



Executive Summary

Overview and Recommendation

Summary Information

PROJECT NAME	Addressing Congestion, Cross River Connectivity and Network Resilience in the Ipswich City Centre	
LOCATION	South East Queensland	
PROPOSAL OWNER	Ipswich City Council	
PROPOSED DELIVERY AGENCY	Ipswich City Council via a Local, State and Federal Government funding partnership, Queensland's Project Assessment Framework and traditional delivery methods	
SHORT-LISTED OPTIONS	OPTION 8	OPTION 9
	New all-modes inner-city Bremer River crossing at Norman Street (4 Lane Bridge)	New bus-only inner-city Bremer River lanes adjacent to the existing David Trumpy Bridge
P90 COST ESTIMATE	\$372 million	\$142 million
NET PRESENT VALUE*	\$188.40 million	-\$70.93 million
BENEFIT COST RATIO*	1.97	0.058

* Based on P50 Capital Costs at a 7% discount rate

Proposal Overview

The City of Ipswich is one of the fastest growing Local Government Areas in Australia. The existing all-modes Ipswich City Centre Bremer River crossing (the David Trumpy Bridge) is congested, approaching the end of its design life and causing significant network redundancy issues during minor incidents and natural disaster events. These factors are costing the community in travel delays, lost economic productivity, road crashes and the lost opportunity cost of revitalising the Ipswich City Centre to further develop as an economic centre.

In the continued absence of any intervention, the forecast population growth for Ipswich (average annual growth rate of 4.2% over the next 25 years, equating to an additional 319,900 residents) will result in additional traffic congestion in the Ipswich City Centre and severely inhibit the ability of Ipswich City Council and the Queensland Government to achieve the Queensland Government's South East Queensland Regional Plan 2017 (ShapingSEQ). ShapingSEQ outlines the vision for the Ipswich Principal Regional Activity Centre as a centre which is required to accommodate key concentrations of employment, provide higher order business, retail, education, health, cultural and entertainment services and higher density living opportunities. While the full economic impact of the challenges faced by the Ipswich City Centre are difficult to quantify precisely, an indicative



monetisation of the impacts based on congestion, road safety and flooding impacts has identified that the total annual cost of the Ipswich City Centre problem is \$34 million.

Consequently, the project's Service Need has been identified as the need to:

"Address congestion, cross river connectivity and network resilience in the Ipswich City Centre."

Key Findings – Shortlisted Options

A long-list of options (consisting of nine potential initiatives) and sub-options (consisting of potential new Bremer River crossing locations) which could address the Service Need were identified and evaluated in accordance with Building Queensland's Business Case Development Framework, whereby two project options were short-listed to progress further into the Preliminary Business Case assessment as follows:

- **Option 8 - Sub-option No 1 – A new all modes, inner-city Bremer River crossing at the Norman Street location.**
Staging Options:
 - 4 Lane Bridge; or
 - 2 Lane Bridge
- **Option 9 – Sub-option No 4 – A new pedestrian/ cycle/ bus Bremer River crossing at the existing David Trumpy Bridge location (East Street).**
 - New northbound and southbound bus only bridges adjacent to, and clear of, the existing David Trumpy Bridge

Key Findings – Conclusion and Recommendations

The Preliminary Business Case assessment findings for the short-listed options indicate the following:

- There are no insurmountable social, environmental, legal or legislative issues, whole of government policy or public interest issues that would prevent the project from proceeding;
- The key risks for the project are well understood (being hydraulic, geotechnical, design, stakeholder and community engagement and environmental approvals) and will likely be well managed using Council resources;
- A supporting Wider Economic Impacts analysis undertaken to estimate the potential land value uplift and impacts to Council rate revenues for Option 8 suggest that:
 - Potential uplift impacts of around 3% and 8% could be expected, for residential and non-residential properties respectively, attributed to overall improvements in levels of accessibility to the CBD;

