

+ This document is a working appraisal of the proponent's cost benefit analysis of the proposal. As the project has developed, more information has been provided, which may supersede or respond to questions arising from earlier assessments. This working appraisal was prepared in January 2011 as an input into the Project Assessment Brief prepared by the Office of the Infrastructure Coordinator.

WORKING ASSESSMENT FOR BENEFIT COST RATIO MODERATION (2010/11 submission update to 2009/10 appraisal)	
Project name	Eastern Busway stages 2b and 3
Brief project description	20km dedicated busway between the inner-city and Brisbane's eastern suburbs
Reported BCR @ 7%DR	1.04
Capital cost total – undiscounted, outturned	All stages: \$1.658 billion <ul style="list-style-type: none"> • Stage 1 busway: \$367 million (completed) • Stage 2a and 2b busway: \$1.151 billion • Stage 3 transit lanes: \$140 million
% costs bid for (where relevant)	\$825 million (50% of all 3 stages, or 72% of the Stage 2 busway)
Source documents for review	Queensland Government's 2010 Submission to Infrastructure Australia: <ul style="list-style-type: none"> • Queensland Government, <i>Infrastructure Australia Submission</i>, 'Eastern Busway Summary and Stages 1-6', December 2010 • Queensland Government, <i>Infrastructure Australia Submission</i>, 'Eastern Busway Stage 7', December 2010 Queensland Government's 2009 Submission to Infrastructure Australia: <ul style="list-style-type: none"> • Department of Transport and Main Roads Queensland, <i>2009 Infrastructure Australia Submission</i>, 'Eastern Busway Summary and Stages 1-6', November 2009 • Department of Transport and Main Roads Queensland, <i>2009 Infrastructure Australia Submission</i>, 'Eastern Busway Stage 7', November 2009
Date of review	12 January 2011
Key changes from previous submissions	No changes from November 2009 BCR remains at: <ul style="list-style-type: none"> • 1.22 for Stage 1 (complete) • 1.04 for Stage 2a and 2b • 3.1 for Stage 3 No other cost/write-up changes within the Stages 1-6 or Stage 7 responses

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2009-10 INFRASTRUCTURE PIPELINE: ECONOMIC APPRAISAL TEMPLATE

Project: Eastern Busway Stage 2b and 3 (November 2009 Submission)

Proponent: Queensland Government

Date economic review conducted: 02/02/2010

BCR summary information by proponent:

1. Depth of supporting information

Supported by comprehensive third party demand, economic and engineering reports.

2. Demand

Benefits were by Bitzios using the Brisbane Strategic Transport Model (BSTM). (Submission template, pg 19). This modelling was done on an origin – destination basis.

However, the adoption of a 'do-nothing' base case could be considered unrealistic, with significant deterioration in travel times, operating cost and reliability appearing to occur in the later stages of the modelling.

Finally, the model does not appear to account for traffic which may be induced onto the road system as a result of capacity created by the bus way. This may deteriorate the benefits of existing road users.

3. Capital costs/operating costs

Capital costs used within the appraisal remain unchanged. However more importantly this implies capital costs are still a P50 estimate: *"The capital cost is based on a best estimate of cost (P50) with an added allowance for planned risk which is estimated to be small, with a total cost therefore approximating to a P50 cost estimate"* (pg 18).

Operating costs are not referred to at all in the submission template; however they are included within the initial PAS analysis.

4. Quality of economic assessment methodology

The original appraisal has been undertaken by an independent consultant (Policy Appraisal Services (PAS)). The benefits have since been up-dated to reflect 2009 prices. No discounted benefit breakdowns or benefit streams are presented in the submission template. These should be included to allow for further sensitivity testing and consistency checks with the benefit build ups provided for 2016 in the submission template.

While the appraisal methodology appears robust, the treatment of decongestion benefits should be clarified. This benefit doesn't appear to have been included in the appraisal, even though a parameter value is listed. If decongestion has been included, further investigation would be required to ensure there is no double counting of time savings captured in the decongestion parameters and the perceived benefits for existing car users. This would impact the final BCR.

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Consequential costs resulting from disruptions during the construction period have not been included.

There appear to be some inconsistencies in the latest submission, however these don't appear to be reflected in the original PAS document or manifested in the results.

Wider economic benefits (WEBs) should not be considered for this project until a full assessment has been adopted.

