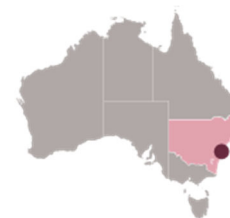


Muswellbrook Bypass (New England Highway)



PURPOSE OF EVALUATION

Committed and funded project



EVALUATION OUTCOME

Funded proposal (not eligible for the Infrastructure Priority List)

ASSESSMENT FRAMEWORK STAGE



LOCATION

Muswellbrook, NSW

GEOGRAPHY

Small towns, rural communities and remote areas

SECTOR

Transport

OUTCOME CATEGORY

Regional connectivity

PROPONENT

NSW Government

INDICATIVE DELIVERY TIMEFRAME

Construction start: 2023

Completion by: 2027

EVALUATION DATE

10 February 2023



CAPITAL COST

Pending¹

FUNDING COMMITTED (P90)²



Review summary

Infrastructure Australia has evaluated the business case for the **Muswellbrook Bypass** in accordance with our Statement of Expectations, which requires us to evaluate project proposals that are nationally significant or where Australian Government funding of \$250 million or more is sought. As the project is fully funded, it is not eligible for

¹ This Evaluation Summary currently excludes the capital cost (nominal, undiscounted) to maintain confidentiality during the current active procurement process. The capital cost will be added once procurement is complete.

² Announced commitments of funding - <https://www.transport.nsw.gov.au/news-and-events/media-releases/muswellbrook-bypass-a-step-closer>

inclusion on the *Infrastructure Priority List*.³

The New England Highway (A15) is a major freight and commuter route, forming a key inland corridor between Sydney and Brisbane, and a critical component of the National Land Transport Network. The New England Highway currently passes through the town centre of Muswellbrook. The mix of heavy vehicles and residential traffic in town limits freight productivity and impacts safety and amenity outcomes for road users and the local community. The [New England Highway upgrade](#) was added to the *Infrastructure Priority List* in February 2016, recognising that the route through Muswellbrook acts as a constraint on the safe and efficient movement of heavy vehicles on the highway.

The Muswellbrook Bypass project, with the objective of improving network efficiency and safety, while also improving amenity of the Muswellbrook township, will allow freight and passenger traffic to travel along the New England Highway without entering Muswellbrook town centre. The project aligns with various local, state and national government objectives, and is identified in the *Draft New England Highway Corridor Strategy*.

The proponent's business case states that the Net Present Value (NPV) of the project is \$45.9 million, with a Benefit-Cost Ratio (BCR) of 1.23.⁴ The core driver of the economic benefits is transferring through-traffic, particularly heavy vehicles, from the Muswellbrook town centre to the bypass. The quantitative benefits are estimated to accrue to road users through reduced travel time and vehicle operating costs, as well as the Muswellbrook community and wider population through decreased environmental externalities. Other qualitative benefits of the project include visual and amenity impacts in the town centre, minor flood mitigation impacts, and broader socio-economic impacts associated with improved safety and quality of life for residents.

In April 2021, the NSW Government announced a connection at Coal Road would be included as part of the project and this has been included in the preferred option. A connection to Coal Road had been excluded in the earlier options analysis due to environment and Aboriginal heritage impacts and additional geotechnical risks. The options analysis found the Coal Road connection does not improve value for money, increases the cost of the project and reduces the amenity benefits. The detailed economic appraisal in the business case analyses only a single option that includes the Coal Road connection. Without a detailed analysis of alternative options, the economic appraisal does not provide certainty that the preferred option represents the best value for money.

Our evaluation identified the potential for significant upside cost risk associated with current market capacity pressures, which have not been completely reflected in the project's cost escalation rates. All real escalation has been excluded in the economic analysis, which may be underestimating project costs and overstating the BCR.

Infrastructure Australia's *2022 Market Capacity Report* indicates recent non-labour cost escalation rates of around 25 per cent. Therefore, the results of the proponent's 20 per cent cost increase sensitivity test may be a better reflection of the project's value-for-money. The 20 per cent cost increase sensitivity test has a BCR of 1.03.

The project also involves constructing a road across former open cut and underground mine workings, which has not previously been attempted and adds to the complexity of the construction approach. The project is also expected to negatively impact sites of cultural significance for the Aboriginal community. Risks associated with the inclusion of the Coal Road connection have not been assessed and only a small contingency has been allowed to consult on, assess and mitigate any further impacts. These factors introduce risks of cost increases and delivery delays.