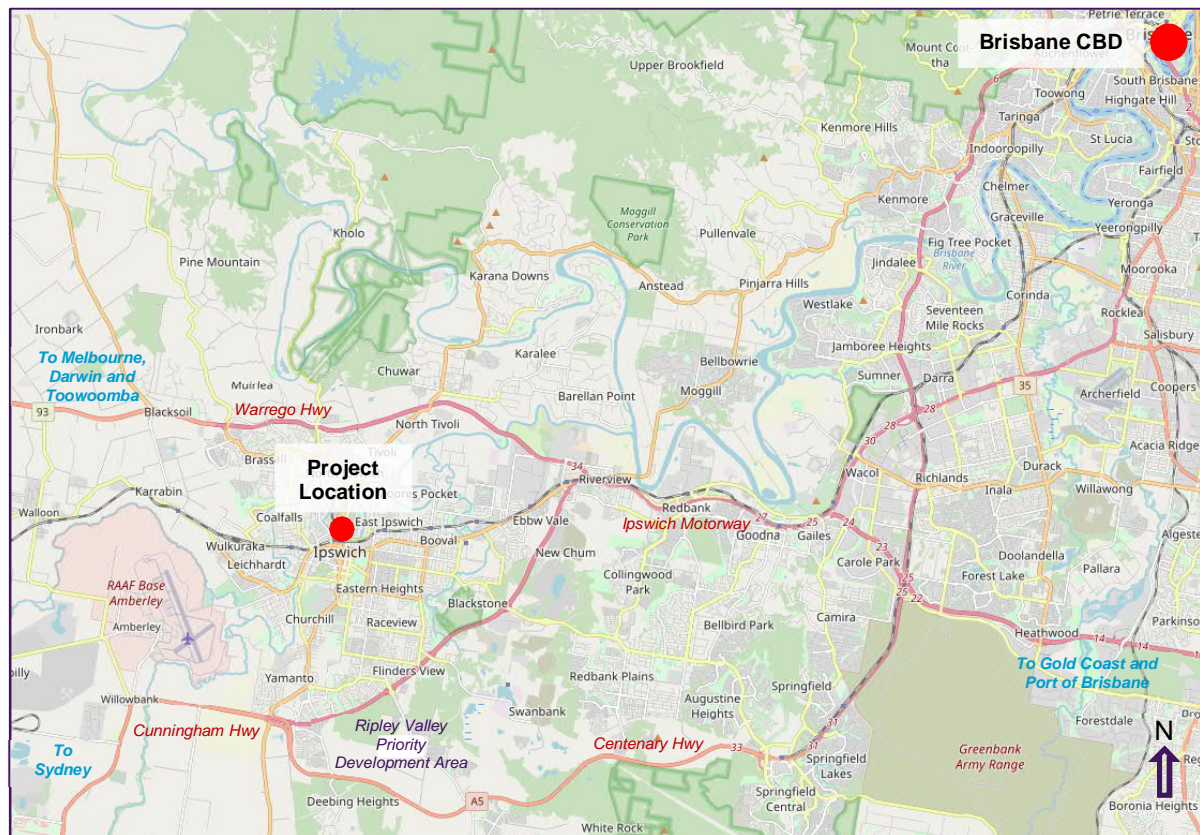


- Land value impacts are estimated to increase from \$1.14 billion in the Base Case to \$1.21 billion in the Project Case in 2055 (undiscounted); and
 - Potential increases in Council rate revenue is estimated to be approximately \$5.8 million in net present terms.
-
- The staging potential has been explored and will be investigated further in the Detailed Business Case phase. Staging the construction of Option 8 by firstly constructing a 2 lane bridge, effectively deferring or delaying the investment in a 4 lane bridge, has the potential to defer or delay \$127 million in construction costs (P90) and approximately \$31 million in ongoing costs over the life of the asset. However, it must be noted that the cost of constructing a second 2 lane bridge at a later date will be subject to escalation and construction fixed cost.
 - The preliminary Value-for-Money analysis has determined that greater Value-for-Money would be achieved through traditional delivery when compared to a Public Private Partnership.
 - The delivery model assessment identified that a Design & Construct or Construct Only contract variants could be suitable for the delivery of the project.
 - There is sufficient market capacity to deliver the project. The scope and scale of the two project options would likely attract Tier 2 or 3 construction firms.
 - Option 8 outperforms in the majority of cases when compared to Option 9. However, both options are recommended to be progressed to the Detailed Business Case phase as the Preferred Project Options to enable sufficient detail to be identified and to suitably inform an investment decision.

In conclusion, Option 8 and Option 9 were shortlisted as the most suitable solutions to address congestion, cross river connectivity and network resilience in the Ipswich City Centre, and are recommended as the Preferred Project Options to take forward to the Detailed Business Case phase under the Project Assessment Framework for further investigation.

Proposal Background

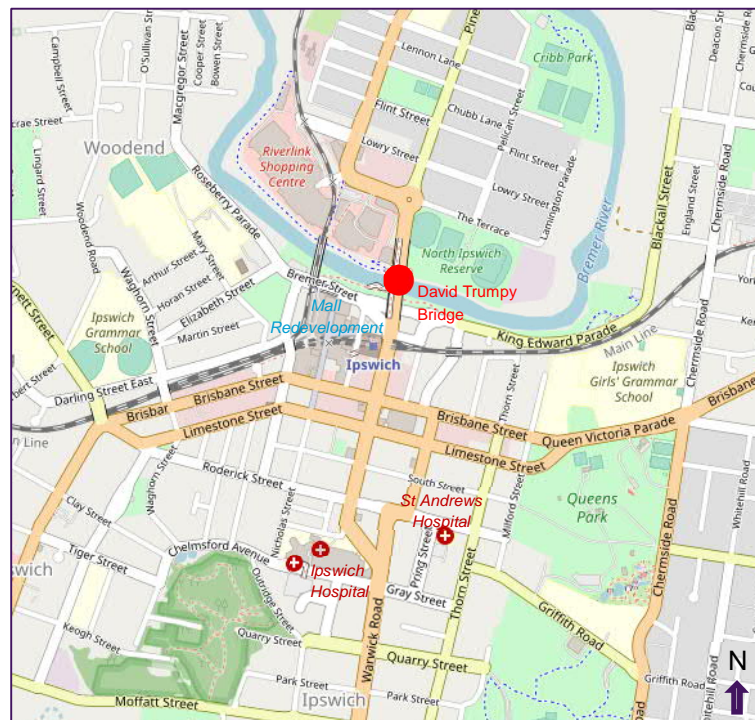
The City of Ipswich is located approximately 40 kilometres to the south-west of the Brisbane CBD and is one of the fastest growing Local Government Areas in Australia (refer map over). Indeed, the Queensland Government's South East Queensland Regional Plan 2017, ShapingSEQ, forecasts Ipswich's population to increase by an average annual growth rate of 4.2% over the next 25 years, resulting in an additional 319,900 residents by 2041.



Source: OpenStreetMap 2019

ShapingSEQ identifies the Ipswich City Centre as a Principal Regional Activity Centre, which is required to accommodate key concentrations of employment, provide higher order business, retail, education, health, cultural and entertainment services and higher density living opportunities.

However, the Ipswich City Centre is divided by the Bremer River (refer map below) and is connected by only one pedestrian/ private rail bridge and one four-lane general traffic bridge. The David Trumpy Bridge has limited capacity and is currently catering for a substantial volume of Ipswich City Centre non-CBD through traffic. Consequently, over the past few years the David Trumpy Bridge has been experiencing rising levels of congestion, causing delays during business hours. The existing bridge and adjacent intersections operate at an unacceptable level of service. The single inner city river crossing is also causing significant network redundancy issues during minor incidents and natural disaster events. These factors are costing the community in travel delays, lost economic productivity, road crashes and the lost opportunity cost of revitalising the Ipswich City Centre to further develop as an economic centre.



Source: OpenStreetMap 2019

Service Need

In the continued absence of any intervention, the forecast population growth for Ipswich and resulting traffic congestion and continued flooding impacts to the Ipswich City Centre will severely inhibit the ability of Ipswich City Council and the Queensland Government to achieve ShapingSEQ's vision for the Ipswich Principal Regional Activity Centre.

The full economic impact of the challenges faced by the Ipswich City Centre are difficult to quantify precisely. However, based on the measures in the table below, an indicative monetisation of the impacts has identified that the total annual cost of the Ipswich City Centre problem is \$34 million.

