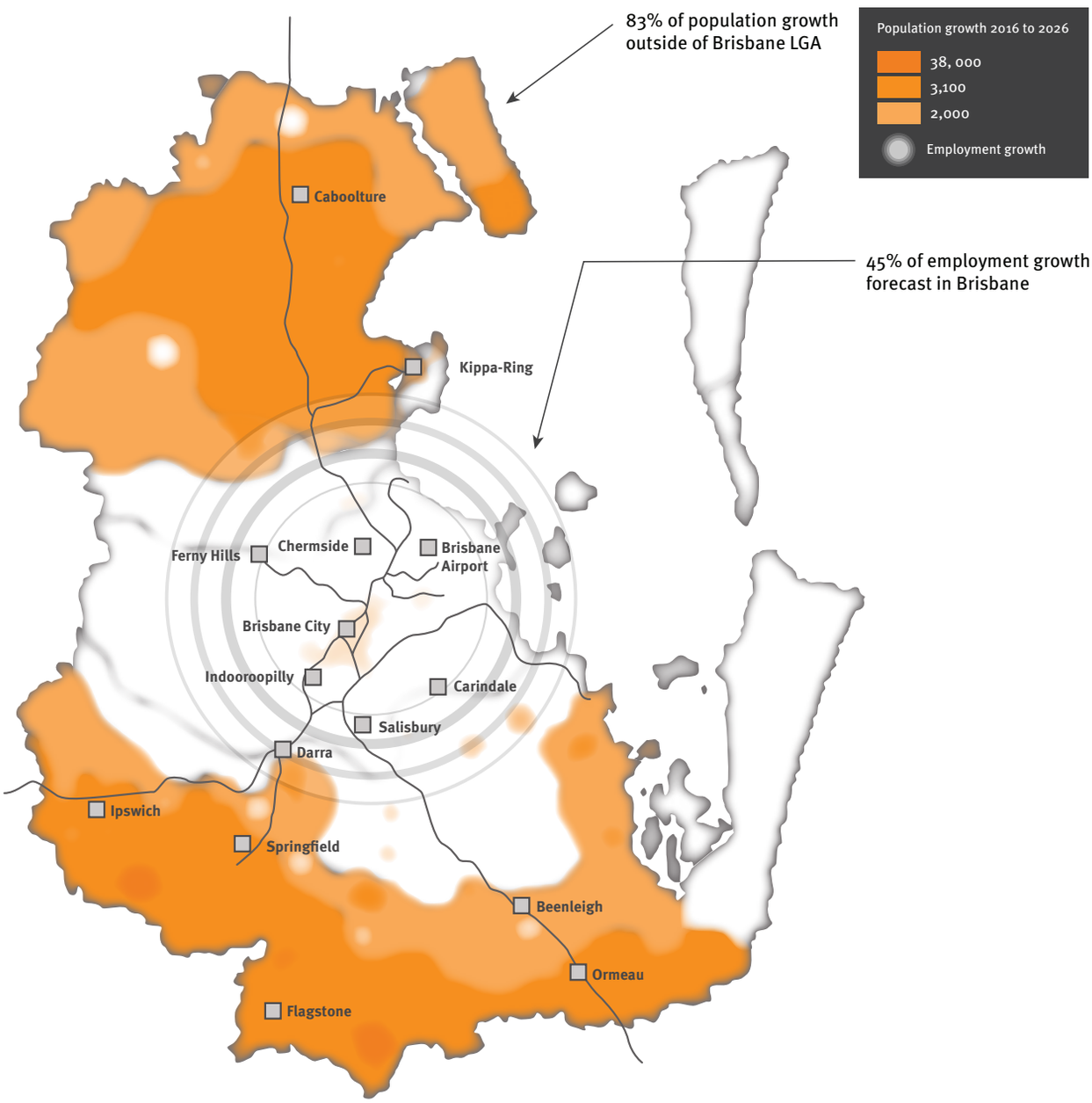


Figure 1: While most new SEQ residents will settle outside Brisbane, many new jobs will be in the city and surrounds which means more people commuting to Brisbane from around the region each day

SEQ's current and future transport challenges cannot be met by building more roads that funnel traffic into the CBD. Busy parts of the network are already at capacity during peak times, with limited room for more roads. Congestion costs are rising with delays reducing economic efficiency and costing industry millions every year. The Australian Infrastructure Audit[1] estimates the cost of delays on the Brisbane–Gold Coast–Sunshine Coast transport network caused by congestion in 2011 was around $2 billion. In the absence of any additional capacity, the cost of delays across the region is projected to grow to around $9 billion in 2031[2].

Good public transport underpins the region's liveability and global competitiveness. It drives economic prosperity by enabling interaction between businesses, workers to access job opportunities and residents and visitors to enjoy leisure activities. It's the foundation of a sustainable region and has the power to reshape cities.

Rail is one of the most efficient and sustainable forms of mass transit. It is also the backbone of the regional transport system and the public transport mode best suited to meet the demand for longer trips from residential areas beyond Brisbane to the inner city. Rail demand is expected to almost triple between 2015 and 2036 (see Figure 2) yet the regional network cannot accommodate this growth. Insufficient and outdated rail infrastructure in the inner city is limiting the network's capacity and restricting its expansion.