In summary, our review finds that the risk of cost overruns could materially impact the return on investment of the project. Additionally, capacity to deliver the project within the expected timeframe may be impacted by the simultaneous delivery of the nearby Singleton Bypass project. Delaying the project by one year would increase the BCR slightly to 1.24, but longer delays would reduce the BCR. However, if inflationary pressures and market capacity constraints rapidly improve, then the benefits of the project should outweigh the costs.

Project description

The Muswellbrook Bypass project involves the development of a bypass of Muswellbrook to the east of the town and Skellatar Hill, starting near Milpera Drive and re-joining the New England Highway north of Sandy Creek Road. The project's objectives are to:

- improve network efficiency on the New England Highway, particularly travel times for long haul freight and passenger traffic.
- improve safety for all road users in the Muswellbrook town centre, by reducing heavy vehicle interactions with light vehicles and pedestrians.
- improve amenity in the Muswellbrook township.

³ The Infrastructure Priority List only identifies those proposals which are seeking investment.

⁴ Using a 7% discount rate and a P50 capital cost estimate.

Key features of the project include:

- approximately nine kilometres of new highway (the bypass) with a single lane in each direction
- full connections with the existing New England Highway at the southern and northern ends of the project
- full connection with Coal Road
- bridges over Muscle Creek and Sandy Creek, Muscle Creek Road and Sandy Creek Road, Coal Road, the Main North railway line, the southbound exit ramp and over the bypass at the southern connection.

More details on the project, including an interactive map and flyover video is available at [Muswellbrook bypass - interactive portal | Transport for NSW | Community Analytics \(caportal.com.au\)](#)

Review themes

| Strategic Fit | The case for action, contribution to the achievement of stated goals, and fit with the community. |
|---------------------------------------|---|
| Case for change | <p>The project seeks to address problems associated with freight and passenger network efficiency (congestion), safety and amenity. The case for change is well evidenced, with data to show that over 2,700 heavy vehicles pass through the main street of Muswellbrook daily, and projected travel times are forecasted to increase by up to two minutes between 2024 and 2044.</p> <p>The New England Highway upgrade proposal, which includes several potential investment options along the corridor, including the Muswellbrook Bypass, was listed on the <i>Infrastructure Priority List</i> in February 2016. There is a clear link between the problems and the benefits realised from the project.</p> |
| Alignment | <p>The project is identified as a mechanism to support planning priorities of the <i>Hunter Regional Plan 2041</i>⁵ and contributes to Recommendation 4.2 of the 2021 Australian Infrastructure Plan - Connecting regional and remote Australia.</p> <p>The project also directly contributes to relevant national, state, and local government goals and objectives within strategic plans, including:</p> <ul style="list-style-type: none">• The <i>National Freight and Supply Chain Strategy</i>, which identifies the need for resilient and efficient supply chains• The <i>NSW Future Transport Strategy 2056</i>, which lists the Muswellbrook Bypass as a Regional NSW committed initiative and aims to strengthen the NSW economy, safety and performance• The <i>NSW Freight and Ports Plan 2018-2023</i>, which identifies the New England Highway as an important regional road for freight• The <i>Hunter Regional Transport Plan</i>, which identifies the need to upgrade the New England Highway to address safety and congestion issues. The plan includes an action to reduce the impact of freight movements on the urban centre of Muswellbrook• The <i>Muswellbrook Land Use Development Strategy</i> and the <i>Muswellbrook Town Centre Development Strategy</i>, which note that the 'proposed bypass' would create significant congestion and amenity benefits to the Muswellbrook town centre. |
| Network and system integration | <p>The town centre of Muswellbrook is about 127 kilometres north-west of Newcastle and 240 kilometres north of Sydney. The highway is part of the key inland Sydney to Brisbane corridor and the National Land Transport Network.</p> <p>There are several interdependent projects progressing on the highway, although none of them are required to realise the benefits of the project. Other projects include:</p> <ul style="list-style-type: none">• Singleton Bypass – delivery funding committed• Belford to Golden Highway – under construction• Golden Highway to Singleton – identified as short-term priority in the <i>Draft New England Highway Corridor Strategy</i> (unfunded)• Singleton to Muswellbrook capacity program – identified as short-term priority in |

⁵ The *Hunter Regional Plan 2041* supersedes the *Draft New England Highway Corridor Strategy* which identifies the Muswellbrook bypass an investment priority.

the *Draft New England Highway Corridor Strategy* (planning funding committed).