PROBLEM	MEASURE	NOTES	COST	REFERENCE
			(\$ million per year)*	
Congestion Impact	City centre road network delay costs	Based on 1h in AM and 2h in PM and ATAP Value of Time	\$9.862	https://www.atap.gov.au/parameter-values/road-transport/3-travel-time.aspx
Road Safety (Crashes) Impact	City centre road network crash costs	Based on Inclusive Willingness-to-Pay values	\$16.756	https://www.atap.gov.au/parameter-values/road-transport/4-crash-costs.aspx
Flood Impact	City centre flood impact costs	Based on 2017-18 Worker Productivity of \$102k/year	\$7.327	https://economy.id.com.au/ipswich/worker-productivity-by-industry

PROBLEM	MEASURE	NOTES	COST	REFERENCE
			(\$ million per year)*	
Economic Development Impact	Economic development opportunity costs	TBA	TBA	TBA
TOTAL			\$33.945	Problem monetised is based on current conditions. No forecast growth has been assumed.

*Costs presented are indexed to 2019\$ using CPI data from the Australian Bureau of Statistics¹.

Over the years, Ipswich City Council have completed several strategic planning studies in order to identify actions that address the challenges for the Ipswich City Centre and support the Queensland Government's vision for the Ipswich Principal Regional Activity Centre, most notably the Ipswich Regional Centre Strategy Master Plan: Integrated Strategy and Action Plan. This document prioritised 17 'catalytic' initiatives that would foster urban redevelopment, civic revitalisation and economic growth in the Ipswich City Centre. One of these initiatives was the need for additional Bremer River crossings in order to improve connectivity and accessibility to and within the Ipswich City Centre, assist in redistributing through traffic movements and reduce conflicts between vehicles, pedestrians and cyclists.

In 2016, Council released iGO – The City of Ipswich Transport Plan which also confirmed the importance of a second inner city Bremer River crossing whereby, upon advice from the Queensland Government, funding was allocated in Council's 2016-17 budget to undertake a Strategic Business Case and a Preliminary Business Case for the project in accordance with Building Queensland's Business Case Development Framework.

The Strategic Business Case for this project was completed in December 2017 and identified the below four problem statements:

Problem Statement 1	Congestion in the Ipswich City Centre, a SEQ Principal Regional Activity Centre, is restricting successful revitalisation and economic development
Problem Statement 2	The single Ipswich City Centre Bremer River crossing is compromising connectivity, population growth, and broader economic growth
Problem Statement 3	Limited capacity and service life of the existing Ipswich City Centre cross-river link (David Trumpy Bridge and approaches) compromises the augmentation needed for traffic growth and mode shift
Problem Statement 4	Lack of network redundancy during incidents or major events (such as floods) lead to network failure

The Preliminary Business Case commenced in 2018 and sought to build on the outcomes of the preceding Strategic Business Case whereby the project's Service Need was confirmed as the need to:

¹ <https://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/6401.0Jun%202019?OpenDocument>

“Address congestion, cross river connectivity and network resilience in the Ipswich City Centre.”

The benefits sought from addressing this Service Need were also confirmed as:

- Achieve ShapingSEQ outcomes for Ipswich as a Principal Regional Activity Centre, including increased economic activity in the CBD;
- Increase CBD amenity and appeal;
- Improve travel time, reliability and road safety;
- Improve multi modal transport delivery;
- Enhance connectivity and network resilience; and
- Support Ipswich’s sport and entertainment precinct and cultural facilities.

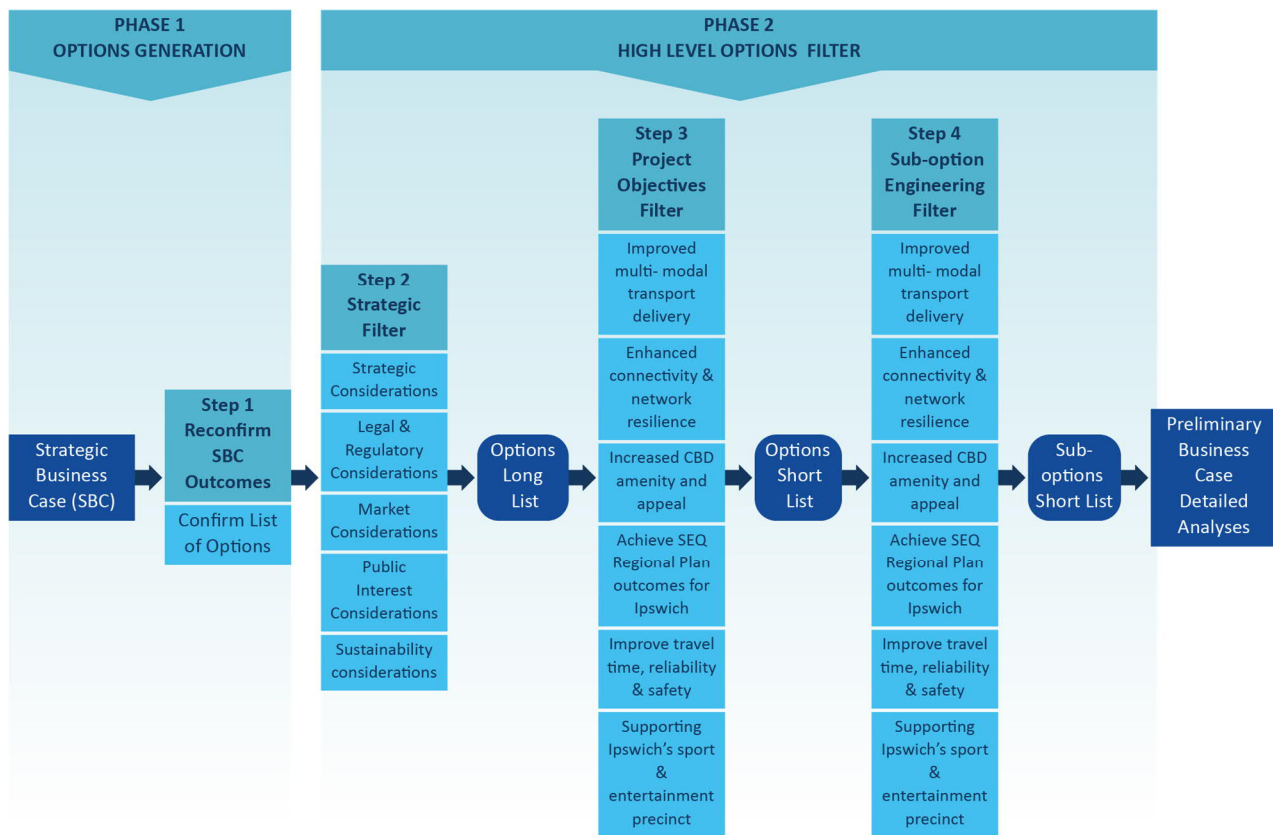
Options Analysis

The objective of the Preliminary Business Case was to evaluate a suite of options which could help to address the project Service Need and identify at least two project options to progress further into the Detailed Business Case phase.