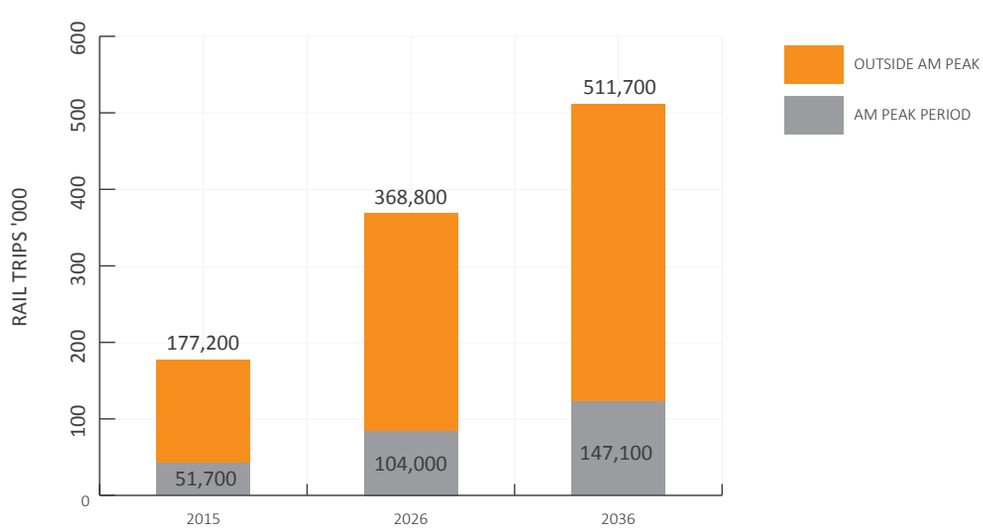


Figure 2: Driven by population and employment growth in the region, demand for passenger rail services is forecast to double from 2015 to 2026 and nearly triple by 2036, beyond the capacity of the system to handle

[1] *Infrastructure Australia, Australian Infrastructure Audit, (2015)*
[2] *State Infrastructure Plan*

Core of the network

Public transport trips are forecast to more than double between 2015 and 2036 but key parts of the network are reaching capacity, impacting service performance and constraining growth. Considered planning and investment is required to ensure the future performance of the transport network.

A significant volume of trips to urban centres such as Brisbane's CBD are made on public transport. Yet bus and rail services converge in Brisbane's city centre, which clogs the entire network and results in some bus services competing with, rather than complementing, rail services. Significant inner-city public transport infrastructure is also operating at or over its design capacity.

Compared to other major Australian cities, Brisbane's rail network has limited coverage in many areas and is relatively indirect in many corridors, which often means longer trips (door-to-door) by train than car. Rail's success relies on regular and reliable bus services to stations, sufficient park 'n' ride facilities and short waiting times for train services. Deficiencies in these areas, combined with limited coverage of the city, means that rail currently caters for a much lower share of trips than in other capital cities.

Pressure on inner-city rail and bus networks will intensify as demand grows. Brisbane's metropolitan rail system, which already experiences periodic overcrowding in key corridors, will need to cater for an additional 52,000 passengers in the morning two-hour peak period by 2026. By 2036, an extra 95,500 passengers will need to be moved, equivalent to 212 full train loads.

Figure 3 highlights key inner-city rail network constraints that Cross River Rail will alleviate, including:

- **Insufficient inner-city infrastructure clogging the system and reducing resilience**
  All services across the region merge in the city centre and stop at Bowen Hills, Fortitude Valley, Central and Roma Street stations. Everything slows as trains share limited tracks and wait to pass through existing inner-city stations. Not only does the current inner-city set up constrain operations and limit services but it makes the whole system less reliable and resilient. Incidents in inner-city stations disrupt services across the entire region, with effects cascading on to road and bus networks, intensifying congestion. By providing a second rail corridor through the city centre and four new underground stations, Cross River Rail will greatly expand inner-city rail infrastructure.

- **Limited inner-city stations restricting network capacity**
  While the city centre is the region's most popular destination for rail commuters, there are only two CBD stations, both on the northern edge of the CBD. Central station caters for the majority of passengers but its capacity is constrained, with platforms already overcrowded during peak hours. The new Albert Street station will alleviate pressure at Central station by catering for rail commuters travelling to the southern CBD.

- **CBD station locations not responding to growth**
  Roma Street and Central stations are a 10 to 15-minute walk from southern and eastern parts of the CBD. Major activity centres such as the Queensland University of Technology's Gardens Point campus and City Botanic Gardens, and future destinations such as the Queen's Wharf Brisbane precinct, are all outside a comfortable five-minute walk to an existing train station. Albert Street station will make each of these destinations easily accessible.

- **Limited river crossings constraining network expansion**
  Cross-regional links are critical to SEQ's ongoing economic vitality but extending the rail network to regional growth areas cannot occur effectively until Cross River Rail is in place. Adding new lines and extra services would increase congestion at the core, pushing the network beyond its limits and reducing service quality. The city's only CBD river crossing, Merivale Bridge, serves three of the busiest lines – Cleveland, Beenleigh and the Gold Coast – which limits the number of trains able to enter the city. Cross River Rail will double the rail capacity across the Brisbane River and through the CBD from the south, enabling greater frequencies on exisiting lines and network expansion.