5. Comparability and accuracy of the BCR

The BCR, 1.04 at a 7% discount rate, remains unchanged from the past appraisal (despite the escalation of benefits to 2009 prices). However, for projects of this magnitude a higher BCR would be desirable to protect its economic viability against unforeseen delays, optimism bias or cost blowouts. This is particularly relevant given costs are still based on a P50 estimate, implying there is a 50% chance costs will exceed those used within the appraisal.

Sensitivity testing indicate a plausible range for the BCR of between 0.69 (10% DR) to 1.78 (4% DR). A rough indication of downside scenarios, ie costs up 30% and benefits down 30%, could result in a BCR of approximately 0.50 to 0.55.

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WORKING NOTES

1. Depth of supporting information

See cover note.

2. Demand

"Benefits were calculated for 2010, 2016, 2026 as provided by Bitzios' Brisbane Strategic Transport Model (BSTM) outputs." (pg 19).

Base case – "The 'Do nothing' option exposes bus operating services to increased travel times and operating cost combined with reduced levels of reliability of services and is not recommended". (pg3). It could be argued that a do nothing base case is an unrealistic scenario, since authorities would always maintain some level of investment to prevent the deterioration described in the base case. The adoption of a 'do-minimum' base case which maintains an existing level of service would possibly be more realistic.

3. Capital costs/operating costs

Detailed submission to Infrastructure Australia: Seeking \$825 million to match its current state finding. (pg 12).

Appendix 7 Capital Costs (pg 4)

- Stages 2a and 2b - \$895 million (\$2008) + land acquisition costs of \$150 million (\$2008), if these are not already captured within the \$895 million total.
- Stage 3 - \$102 million

More importantly, capital costs are still a P50 estimate: "*The capital cost is based on a best estimate of cost (P50) with an added allowance for planned risk which is estimated to be small, with a total cost therefore approximating to a P50 cost estimate*" (pg 18).

4. Quality of economic assessment methodology

Overall

The BCR, 1.04 at a 7% DR, remains unchanged from the original Policy Appraisal Services (PAS) assessment (Appendix 1 – Policy Appraisal Services, Option 4 December 19, 2008).

Minor up-dates to the benefit components have been undertaken, changing then from mid-2008 prices to 2009 prices. This has resulted in about a 3% increase in most benefit line items, although this change does not appear to be specified in the Submission Template. However, the impact of this is very marginal, with the BCR appearing unchanged.

Specific Points

- There appear to be inconsistencies within the current submission. For example, discussion around the reduced unperceived car use costs differs between the description of benefits on pages 21 and the algorithm on page 26 which doesn't produce the results quoted when the given inputs are used.

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- The submission template and PAS report specifies a benefit line item: Land use (agglomeration). However, there appears to be no further description of this benefit, or calculation, in either document. This benefit line item does not appear to have been incorporated into the final analysis.
- Clarification should be sought as to the treatment of decongestion benefits in the PAS report, pg 22. Two issues should be examined:

1. It is not actually stated how decongestion benefits are incorporated into the appraisal, if at all, as there does not appear to be a specific line item in the benefit breakdown. This is of importance because double counting may exist when both perceived benefits by car users and decongestion benefits are both captured in an appraisal. The decongestion parameter captures an element of time savings, which is also a perceived benefit to car users.

Hence, clarification should be sought as to whether decongestion benefits have been quantified and included in the appraisal: if they haven't then it is fine but if they have, further investigation is needed to ensure there is no double counting between these two benefit items.

2. If decongestion has been included within the appraisal, then the parameter value used also appears very high – \$0.93 / reduced vehicle kilometre in 2010 (notwithstanding this is calculated internally within the model). The value is benchmarked to ATC values of \$0.90 in heavy traffic down to \$0.17 in light traffic, based on a Melbourne study. Care needs to be taken as the \$0.90 value can only be used during peak periods. Using the Melbourne methodology that weights decongestion values across traffic volumes throughout the day results in a weighted decongestion value of around \$0.45 / reduced VKT. However, the cost of congestion in Melbourne is higher than in Brisbane (BTRE 2007), hence the parameter value for reducing this cost in Brisbane should be less than in Melbourne.

- No ramp up period is adopted within the appraisal on the basis that passengers are familiar with the busway concept. While this may be a valid assumption depending upon local travel patterns, generally it is recognised that a person's travel behaviour does not change instantaneously as assumed in the demand model, and hence a ramp up period (even if it is only minor) is considered best practice.
- There is no mention whether the benefits accruing to diverted or induced PT users have had the rule of half applied, or whether this is correctly calculated within the the demand model consumer surplus outputs.

5. Comparability and accuracy of the BCR

The BCR remains unchanged from the original PAS report.