In line with the State Infrastructure Plan and Building Queensland’s Business Case Development Framework, a long list of potential options covering reform (non-asset option), better use (improving service performance), improve existing (asset light options) and new infrastructure (new asset options) where identified and included:

- Option 1: Heavy vehicle restrictions in the CBD
- Option 2: Lane reallocation for modal prioritisation
- Option 3: Tidal traffic flow on David Trumpy Bridge
- Option 4: Fully utilise capacity of the existing (non-inner city) river crossings
- Option 5: Network intersection optimisation
- Option 6: Increase capacity with additional lanes, through increasing setbacks for future development in the CBD
- Option 7: Widen/augment the existing David Trumpy Bridge
- Option 8: New all modes Inner-City Bremer River bridge crossing
- Option 9: New Inner-City Bremer River pedestrian, cycle and/or bus bridge crossing

The methodology for assessing these options and confirming the short list of options is illustrated below and explained in further detail in Chapters 5 to 7. Of note, the methodology included the identification of sub-options for the options short list (i.e. potential Bremer River crossing locations in the Ipswich City Centre) that further considered engineering feasibility matters.



At the conclusion of this process, it was recommended that the following two options be taken forward and investigated in further detail as part of the Preliminary Business Case:

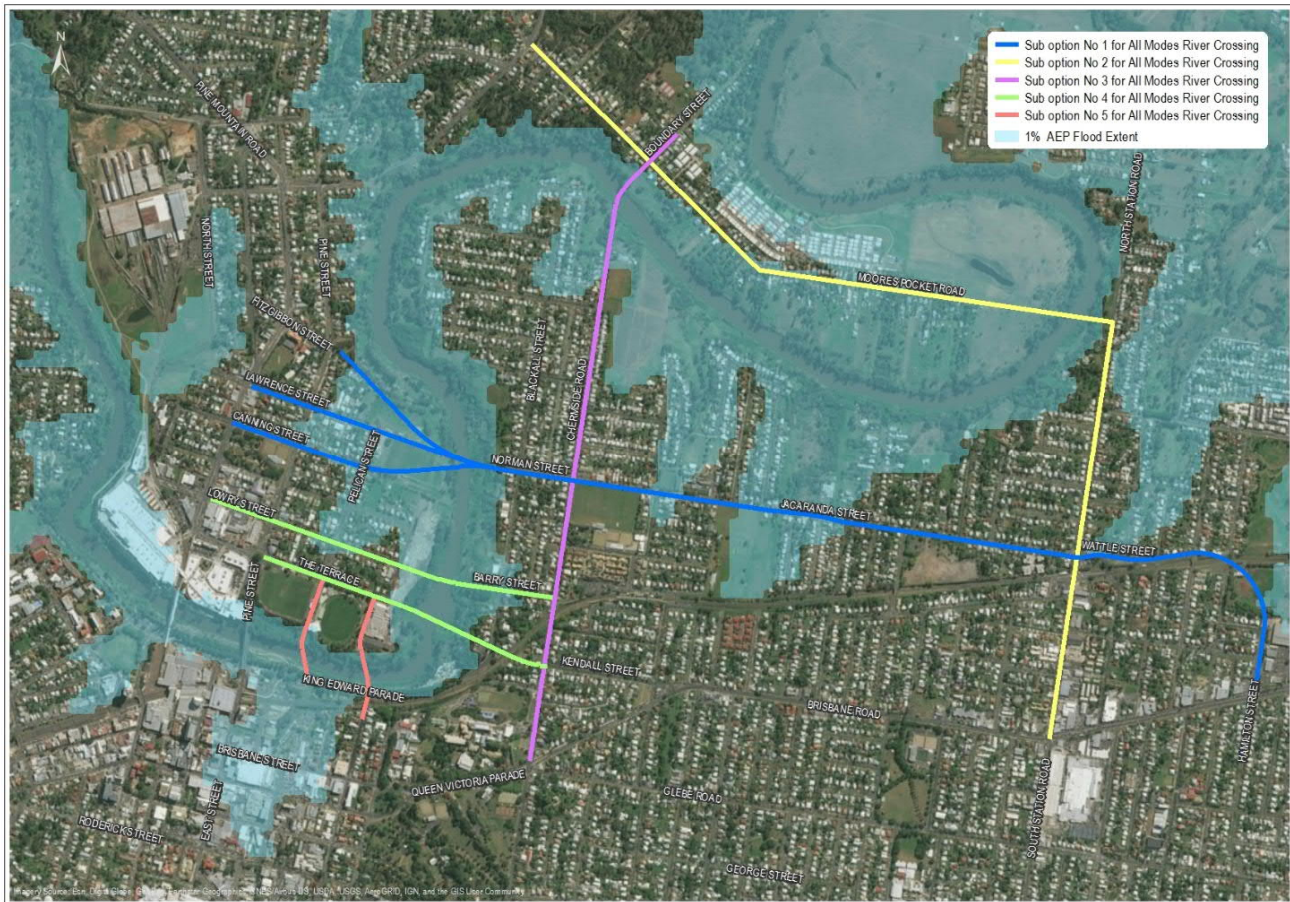
- Option 8 – Sub-option No 1 – A new all modes, inner-city Bremer River crossing at the Norman Street location.

This option (shown in blue in the map below) provided a significant improvement over the base case for all the benefits sought. The traffic analysis showed that in 2036, approximately 24,400 vehicles per day would use the new crossing with 40,300 vehicles per day remaining on the existing David Trumpy Bridge. This would reduce volumes on the David Trumpy Bridge by approximately 13,300 vehicles per day compared to a 'no new bridge' volume (53,700 vehicles per day). The modelling suggests a crossing at the Norman Street location would be well utilised and provide meaningful volume reductions across David Trumpy Bridge. It should be noted that the David Trumpy Bridge capacity is limited by the intersections at both ends of the bridge and the surrounding Ipswich City Centre road network. As such, it is unlikely that the David Trumpy Bridge can even accommodate the modelled 53,700 vehicles per day.