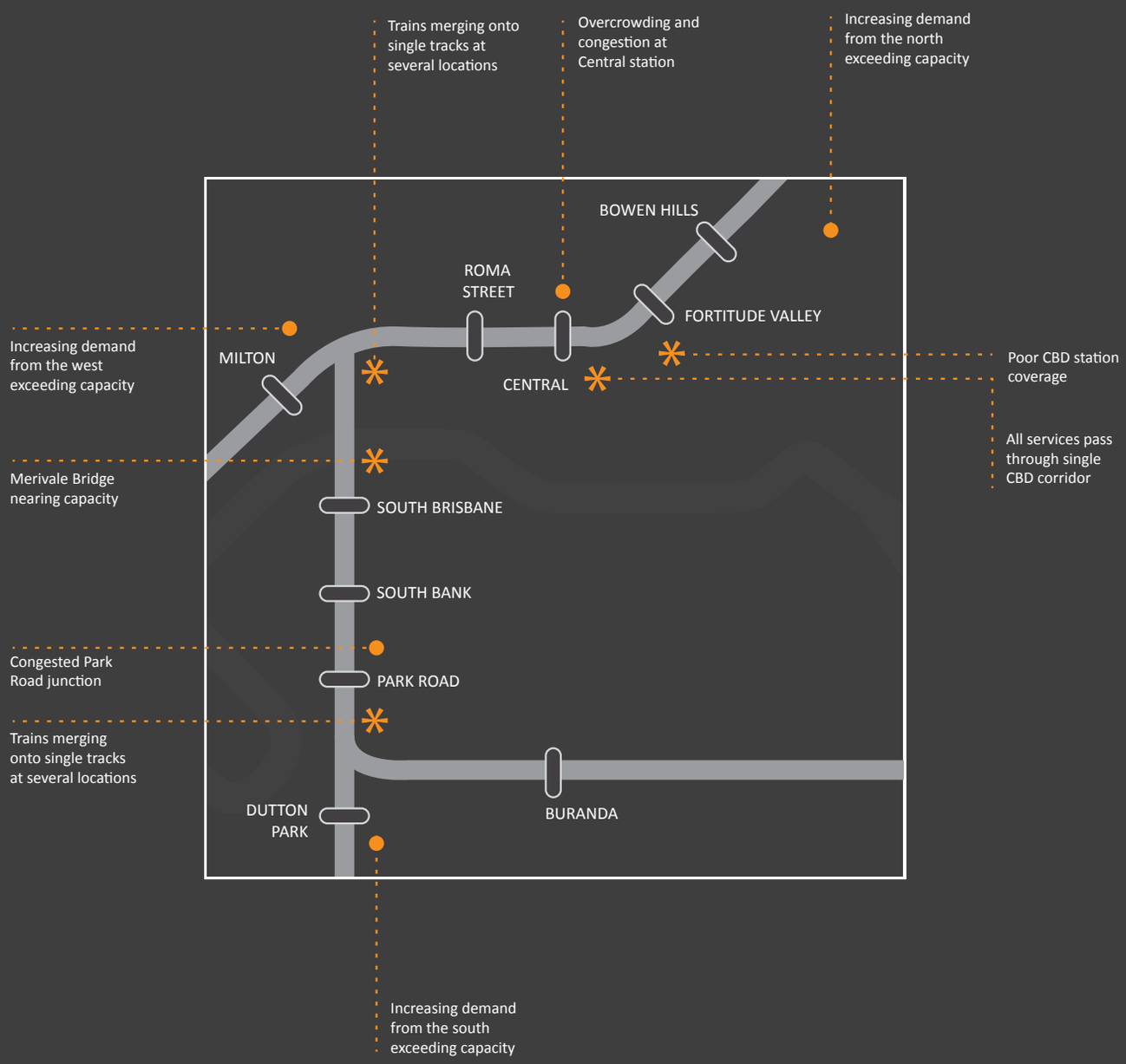


Figure 3: Limited inner-city infrastructure capacity is constraining the growth of SEQ's rail network

Maximising existing networks

With the greatest carrying capacity of all public transport types (see Figure 4), rail is best suited to meeting SEQ's future transport needs. Options to maximise the existing rail network however are now largely exhausted, with optimisation initiatives already complete or underway. New generation trains are being introduced to expand and modernise the fleet and deliver extra services. Automated fare collection (via *go* card) and 'fairer fares' are encouraging greater off-peak use, and a new advanced train control system is increasing the safety and operating capacity of the inner-city rail network. New infrastructure is now required. Without significant infrastructure investment, overcrowding will increase, reliability will diminish, journeys will take longer and passengers will opt for cars, adding to congestion and slowing freight supply chains that are so vital to economic prosperity.

Significant scope still exists to optimise Brisbane's bus network but key to this is evolving the overall structure of the public transport network through Cross River Rail. Buses perform an essential task in SEQ, connecting hundreds of thousands of people to work, shopping, entertainment and education, every day. But bus networks are also struggling under the weight of population growth, with constraints highly visible during peak periods, especially in Brisbane's inner city. Based on the current operating profile, existing bus infrastructure cannot accommodate significant growth. Additionally, buses are not well suited to meeting the anticipated demand for longer distance trips. Bus and rail must work together to ensure an effective and efficient transport system, with rail functioning as the unifying regional spine.