The business case outlines that this portion of the New England Highway, along with the Belford to Golden Highway and the Gowrie Gates Highway upgrade, are key constraints to usage of the highway route by freight vehicles of certain specifications (A-doubles⁶).

Solution justification

An appropriate range of options were considered to address the problems associated with the current route of the New England Highway through Muswellbrook, including both in-town routes and bypass options. These options have been analysed through qualitative and quantitative measures, providing justification for the selection of the preferred route, a bypass to the east of Muswellbrook and Skellatar Hill.

Various refinements to the preferred route have been made over time that allow for improved technical, social and environmental outcomes to be achieved. Additionally, a number of changes to the project design were made in response to community feedback. These design changes to the preferred option strengthen alignment to project objectives.

In 2021, the NSW Government committed to including a connection to Coal Road as part of the project scope. This connection was initially not recommended due to increased environmental and Aboriginal heritage impacts and additional geotechnical risks. The rapid economic assessment indicates that it does not provide improved value for money, increasing the cost and reducing the amenity benefits of the project.

The detailed economic appraisal considers only the preferred option, which includes a connection at Coal Road. Without a comparison to alternative options, the appraisal does not provide certainty the preferred option delivers the greatest net economic benefit. A robust economic appraisal would include analysis of alternative option(s).

Stakeholder endorsement

Stakeholders have been engaged throughout the project planning process, including at multiple stages of the design development. Key issues raised included a connection to Coal Road and safety of access between the New England Highway and local roads.⁷ These issues have been addressed through subsequent design changes, demonstrating meaningful consideration of stakeholder views.

In response to the project's Review of Environmental Factors (REF), stakeholders also raised concerns related to noise and air quality impacts, impacts to agriculture businesses and property acquisitions (a total of 19 lots will be either fully or partially acquired). However, most responses do not explicitly object to the proposal.⁸ Overall, there is broad support for the project.

We note that there is an endorsement risk due to stakeholder desire for a dual carriageway bypass (rather than single lanes as proposed). However, the demand analysis indicates that additional lanes are not required within the 20-year modelling horizon.

Societal Impact **The social, economic and environmental value of the project, as demonstrated by evidence-based analysis.**

Quality of life

The project will improve the quality of life of motorists on the New England Highway by providing an alternative route that avoids constrained roads and congestion in Muswellbrook town centre. As a result, travel along the New England Highway will become more efficient and cheaper for private vehicle owners and freight operators.

Heavy vehicle traffic negatively impacts urban areas by generating high noise levels, air pollution, and emissions. Diverting traffic away from the Muswellbrook town centre, therefore, will reduce the level of emissions and improve amenity for residents and pedestrians.

The project also delivers quality of life benefits by reducing the number of accidents. Modelling estimates the crash rate will decline by 20%.

⁶ A semi-trailer linked to another trailer by a tandem axle.

⁷ The Muswellbrook Shire Council noted that a connection supports improved access to the bypass for local residents, businesses and emergency services.

⁸ Of the submissions received, two (eight per cent) objected to the proposal. One of these related to the Coal Road connection.