By reducing non-CBD traffic crossing the David Trumpy Bridge, this option will increase CBD amenity, safety and facilitate development of Ipswich as a Principal Regional Activity Centre. It will also facilitate improved multi-modal transport delivery and connectivity (including the sport and entertainment precinct) and network resilience. It is also noted that the option will improve travel



time, provide a staged component of the future Ipswich Orbital Road network planning and deliver a Bremer River crossing with 100 year flood immunity.



- Option 9 – Sub-option No 4 - A new pedestrian/ cycle/ bus Bremer River crossing at the East Street (existing David Trumpy Bridge) location.

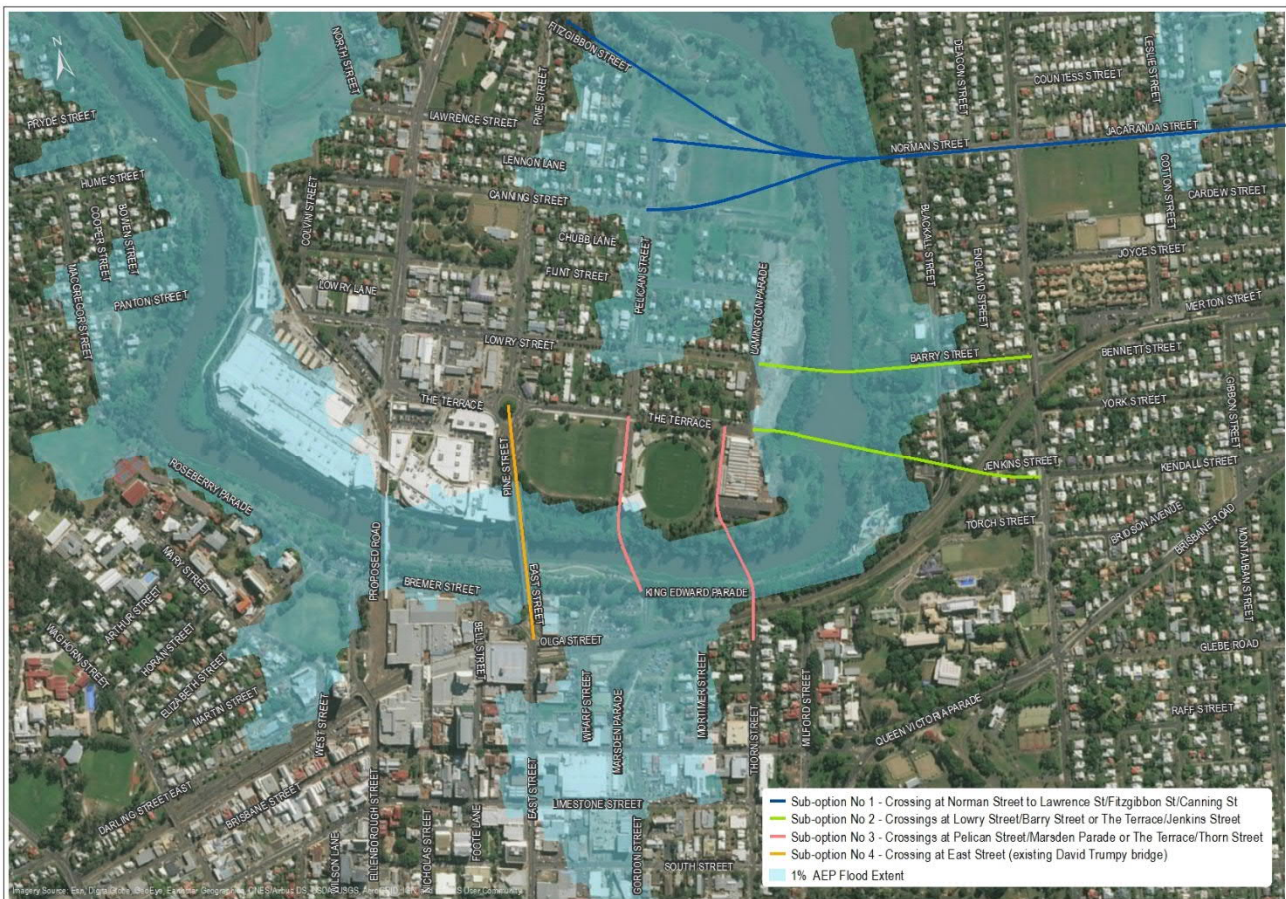
This option (shown in orange in the map below) provides a minor to moderate improvement over the base case and can achieve some of the benefits sought. New northbound and southbound bus-only bridges adjacent to, and clear of the existing David Trumpy Bridge, would benefit the majority of public transport movements. It would align with the existing north-south public transport spine, servicing demands to and from the Ipswich City Centre.

Public transport users are expected to experience a reduction in journey times due to the added priority bus lanes provided adjacent to the David Trumpy Bridge. As a result, public transport mode share is expected to increase. With the road network remaining unchanged, and a degree of mode shift likely to be achieved, private vehicle demand has the potential to be reduced. However, vehicle movements within the Ipswich City Centre will continue to cross the David Trumpy Bridge in line with expected growth. Despite being more attractive to public transport users, this option would still likely



inhibit the revitalisation of the Ipswich City Centre and development of the Ipswich City Centre as a Principal Regional Activity Centre.

Also of note, the David Trumpy Bridge provides a 100 year flood immunity. However, the southern approach (East Street) is inundated in lesser events. As such, the resilience of the new northbound and southbound bus-only bridges would be limited by the bridge approaches.



Project Risks

The identification of project risks and issues were informed by community engagement activities undertaken as part of preceding studies. These were mitigated where possible through the development of project options and short-listed sub-options. A risk workshop was also conducted for the Preliminary Business Case and this was used to inform the project Risk Register and capital cost estimates. The major project risks identified by this process included:

- Changes in design requirements associated with the latest 1% AEP (100-year) flood immunity levels from the recently released Brisbane River Catchment Flood Study;



- Community impacts within the immediate vicinity and surrounding the respective project corridors include risks associated with property acquisitions and increased traffic volumes on local roads (i.e. Jacaranda Street and Chermside Road); and
- Risks around the project not being delivered, attributed to increasing project costs and stakeholder acceptance of the business case findings, including traffic modelling assumptions.