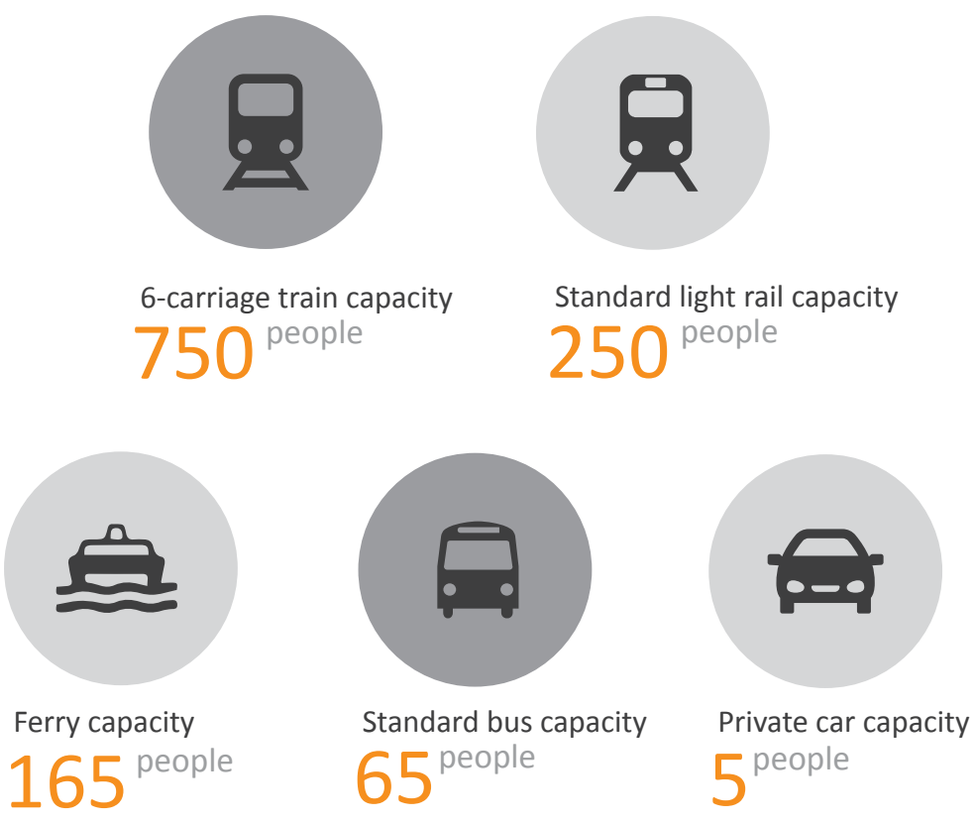


Figure 4: Trains have the greatest carrying capacity of any transport mode

A new approach to travel

Cross River Rail will enable rail to perform its role as the backbone of the public transport network, moving large numbers of people quickly between Brisbane's CBD and centres within SEQ. Customers will enjoy faster, more frequent and reliable services, with less time spent waiting at stations.

Boosting infrastructure at the core of the rail network paves the way for network expansions to emerging communities such as Flagstone and Caloundra. Extending the existing Ipswich, Springfield and Gold Coast lines will also become possible, as well as new options to address major growth over the longer term in the western corridor, specifically Springfield, Ipswich and the Ripley Valley.

By adding new track, an extra river crossing and four new stations to the inner-city network, Cross River Rail will deliver transport capacity where it is needed most. Inner-city rail services will reach turn-up-and-go levels, with services arriving initially every five minutes in the peak and 10 minutes in the off-peak.

As demand for trips from regional areas to the CBD increases, and road capacity remains relatively static, more people are forecast to opt for trains as their preferred way to travel. With Cross River Rail in place, rail is expected to cater for the majority of all new peak-hour trips to the CBD over the next 20 years based on patronage modelling undertaken for Cross River Rail. Around 23,000 trips each day will shift to public transport by 2036, relieving pressure on the road and bus network and reducing travel times and operating costs for road users.

Evolving the structure of the rail network through Cross River Rail opens up broader opportunities to reshape the public transport system. Currently, SEQ's public transport network gives most people a `single-seat' journey to work, with buses and trains converging in the city centre causing duplication of public transport services.

Brisbane City Council's proposed 21-kilometre metro system through the city centre would complement Cross River Rail by addressing problems at the core of the bus network. With Cross River Rail and Brisbane Metro unlocking key inner-city constraints, a truly integrated network can be formed featuring suburban bus routes feeding into turn-up-and-go rail and metro services at transport hubs.

Together, Cross River Rail and Brisbane Metro would achieve greater integration of the public transport network and higher customer demand than either solution on its own, setting a strong foundation for future economic, urban and social development.

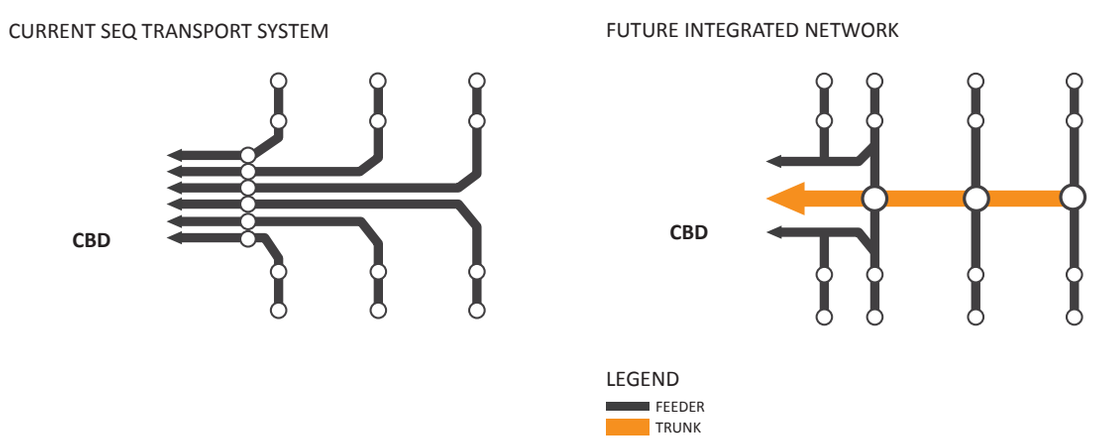


Figure 5: Most public transport services in Brisbane currently go from their origin to the city centre but Cross River Rail will enable a shift to an integrated trunk and feeder network

Platform for growth

Cross River Rail offers a platform for urban renewal and agglomeration economies in the heart of Queensland's most significant economic centre.