| | |
|-------------------------------|--|
| Productivity | <p>A key benefit of the project is improved freight efficiency on the New England Highway. Travel time savings account for almost half of the economic benefits, and the project is also estimated to generate significant vehicle operating cost savings which are a productivity benefit.</p> <p>The business case assumes that the delivery of this project, along with other completed or proposed projects on the New England and Golden highways, will facilitate the movement more higher capacity freight vehicles (A-Doubles), supporting productivity improvements. Freight demand by sector is aggregated, so the impact of coal mine closures in the region on future demand is uncertain. This poses a risk to the realisation of benefits of the project.</p> <p>Travel within the local area will also be improved due to the diversion of heavy vehicle traffic away from the town centre. However, diverting traffic away from the Muswellbrook town centre will result in reduced passing trade for local businesses.⁹</p> |
| Environment | <p>By diverting heavy vehicle traffic and reducing the stop-start traffic flow through Muswellbrook town centre, the project is expected to deliver environmental benefits. This includes reduced costs associated with air pollution, emissions, noise, water pollution, nature and landscape impacts, urban separation, and upstream/downstream costs.</p> <p>There are several negative environmental impacts which have not been captured in the economic appraisal. The project REF details these impacts, which includes:</p> <ul style="list-style-type: none"> • biodiversity associated with the removal of native vegetation • flood levels from the bridge structures • soil due to potential ground subsidence from the underground mines • impacts associated with construction activity. <p>The proponent provided a detailed response to Infrastructure Australia on the environmental impact of the project in the context of the <i>Climate Change Act 2022</i> (Cth). This response details how climate change considerations were incorporated into the:</p> <ul style="list-style-type: none"> • options assessment, through changes to the alignment to reduce vegetation clearing and earthworks • economic analysis, through quantification of the reduced emissions of vehicles, and qualitative assessment of the sources of scope 1,2 and 3 emissions¹⁰ • risk register, in alignment with climate risk assessment guidelines • reporting requirements for contractors under new sustainable procurement frameworks of Transport for NSW (TfNSW). |
| Sustainability | <p>The project is being delivered by TfNSW and will be framed by the organisation's <i>Environment and Sustainability Policy</i> and <i>Sustainable Design Guidelines Version 4.0</i>. However, it is unclear to what extent these principles have been incorporated in the project design and costed, or whether the project will be implemented in alignment with these strategies and initiatives.</p> |
| Resilience | <p>The project is not expected to have significant resilience impacts. By diverting traffic away from Muswellbrook town centre, the project will improve the resilience of the New England Highway traffic to town-specific AM and PM peak traffic patterns.</p> <p>New bridges across main flow paths of Sandy Creek and Muscle Creek may also improve flood resilience, however these impacts are minor.</p> |
| Deliverability | The capability to deliver the project successfully, with risks being identified and sufficiently mitigated. |
| Ease of implementation | <p>A Design and Construct contract for the project is being progressed by TfNSW. This was identified as the best procurement model to deliver the project considering project scope, cost, risks and market capability. We agree with the proponent's rationale for a design and construct delivery model as it provides the best chance of meeting committed timeframes</p> |

⁹ These impacts have not been quantified in the proponent's economic appraisal.

¹⁰ For further information on scopes of emissions please refer to [Greenhouse gases and energy \(cleanenergyregulator.gov.au\)](https://www.cleanenergyregulator.gov.au/Greenhouse-gases-and-energy)

and within the approved funding envelope.

The route of the proposed bypass traverses former open cut and underground coal mines, which poses geotechnical delivery risks. The proponent has indicated that a road transport project traversing former open cut and underground mine workings has not been undertaken previously, although a robust risk mitigation strategy has been developed.

We also note that the project is expected to impact 11 Aboriginal archaeological sites during construction, with a total loss of value for four sites and partial loss of value for the remaining seven sites. Two sites of cultural significance would also be impacted by the proposal... An Aboriginal Heritage Impact Permit (AHIP) will be required for delivery of the project. The AHIP will include a mitigation program comprising archaeological salvage which would be undertaken prior to construction. The proponent has included a small contingency for the risk of any additional impacts. This introduces cost and delivery risks where archaeological requirements could prove more complex than indicated by initial studies.

Capability & capacity

Contractor availability and capability is included as a residual risk in the project's risk register. This risk has a 'Possible' likelihood and a 'Major' consequence rating. We consider this risk rating appropriate given the wider market capacity risk for delivering major infrastructure projects in NSW over the short and medium term.

Additionally, the project's expected delivery timeframe extends over the same period as the Singleton Bypass project. Given their proximity, this may place further pressure on the capacity of the market, particularly within a regional area where market depth can be limited. Cost estimates for the project include escalation indices from September 2021. These rates would capture some, but not all, of inflationary pressures being experienced in the current environment.

Project governance

TfNSW is the principal road delivery agency in NSW and has successfully delivered many major road upgrades across the state. The project will be managed by TfNSW and progress will be tracked through monthly coordination meetings. We consider the governance model to be appropriate for the successful delivery and operation the project. Private investment or alternative funding options such as tolling was not considered suitable, which is consistent with NSW Government policy for regional roads.

Risk

The project involves constructing a road across former open cut and underground mine workings which adds to the complexity of the construction approach. This is reflected in the project's risk register, which includes several risks associated with the presence of unknown contaminated material and the potential for mine subsidence¹¹.