In summary, there are no insurmountable risks identified that would prevent the project from proceeding to the Detailed Business Case phase. However, the identified risks need to be reassessed in the subsequent Detailed Business Case phase.

Social Impact Evaluation

As part of the Preliminary Business Case, an evaluation was conducted on the potential social benefits and impacts associated with the proposed options (with and without mitigation). The outcome of this evaluation (with mitigation) is provided in the table below.

It is considered that both proposed options would deliver long-term benefits for local and regional communities. This includes overall access and connectivity, access to social infrastructure, reduced travel times and enhanced travel time reliability. This is particularly so for Option 8 during flood events through the provision of improved flood immunity across the Bremer River. However, of note, most negative impacts of the project options are associated with the construction phase, particularly for Option 9 which has a high negative impact to traffic due to the impacts of constructing in close proximity to the existing David Trumpy Bridge and approaches.

PROJECT IMPACT	PROJECT PHASE	OPTION 8	OPTION 9
Property impacts			
Property acquisition	Construction/ operation	Medium	Medium
Impact on community cohesion due to relocation of residents	Construction/ operation	Medium	Low
Social infrastructure			
Direct impacts on social infrastructure	Construction	Medium	Medium
Indirect impacts on social infrastructure (e.g. amenity, access)	Construction	Medium	Low
Improved access to community services and facilities	Operation	High (positive)	Medium (positive)
Impacts on amenity and lifestyle			
Impacts on residential amenity from construction activities	Construction	Medium	Low
Impacts on visual amenity due to removal of established vegetation	Construction/ operation	Medium	Low

PROJECT IMPACT	PROJECT PHASE	OPTION 8	OPTION 9
Enhanced community cohesion due improved access and connectivity	Operation	Medium (positive)	Medium (positive)
Health and wellbeing benefits	Operation	Low (positive)	Medium (positive)
Impacts on amenity from proposal operation	Operation	Medium	Low
Access and connectivity			
Construction traffic changes	Construction	Medium	High
Access and connectivity improvements for motorists	Operation	Captured in cost benefit analysis	Low (positive)
Improved access during flood events	Operation	High (positive)	Low
Access and connectivity improvements for bus and active transport users	Operation	High (positive)	Captured in cost benefit analysis

Environmental Assessment

The assessment was completed based on a desktop analysis and information from relevant previous technical studies. As such, the project will need to consider in more detail the potential key environmental values relevant to each option as part of the formulation of detailed design options. This will include reviewing the location and construction of structures, the clearing of vegetation and the management of any species on site.

The table below provides a summary of the potential key environmental impacts of the project. Chapter 9 provides further information in regard to the proposed mitigation measures. Of note for both project options, the highest environmental impact is on the existing landscape and visual amenity corridors within the Ipswich City Centre. It is considered that all identified project environmental impacts and proposed mitigation measures can be adequately managed.

ENVIRONMENTAL FACTOR	IDENTIFIED IMPACTS	LEVEL OF IMPACT
Topography, Geology, and Soils	Potential interaction with contaminated sites. Potential erosion and sediment control issues during construction.	Low
Water Quality	Potential interaction with the Bremer River and other storm water channels during construction.	Medium
Hydrology	Consider the flooding of the Bremer River and any potential impacts on the downstream or upstream flow of water as a result of the design.	Medium
Climate and Air Quality	Impacts on sensitive receivers from dust may be experienced during construction.	Medium



ENVIRONMENTAL FACTOR	IDENTIFIED IMPACTS	LEVEL OF IMPACT
Flora and Fauna	<p>Potential requirement for Endangered, Vulnerable and Near Threatened species to be cleared. Further site investigations should be carried out to confirm the presence or absence of Endangered, Vulnerable and Near Threatened species along the banks of the Bremer River.</p> <p>If it is identified that animal breeding places will be impacted, a Species Management Plan for tampering with a protected animal breeding place (high or low risk of impact) will be required.</p> <p>A High Risk of Impact Species Management Plan will need to be sent to the Department of Environment and Science for approval, which can take three to six months.</p> <p>A Protected Plant Clearing Exemption will need to be obtained if no Endangered, Vulnerable and Near Threatened species are identified in survey. A Protected Plant Clearing Exemption Notification should be made to the Department of Environment and Science at least one week prior to any clearing activities commencing.</p>	Medium
Climate Change and Emissions	Potential for the project to reduce emissions through the detailed design.	Low
Noise and Vibration	Potential impacts on nearby sensitive receivers, particularly during construction.	Medium
Landscape and Visual Amenity	Potential impacts on existing landscape and visual amenity corridors.	High
Cultural Heritage	Potential impacts on existing heritage places, adjoining the subject site and within the local context.	Medium
Waste Management	Waste is most likely to be created during the construction phases.	Low

Economic Analysis

Cost-Benefit Analysis

The economic appraisal for the project has been undertaken in alignment with nationally accepted guidelines for transport projects, as published by the Australian Transport Assessment and Planning (ATAP) Guidelines. The economic evaluation is conducted through a comparative cost-benefit analysis, which assesses whether an infrastructure investment is economically viable by comparing quantified costs and benefits. The most economically viable outcome is the project option with the highest Net Present Value and a Benefit Cost Ratio above 1.

The economic appraisal has been undertaken to compare the two shortlisted project options (including a sensitivity test for the potential staged delivery for Option 8) against a 'Base Case'. The 'Base Case' being a 'Do Minimum' option which includes ongoing maintenance activities to preserve existing assets and ensure an acceptable Level of Service is maintained. Network enhancements/augmentations have been incorporated into the 'Base Case' to ensure a meaningful



assessment can be undertaken. Refer to the Traffic Report in Appendix E for further information. Department of Transport and Main Roads demographics and 'trend' mode shares were used in the estimation of the benefits. This represents a conservative scenario, noting that it still requires significant public transport and active transport investment to meet the 'trend' mode share due to the forecast growth.