Each station sits at the centre of a precinct that is undergoing or will undergo significant redevelopment over the next 20 years. Cross River Rail will boost the scale of planned redevelopment, shorten timeframes, improve the quality of outcomes and revitalise surrounding neighbourhoods.

Stations will support the growth of Brisbane's specialist health, science, cultural and education precincts, amplifying their contribution to the region's growing knowledge economy by connecting them to each other. Co-locating knowledge businesses enables the 'agglomeration' benefits of sharing resources, collaborating and innovating. As well as providing direct employment, knowledge hubs act as a catalyst for wider economic growth by generating exports and supporting new industries.

Cross River Rail stations will also:

- improve access and frequency of services to the region's premier sporting and event destinations such as The Gabba, Suncorp Stadium and Brisbane Showgrounds, strengthening tourism offerings and lifestyle opportunities
- improve access to SEQ's primary government districts in the southern CBD
- extend retailing and commercial opportunities in the city centre
- expand the CBD across the Brisbane River.

Better, faster connections between major centres across SEQ and Brisbane's CBD will drive sustainable regional growth and economic development, giving people more choice about where to call home or set up business. High-quality transport links get people to work faster and give businesses access to a broader pool of workers.

More than a link for fast, frequent train services, Cross River Rail will help achieve national economic objectives of long-term growth and job creation and continue the transition of the state's economy to high-value activities such as financial, creative and knowledge-based services.

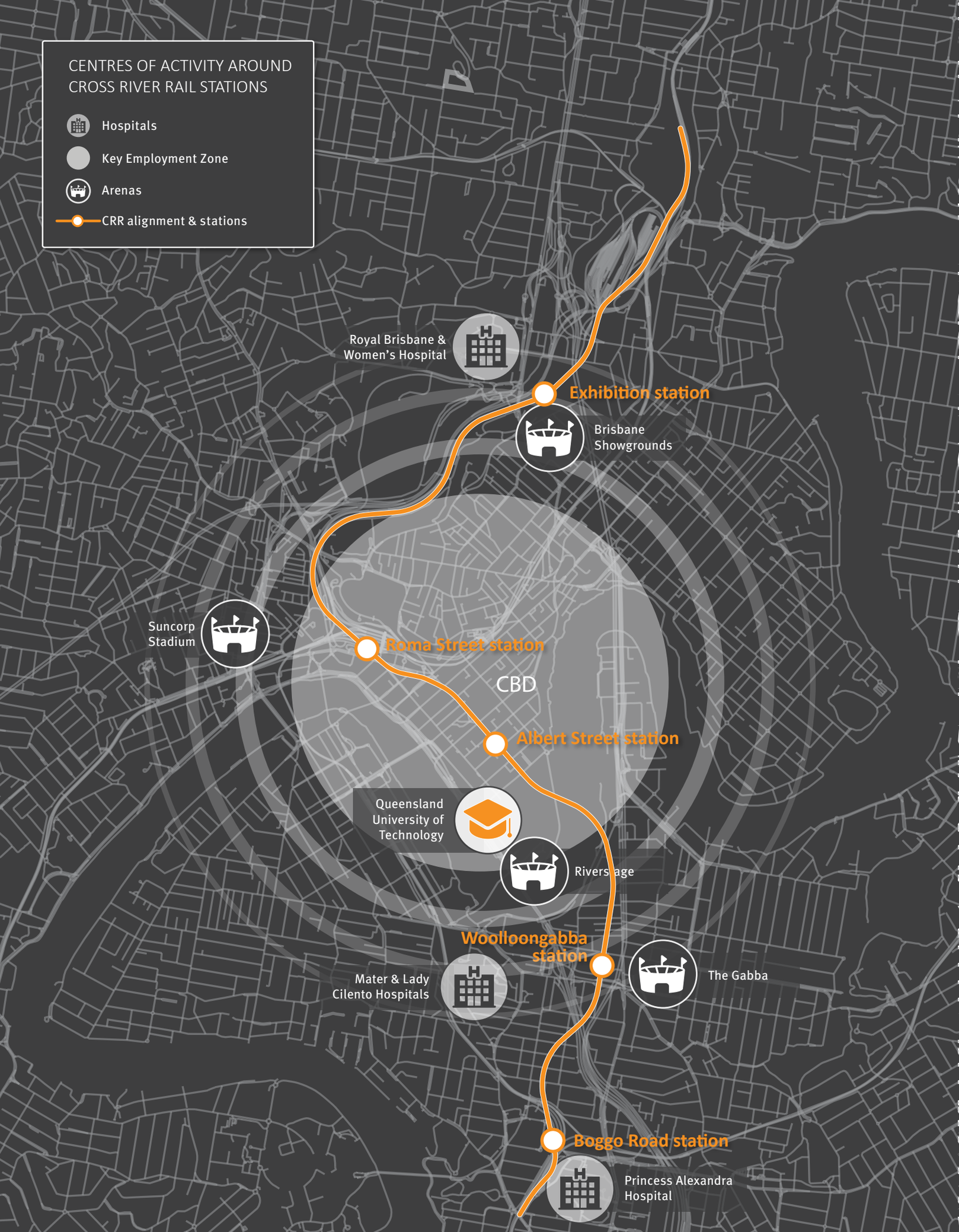


Figure 6: Cross River Rail will stimulate inner-city redevelopment and revitalisation