The proponent has indicated that these risks are being managed through additional geotechnical investigations, procuring a specialist mining geotechnical company, and obtaining additional satellite imagery of the affected areas. These mitigation approaches appear appropriate, but do not mitigate the risks entirely.

Lessons learnt

The business case does not explicitly identify any learnings from similar projects. However, we note that the proponent has experience in delivering many projects across NSW with similar complexities and challenges. We also note that some inputs to the economic analysis have been sourced from economic appraisals for other comparable projects, such as the Golden Highway Corridor Upgrade.

The business case includes a Benefits Realisation Management Plan which sets out the proposed process for realising benefits, including measurement, tracking, management and risk mitigation.

We encourage the proponent to publish the findings of any reviews undertaken to capture the lessons learned from design and delivery for the benefit of future projects

¹¹ Mine subsidence is the movement of the ground caused by in-filled or underground mines.

Economic appraisal results (preferred option)

The proponent's business case states that the NPV of the project is \$45.9 million, with a BCR of 1.23.^{12 13} This suggests that the project is expected to deliver a net benefit to society.

The following table presents a summary of the economic appraisal results for the preferred option considered in the business case.

| | Discount rate: | 4% | 7% (central) | 10% |
|--------------------------------------|---|---------|--------------|---------|
| Core evaluation results ¹ | BCR: | 1.97 | 1.23 | 0.82 |
| | NPV (\$m): | \$217.0 | \$45.9 | -\$31.1 |
| Key benefits measured: | <p>The core driver of the economic benefits is the shifting of through-traffic (particularly heavy vehicles) from the Muswellbrook town centre to the bypass. Approximately 50% of project benefits are travel time savings as vehicles bypass Muswellbrook, resulting in less traffic through the town centre. Other key benefits are vehicle operating cost savings (27.2%) and reduced environmental externalities (15.5%) realised through avoided stop-start driving. The remaining benefits are comprised of safety benefits from crash reduction (4.0%), and residual value (3.7%).</p> <p>Additionally, the project is expected to reduce road maintenance costs. This is attributed to the bypass length being shorter than the existing New England Highway route, and the reduction in maintenance cost associated with the current route through the town centre.</p> <p>The qualitative benefits of the project include some minor flood mitigation impacts, landscape character and visual impacts in the town centre, and broader socio-economic impacts that are not monetised.</p> | | | |
| Key observations and issues | <p>The Australian construction market is currently exhibiting significant resource constraints and above-trend cost escalation rates. Escalation rates used in the cost estimate for the project do not reflect the full extent of these pressures, which could increase the P50 costs by over \$20 million if recent trends continue.</p> <p>The cost figures in the economic appraisal do not include any real escalation. This is not consistent with NSW CBA guidelines or technical guidance in the Infrastructure Australia Assessment Framework, having the effect of understating the costs and overstating the BCR.</p> <p>Only one option (the preferred option) has been analysed in detail. Inclusion of an additional option or options would allow for a relative assessment of the net economic impacts of alternative options with differing scopes. This would also support a determination of whether the Coal Road connection, which adds approximately \$45 million to the final outturn cost, provides value for money.</p> <p>The sensitivity analysis is robust and consistent with recommended guidance, including tests for:</p> <ul style="list-style-type: none"> delays in the delivery timeframe of the project by one, three and five years, which supports an assessment of the impacts of market constraints. Total capital costs are lower under the scenarios with extended timeframes, although delays in the operation of the bypass also reduces the benefits. A delay of one year increases the BCR slightly to 1.24, while delays of three and five years decreases the BCR to 1.21 and 1.17 respectively. cost increases of 20% and 40%, which is useful for understanding the implications of excluding real wage escalation. A 20% cost increase results in a BCR of 1.03 and a 40% cost increase results in a BCR of 0.88. sensitivity on the impact of COVID-19 (based on TfNSW's COVID-19 Guide¹⁴) was | | | |

¹² Using a 7% real discount rate and a P50 cost estimate.

¹³ Economic appraisal results may be subject to change due to updates to cost estimates. Results presented here reflect those contained in the business case submitted to Infrastructure Australia.

¹⁴ TfNSW technical note on assessing the impact of COVID-19 for business cases.

included. This scenario assumes population growth is attenuated and there is an increase in people working from home. The BCR for this sensitivity test is 1.12 (P50 costs at a 7 per cent discount rate).