In summary, the key findings from the economic analysis are provided in the table below. This analysis suggests that Option 8 is economically viable, producing \$1.97 worth of benefits for every dollar invested. Comparatively, there is limited viability for Option 9, producing just \$0.058 worth of benefits for every \$1.00 invested.

SHORT-LISTED OPTIONS	OPTION 8	OPTION 9
	New all-modes inner city Bremer River crossing at Norman Street (4 Lane Bridge)	New bus-only inner city crossing adjacent to the existing David Trumpy Bridge
P90 COST ESTIMATE	\$372 million	\$142 million
NET PRESENT VALUE*	\$188.40 million	-\$70.93 million
BENEFIT COST RATIO*	1.97	0.058

* Based on P50 Capital Costs at a 7% discount rate

Given the low Net Present Value and Benefit Cost Ratio for Option 9, no further sensitivity tests were undertaken for this option. However, additional standard sensitivity tests (e.g. alternative discount rates of 4% and 10%) were undertaken in regard to Option 8 in order to understand the range of possible outcomes given the uncertainty that is inherent in the analysis. The results of this sensitivity test are provided in the table below and as can be seen, the Benefit Cost Ratio remains above 1 and generates a positive Net Present Value. For further information regarding the staging (4 lane vs 2 lane bridge) and alternative growth scenario (more ambitious job forecast and higher sustainable mode share) sensitivity tests completed for Option 8, please refer to Chapter 10.

	OPTION 8	
	BCR	NPV
Core result (7% discount rate, P50)	1.97	\$188.40
Discount rate 4% (P50)	2.93	\$467.14
Discount rate 10% (P50)	1.39	\$61.15

In summary, the Cost-Benefit Analysis indicates that Option 8 generates positive economic benefits to society relative to the costs of constructing and maintaining the new infrastructure. It should be noted however that further detailed analysis is required in the Detailed Business Case phase. This includes the following:



- Reviewing the transport modelling methodology and approach to enable the economic analysis to best capture the effects of capacity constraints at key intersections, capacity improvements and multi-modal impacts within the network;
- Investigating a suitable methodology for measuring travel time reliability benefits;
- Undertaking an analysis of crash history by road type to enable further crash benefits to be included in the analysis; and
- Undertaking value engineering on the current options and developing an appropriate staging and investment strategy to determine the preferred Reference Project in the Detailed Business Case.

Wider Economic Impacts

A second inner city Bremer River crossing is expected to contribute to improving the economic and civic revitalisation of the Ipswich City Centre. There are a range of economic benefits that can potentially be generated as a result of this project, the majority of which have been captured in the Cost-Benefit Analysis. However, there are potential indirect or induced impacts also likely to be generated by the project which are not captured in the Cost-Benefit Analysis, including changes in Land Values and Uplift which is measured through the estimated changes in underlying land values responding to changes in accessibility.

In order to identify these Wider Economic Impacts, an analysis has been undertaken on the potential impacts to underlying land values and impacts to Council rate revenues that could be experienced in response to the accessibility improvements attributed to the construction of a river crossing at the Norman Street location, predominantly focusing on the 4 lane bridge configuration that constitutes Option 8 (Core Scenario). This detailed analysis is provided in Chapter 10.10 and concluded that:

- Potential uplift impacts of around 3% and 8% could be expected, for residential and non-residential properties respectively, attributed to overall improvements in levels of accessibility to the CBD; and
- Land value impacts are estimated to increase from \$1.14 billion in the Base Case to \$1.21 billion in the Project Case in 2055 (undiscounted).
- Potential increases in Council rate revenue is estimated to be approximately \$5.8 million in the Project Case in net present terms, and could range between \$2.9 and \$11.6 million, under various sensitivity scenarios.

Financial Affordability and Funding Assessment

Financial Affordability Assessment

The Risk-adjusted Out-turn Project Cost Estimates and Whole-of-life Net Project Cash Flows are provided in the two tables below. A comparative analysis of the options indicates that:

- Option 9 clearly presents the least capital-intensive option, as well as the lowest whole-of-life costs, when compared to Option 8;
- Option 9 is \$230 million less in total risk-adjusted, out-turn terms (P90), when compared to Option 8; and

- For Option 8, the breakdown in total whole-of-life project cost comprises of capital costs (93%) and ongoing costs (7%). This breakdown is similar for all project cases.

Sensitivity analysis, under all project cases, identified that a change in capital costs (increase or decrease) has the greatest impact on the Net Project Cost. Changes to other variables result in marginal changes in Net Project Cost, with the exception for delaying construction by 5 years, which reduces the Net Project Cost by approximately 15%.

Risk-Adjusted Out-turn Project Costs Summary Outputs (P90, \$M)

	OPTION 8	OPTION 9
Principals costs	\$66.55	\$27.15
Construction contractors costs	\$131.95	\$46.89
Risk and contingency	\$112.93	\$45.79
Risk Adjusted Total Cost	\$311.43	\$119.83
Escalation	\$60.68	\$22.36
Total risk adjusted, out-turn costs	\$372.11	\$142.18

Net Project Cash Flows (P90, \$M)

	OPTION 8	OPTION 9
Total Construction cost	\$296.64	\$114.31
Total Operating cost	\$22.41	\$4.95
Total Whole of Life Project Cost	\$319.05	\$119.26
Incremental Fare Revenue	-	\$0.16
Net Project Cost	\$319.05	\$119.15

Funding Assessment

A preliminary analysis, supported by evidence of comparative projects, was undertaken to explore alternative forms of project financing (refer to Chapter 11.4 for more information). However, the evidence appears to present limited opportunities to address affordability issues, as it would either contradict the intended project outcomes or objectives or present certain complexities as it contravenes current Queensland Government policies for value capture or road user charging. In particular:

- Given the objectives of the project and scope of Option 8, it is believed that a 'value capture' or 'direct user charge' method does not represent a reasonable financing mechanism for Option 8. Subsequently, direct charging mechanisms have not been considered in detail as part of the development of the Preliminary Business Case; and



- Considering the intent of the Queensland Government Tolling Policy, the DTMR asset ownership of the David Trumpy Bridge and lack of free alternatives, this limits the ability to apply a user charge to fund Option 9.