Development around stations

Boggo Road station
Boggo Road station will become SEQ's second busiest transport interchange, connecting directly to the existing Park Road rail and Boggo Road busway stations, and future Brisbane Metro services. A new pedestrian connection between the Cross River Rail station and existing stations will improve access to services across the region by allowing interchange between the rail network and busway system. The station will support the development of the Boggo Road Urban Village, The University of Queensland and the broader health and education precinct incorporating the Princess Alexandra Hospital and the Ecosciences Precinct.

Woolloongabba station
Woolloongabba station will take rail to one of Australia's most iconic sporting venues, The Gabba, as well as nearby health precincts and entertainment areas. Located beside the existing busway station, it will become part of a major transport interchange for southern suburbs. A nationally significant sport and events precinct will emerge around the station, with pedestrian pathways along all major roads including the northern side of Stanley Street where people cannot currently walk. Opportunity exists for Stanley Street to become an important pedestrian and cycle link from the renewal and intensification areas of Woolloongabba Central and Kangaroo Point South to South Bank, South Brisbane and the CBD.

Albert Street station
This 'central' city station will enliven the southern CBD and assist in Albert Street's evolution into a subtropical boulevard. Brisbane's first new inner-city station in more than 120 years, Albert Street station supports the emergence of a mixed-use residential and employment precinct adjoining the City Botanic Gardens, and will extend retail opportunities into new parts of the CBD. Commuters will save an average 10 minutes' walking time to key destinations such as the Queen Street Mall, Eagle Street Pier, QUT Gardens Point and the Queen's Wharf Brisbane precinct. People with a physical or mobility disability will also access these places more easily. Pedestrianising Albert Street as part of the station development will enhance Brisbane's green spine, which stretches from the City Botanic Gardens to Roma Street Parkland.

Roma Street station

Cross River Rail supports the revitalisation of Roma Street into a vibrant precinct, with opportunities for commercial, residential and mixed-use development. It will assist in releasing the redevelopment potential of the Brisbane Transit Centre and other key development parcels to catalyse future growth in the city's western sector. It would also connect to Brisbane Metro. Easy access to event and cultural venues including Suncorp Stadium and the Kurilpa Bridge will support the planned expansion of the CBD across the river into Kurilpa and South Brisbane.

Exhibition station

The area surrounding Exhibition station is experiencing rapid residential and commercial development. The station will support the next redevelopment phase of this 108-hectare precinct, which includes the $2.9 billion Brisbane Showgrounds Regeneration Project. The existing station, which serves the annual Ekka, will be upgraded to become fully operational, promoting rapid market uptake of development opportunities and greater commercial yields. Located within walking distance of the new Herston Quarter development and close to sporting and entertainment venues, the upgraded station will provide thousands of residents with easy access to the CBD, and connections to northern, southern, eastern and western rail lines. It will also give patients, visitors and staff at the Royal Brisbane and Women's Hospital new access to train travel, with dedicated pedestrian links connecting the station to Bowen Bridge Road.

Economic foundation for delivery

Detailed economic analysis undertaken for Cross River Rail demonstrates significant gains to the Queensland economy from delivering the project.

A cost benefit analysis (CBA) was conducted as part of this economic analysis in mid-2016. CBA is universally accepted as the preferred technique to assess the priority of infrastructure investments, allowing for the comparison of projects across Australia. It considers the 'whole-of-life' cost of the infrastructure, both capital and operating costs.

The CBA resulted in a positive BCR of 1.21 in June 2016. Recently, the CBA was updated to reflect policy and other changes that have occurred over the last year. The updated CBA shows a BCR of 1.41, which means Queensland will receive $1.41 of benefits for every dollar invested. (Factors such as increased public transport patronage due to lower fares, the rollout of a new rail signalling system prior to Cross River Rail and updated Queensland Government demographic data led to this improvement in the BCR.) This is a positive result, comparable with BCR's for Sydney Metro and Melbourne Metro. Sensitivity testing demonstrates that Cross River Rail remains viable under a range of potential scenarios such as increased construction costs. Independent specialists reviewed and confirmed the appropriateness of inputs and outcomes of the Cross River Rail patronage and economic modelling.

Brisbane has relatively low public transport use compared to Sydney and Melbourne, with a large percentage of all trips made by car. Until recently, fares were the highest in Australia following large increases over a number of years. Inner-city congestion-busting investments have focussed on road rather than rail networks over the past decade, which has also drawn commuters away from trains. Fairer Fares has seen an uplift in patronage, and with limited scope for future inner-city road investments, and major arteries into the CBD already operating at 90 per cent capacity in the peak, more people are expected to opt for public transport. As the main transport connection to regional areas, rail will capture the largest share of this growth.

Cross River Rail's estimated cost of delivery is $5.4 billion[3]. Underground station works such as excavation and structural works represent the largest capital cost item, with tunnelling works, rail systems and surface works also accounting for a significant proportion. Analysis was also completed on the ongoing costs associated with operating and maintaining the new infrastructure over a 30-year operating period. Figure 8 presents a summary of project costs.