The sensitivity analysis does not include a test for the scenario where the transition to renewables is faster than anticipated. This would support analysis of changes in the heavy vehicle demand as a result of changing industrial demand (in particular, freight transport of plant to support coal mining operations and passenger transport for coal mine and associated industry workers).

Some of the assumptions included in the main results of the economic appraisal are optimistic. The central case assumes that 40% of heavy vehicle traffic transitions to A-double usage when the project is operational. In our view, this rapid transition is not adequately justified, as a more gradual increase in A-double usage is more realistic. Under the conservative assumption (tested as a sensitivity), where there is no change in A-double usage, benefits are lower, and the BCR of the project is 1.21. The impact of this assumption is partly mitigated by the traffic growth assumptions, which are conservative relative to assumptions used in the appraisals of similar projects in the region.

(1) Costs reported in this table are based on P50 cost estimates.

Project development

The proponent has investigated options for a bypass of Muswellbrook bypass since 2005. The Strategic Business Case for the project, finalised in 2018, identified a full bypass option to the east of Skellatar Hill as the preferred solution.

In 2018, a preferred route report was developed, which re-assessed in-town inner traffic routes (aimed at filtering heavy traffic away from Muswellbrook town centre) and five bypass options. The in-town inner traffic routes were discounted due to the impact and instability of the local road network, and the risk of a low level of traffic diversion to these new routes.

The preferred route report recommended a refined version of the initial preferred option due to its lower costs and greater travel time benefits relative to other options. The refined preferred option also had reduced property impacts and geological risks from underground mine workings.

In 2020, further route design modifications were analysed. An alternative bypass design, connecting to the New England Highway further to the north and shifted further to the east, was recommended as it provided improved technical, social and environmental outcomes and better met project objectives. At this stage, various scopes for connections to Coal Road were also considered, although not recommended as a connection would increase the build footprint, environmental impacts and cost of the project (as assessed through a value management workshop).

The revised preferred option was displayed for community comment in 2020. Key feedback related to access between local roads and the New England Highway and connections to Coal Road. Following feedback, the NSW Government committed, in 2021, to the inclusion of a full connection to Coal Road in the scope of the project. A number of design modifications were made to the preferred option to accommodate this decision. This option (incorporating design changes) was taken forward to the Final Business Case.

Project engagement history



Detailed economic appraisal results

The following table presents a breakdown of the benefits and costs stated in the business case.¹⁵

Benefits and costs breakdown

| Proponent's stated benefits and costs | Present value (\$m,2021/22) | | | % of total for 7% results |
|---|-----------------------------|----------------|-----------------|---------------------------|
| | 4% | 7% | 10% | |
| Discount rate (real) | 4% | 7% | 10% | |
| Costs | | | | |
| Total capital costs (P50) | \$225.2 | \$200.0 | \$178.6 | 101% |
| Operating costs | - \$2.0 | - \$1.3 | - \$0.9 | -1% |
| Total costs^{1,2} | \$223.3 | \$198.7 | \$177.6 | 100% |
| Benefits | | | | |
| Travel time savings | \$218.1 | \$121.4 | \$72.4 | 49.6% |
| Vehicle operating cost savings | \$116.9 | \$66.5 | \$40.5 | 27.2% |
| Reduced environmental externalities | \$63.7 | \$37.9 | \$24.1 | 15.5% |
| Crash reduction | \$16.4 | \$9.7 | \$6.1 | 4.0% |
| Residual value | \$25.2 | \$9.1 | \$3.3 | 3.7% |
| Total benefits¹ | \$440.3 | \$244.6 | \$146.5 | 100% |
| Net present value (NPV)³ | \$217.0 | \$45.9 | - \$31.1 | n/a |
| Benefit-cost ratio (BCR)⁴ | 1.97 | 1.23 | 0.82 | n/a |

Source: Proponent's business case

(1) Totals may not sum due to rounding.

(2) Costs reported in this table are based on P50 cost estimates.

(3) The net present value is calculated as the present value of total benefits less the present value of total costs.

(4) The benefit-cost ratio is calculated as the present value of total benefits divided by the present value of total costs.

¹⁵ Economic appraisal results may be subject to change due to updates to cost estimates. Results presented here reflect those contained in the business case submitted to Infrastructure Australia.