Nevertheless, the capital funding requirement for project delivery for either option ranges between \$142 million and \$372 million (out-turn, P90). Recognising affordability constraints in funding any of the project options, it was considered important to identify opportunities for potential investment that can be delayed or avoided. As such, the staging potential of Option 8 was explored in more detail. This identified that staging the construction of Option 8 by constructing a 2 lane bridge (effectively deferring or delaying the investment in a 4 lane bridge), has the potential to defer or delay \$127 million in construction costs (P90) and approximately \$31 million in ongoing costs over the life of the asset. However, it must be noted that the cost of constructing a second 2 lane bridge at a later date will be subject to escalation and construction fixed cost. The full impacts and risks of the preferred staging will need to be investigated in more detail in the Detailed Business Case phase in order to inform the Preferred Project Option.

Delivery Model Analysis

The Value-for-Money assessment concluded that a Public Private Partnership delivery was unlikely to deliver Value-for-Money to the proponent when compared to a traditional delivery method.

The traditional delivery model suitability assessment also concluded that a Competitive Alliance, Managing Contractor and Design, Build & Maintain form of contracting were not suitable to the project. Other available delivery models such as Construct Only and Design & Construct (with and without Early Tender Involvement/ Early Contractor Involvement) are potentially suitable. It is recommended that detailed assessments (including market sounding exercises and workshops) be undertaken at the Detailed Business Case phase for Construct Only (with and without Early Tender Involvement) and Design & Construct (with and without Early Contractor Involvement) delivery models to determine the model with the potential to deliver superior outcomes for the project.

Based on the outcomes of this analysis, the recommendation is that Construct Only and Design & Construct delivery models are relevant for both project options and should be further explored in the Detailed Business Case.

Preferred Options for Further Development

The shortlisted options were assessed to identify a preferred option/s for further development in the Detailed Business Case. The assessment used a high-level, equally weighted, multi-criteria assessment as per the Building Queensland Prioritisation Framework whereby the information from all of the preceding assessments and reviews has been used to inform the assessment. The results of this are provided in the table below.

Based on the outcomes of this comparative assessment, Option 8 outperforms in the majority of cases when compared to Option 9. However, to ensure due consideration is given to each option and to be in accordance with Building Queensland's Business Case Development Framework where it is



recommended that more than one option be taken forward, both options are recommended to be progressed as the Preferred Project Options to the Detailed Business Case phase to enable sufficient detail to be identified and to suitably inform an investment decision.

OPTIONS ASSESSMENT CRITERIA	OPTION 8	OPTION 9
Strategic Appraisal		
Alignment to objectives	High	Low
Effectiveness in addressing service need and achieving the benefits sought	High	Low
Sustainability review outcomes	Medium	High
Options aligns with SIP priorities (Reform, Better Use, Improve Existing, New)	Medium	High
Economic and Financial Appraisal		
Benefit Cost Ratio	High	Low
NPV	High	Low
Social and Environmental Appraisal		
Social Impacts	Medium	Low
Environmental Impacts	Medium	Low
Deliverability Appraisal		
Risk	Medium	Low
Financial NPV – P50	High	Low
Potential for VfM from PPP delivery	Low	Low
Ranking	Medium	Low

Conclusion and Recommendations

Conclusion

The Ipswich City Centre is defined as a Principal Regional Activity Centre for South East Queensland and the population in the Ipswich local government area is anticipated to grow by an additional 319,900 residents between 2016 and 2041. To accommodate this growth, the Ipswich City Centre will need to undergo a transformation in order to provide the necessary employment, cultural and recreational aspects that a growing city expects.

High levels of traffic congestion and poor Levels of Service in the peak periods, concentrated in and around the Ipswich City Centre and on the single existing inner city Bremer River crossing (David Trumpy Bridge), are currently being experienced. To catalyse the city's redevelopment aspirations, an alternative inner city Bremer River crossing has been identified as a priority need, facilitating higher network redundancy during minor incidents and major flood events and the movement of non-CBD traffic across the network and away from the Ipswich City Centre.



Without intervention, these issues will exacerbate in the future and the city's economic development and redevelopment opportunities will be compromised. While the full economic impact of the challenges faced by the Ipswich City Centre are difficult to quantify precisely, an indicative monetisation of the impacts based on congestion, road safety and flooding impacts has identified that the total annual cost of the Ipswich City Centre problem is \$34 million.


The Preliminary Business Case assessed a range of options to respond to the identified project needs and short-listed two options for further assessment, these being:

- Option 8 – Sub-option No 1 – A new all modes, inner-city Bremer River crossing at the Norman Street location.
Staging Options:
 - 4 Lane Bridge
 - 2 Lane Bridge
- Option 9 – Sub-option No 4 – A new pedestrian/ cycle/ bus Bremer River crossing at the East Street (existing David Trumpy Bridge) location.
 - New northbound and southbound bus only bridges adjacent to, and clear of, the existing David Trumpy Bridge

Recommendations and Next Steps

Based on the preliminary investigations and assessments undertaken in relation to this Preliminary Business Case to address congestion, cross river connectivity and network resilience in the Ipswich City Centre, it is recommended that:

- The Preliminary Business Case be approved, and the project proceed to the Detailed Business Case phase;
- Both Option 8 (a new all modes, inner-city Bremer River crossing at the Norman Street location) and Option 9 (a new pedestrian/ cycle/ bus Bremer River crossing at the East Street (existing David Trumpy Bridge) location) proceed as the Preferred Project Options to the Detailed Business Case phase under the Project Assessment Framework for further investigation;
- Note that further detailed analysis is required in the Detailed Business Case phase to confirm the final Preferred Project Option, which will require the following:
 - Determination of the priority and need for a 4 lane bridge at the Norman Street location as well as additional bus priority provisions and capacity improvements on the David Trumpy Bridge;
 - Further value engineering on the configurations of the staging options (4 lane bridge, 2 lane bridge and longer term ultimate option inclusive of Jacaranda Street road upgrade) at the Norman Street location to address capital cost and affordability issues and develop an appropriate staging strategy;

- 
- Confirmation of the economic viability results based on appropriate multi-modal transport modelling and underlying demographic assumptions; and
 - Further exploration of other benefits streams, including travel time reliability and urban renewal/amenity benefits to better understand the full economic impact of a Preferred Project Option.
- The need to develop a comprehensive Detailed Business Case in accordance with Building Queensland's Business Case Development Framework to satisfy the Queensland Government's project assessment requirements be confirmed.