Cross River Rail is expected to deliver wider economic benefits of $1.2 billion[4], and land-use benefits such as positive impacts on the density of economic activity and city-building. These wider economic benefits are not captured by the CBA and include benefits such as more people participating in the workforce and reduced transport costs leading to optimal business performance.

Modelling suggests Cross River Rail will contribute $3.282 billion[4] to Queensland's gross state product during the project's construction and operation[5].

Cross River Rail is expected to generate about 1,500 direct and indirect full-time equivalent jobs each year during construction with 500 jobs per year ongoing.

Passenger transport users will be significant beneficiaries of Cross River Rail through faster, less crowded and more reliable services, and less time wasted waiting at stations. As more people shift to rail and congestion eases, freight operators and car drivers will also feel the benefits. Road users account for around half of all anticipated benefits due to the sheer volume of daily trips taken across the region.

In accordance with Australian Government requirements regarding the investigation of value capture as a means of alternative funding for infrastructure projects, the Detailed Business Case explored a broad range of value capture scenarios. While Cross River Rail presents real opportunity for value creation through urban revitalisation, the Queensland Government's commitment to fully fund Cross River Rail is not contingent on funding from alternative mechanisms including value capture. The Cross River Rail Delivery Authority is currently developing strategies to facilitate economic development for community purposes within Cross River Rail Priority Development Areas around station precincts. Value uplift to government-owned land within these precincts presents a potential opportunity to contribute to project funding.

[3] Costs are presented in nominal terms.
[4] Benefits are presented in present value.
[5] Assumes a 30-year operation period.

Economic Analysis Results (7% discount rate)

Figure 7: Key results of the economic analysis conducted for Cross River Rail show an overall positive benefit could be achieved by investing in the project

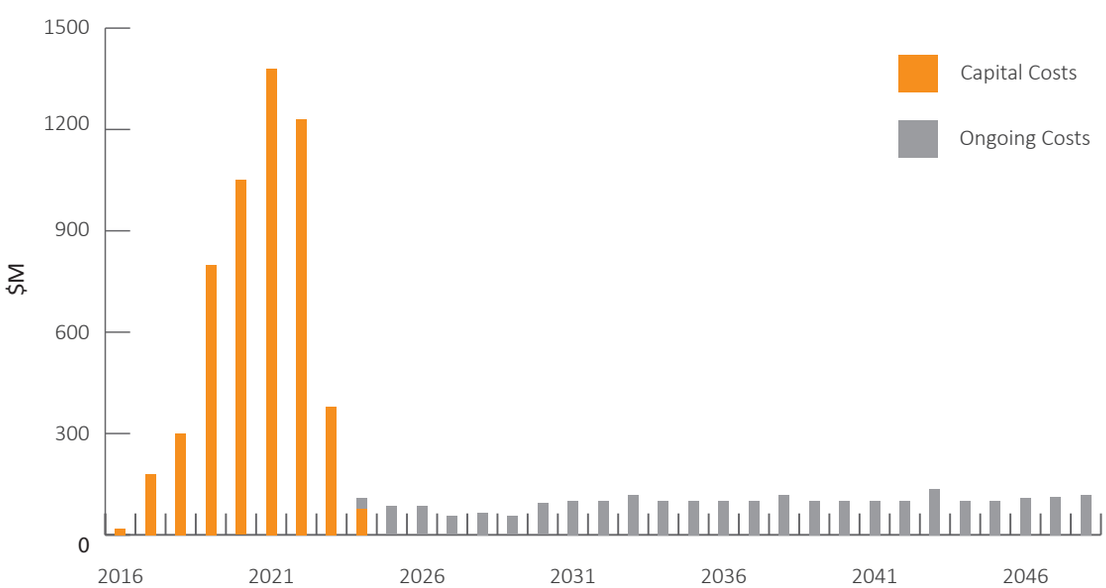


Figure 8: Cross River Rail's cashflow profile (years 2016 to 2048)

Planning the future

Years of planning and investigation underpin Cross River Rail, with a six-stage process used to assess the best solution and determine its final design and alignment (see Table 1). An extensive body of work undertaken for numerous transport infrastructure projects, government planning processes and Cross River Rail itself informed this decision-making process.

Cross River Rail was first proposed in 2010 and a business case was initially completed in 2011. In 2012, Infrastructure Australia nominated Cross River Rail as one of the nation's most critical projects. The same year, an independent panel of experts commissioned by the Queensland Government, reviewed the business case and concluded it was robust.

In June 2016, the business case was updated to reflect current market conditions and costs, respond to regulatory changes and incorporate recent technical investigations, up-to-date forecasting, revised modelling and a refined design and alignment.
Cross River Rail today is more affordable than the solution proposed in 2011, with a shorter tunnel, optimised station locations and design, reduced community impacts and an alignment that better matches transport needs.

These changes and their potential impacts on the natural environment and surrounding communities are detailed in the Cross River Rail Request for Project Change (February 2017). The Queensland Coordinator-General approved this request in June 2017[6], effectively providing the key environmental approval needed to proceed to delivery.

Cross River Rail directly aligns with key plans and policies at all tiers of government.

National
- Australian Infrastructure Plan
- State of Australian Cities
- Urban Transport Strategy
- Smart Cities Plan

State
- Queensland Government Objectives
- State Infrastructure Plan
- Transport and Main Roads Strategic Plan
- Queensland Rail Strategic Plan
- Connecting Brisbane

Regional
- Connecting SEQ 2031
- Shaping SEQ
- South East Queensland's Rail Horizon

Local
- Brisbane City Plan
- Brisbane City Centre Master Plan
- Brisbane Vision 2031
- Brisbane Economic Development Plan
- Brisbane Long Term Infrastructure Plan

[6] Both the Cross River Rail Request for Project Change and the Coordinator-General's response can be downloaded from www.statedevelopment.qld.gov.au

Strategic Options Analysis	The analysis began by examining different ways to meet forecast transport demand including reforms to optimise existing networks such as better timetabling or fairer fares, operational efficiency measures such as longer, newer trains or new infrastructure investments.	**OUTCOME** Infrastructure investment required
Infrastructure Investment Options Analysis	The next stage considered whether to invest in road infrastructure or public transport infrastructure (either bus or rail).	**OUTCOME** Rail network investment required
Rail Infrastructure Options Analysis	Various heavy rail solutions were examined such as duplicating the Merivale Bridge, replacing the Cleveland and Ferny Grove rail lines with light rail and a combined bus and train tunnel.	**OUTCOME** Cross River Rail preferred solution
CBD Alignment and Station Options Analysis	The location of Cross River Rail's southern CBD station–whether at George Street or Albert Street–was examined along with the alignment through the CBD.	**OUTCOME** Albert Street station preferred
Tunnel Length Options Analysis	The value of including a long Cross River Rail tunnel (from Yeerongpilly to Spring Hill) versus a short tunnel (moving the southern portal to Dutton Park) was considered.	**OUTCOME** Short tunnel preferred
Northern Connection Options Analysis	Whether or not to connect Cross River Rail to northern rail networks was considered, together with the supporting activities this would require.	**OUTCOME** Northern connection preferred

Table 1: A six-stage options analysis was used to select Cross River Rail as the transport solution for SEQ and to refine its alignment and design

Considering communities

As a large piece of infrastructure delivered in a highly urbanised environment, Cross River Rail will inevitably impact on roads, public utilities, existing and planned developments and public and private land. The design and alignment however minimises impacts on the natural environment and surrounding communities. Much of Cross River Rail is underground or on existing Queensland Government land. Analysis demonstrates there is equity between the recipients of benefits and bearers of associated costs. For example, homeowners around stations will be affected by construction traffic but they will benefit later from better public transport. A sustainability assessment shows that, overall, Cross River Rail will contribute to positive economic, environmental and social outcomes (see Table 2).

An environmental impact statement conducted for Cross River Rail in 2012 comprehensively examined potential impacts and outlined how they would be managed. The Request for Project Change updated this assessment. A new environmental management plan has been prepared, based on the reference project considered in the Detailed Business Case[7].

Not all social impacts can be quantified but they must be accounted for in decision-making. Altering traffic flows during construction, for example, can impact how locals move around. An additional social impact assessment helped articulate these impacts for the Detailed Business Case. It found that negative impacts would be less likely, with smaller consequences, compared to the solution proposed in 2011 due to changes in the design and alignment.

Residential property resumptions are no longer required and fewer commercial properties will be impacted. Affected property owners have been contacted about potential impacts, including volumetric resumptions of land beneath properties.

Extensive public consultation has been undertaken for Cross River Rail by the Queensland Government, giving local residents and the broader community opportunity to shape the design of Brisbane's new river crossing. This consultation revealed broad support for an inner-city public transport solution, with many people recognising the need to improve public transport capacity and frequency.

The Queensland Government will continue to engage with the community and key stakeholders throughout future phases of the Cross River Rail project.

[7] The Cross River Rail Request for Project Change Draft Outline Environmental Management Plan is the key reference document for managing potential impacts of project construction and operation. It also outlines sustainability considerations and can be downloaded from www.statedevelopment.qld.gov.au

SUSTAINABILITY ASSESSMENT OUTCOMES					
SUSTAINABILITY PRINCIPLES	RATING ACHIEVED				
	POOR	COMPLIANT	BASIC	MODERATE	ADVANCED
Connected to the wider system					
Fit for the future (resilient and adaptive)					
Biodiversity					
Reduced resource use					
Social and community benefits					
Equity					
Local and regional context					
Economic advancement					
Innovation					

Table 2: A sustainability assessment, conducted for the Detailed Business Case, demonstrates that Cross River Rail will contribute to positive economic, environmental and social outcomes

Delivering Cross River Rail

A delivery authority has been established to lead the development, procurement and delivery of Cross River Rail. It operates outside the political framework with an independent board, while still being subject to the oversight of the Queensland Government.

Cross River Rail is expected to take around five years to construct. Procurement is scheduled to begin later this year, along with some early construction works. Construction should be completed in 2023, with system testing and commissioning extending into 2024.

Analysis of legislative issues such as planning and environmental approvals shows that Cross River Rail can be delivered within Queensland's existing legislative framework. Procurement activities will be undertaken in accordance with government policies such as the Queensland Procurement Policy. Local industry will be provided with full, fair and reasonable opportunities to tender for work on Cross River Rail, according to the Queensland Charter for Local Content. Opportunities to be involved in the project will also extend to Queensland industry beyond the South East Queensland region.

Cross River Rail may be procured and delivered as a single package or multiple packages of work by government alone or in partnership with the private sector. The Cross River Rail Delivery Authority is now examining these options. Analysis undertaken for the Detailed Business Case indicates that a long-term contract (construction and maintenance), with significant and appropriate risk transfer to the private sector, would be appropriate to deliver the tunnel and new underground stations, which account for the bulk of construction works.