Australian Government | Infrastructure Australia

BUSINESS CASE EVALUATION SUMMARY

Direct Sunshine Coast Rail Line (Stage 1 – Beerwah to Caloundra)

PURPOSE OF EVALUATION
Proposal seeking funding

EVALUATION OUTCOME
Not recommended for the Infrastructure Priority List at this time

ASSESSMENT FRAMEWORK STAGE

1 DEFINING PROBLEMS AND OPPORTUNITIES | 2 IDENTIFYING AND ANALYSING OPTIONS | **3 DEVELOPING A BUSINESS CASE** | PROJECT DELIVERY | 4 POST COMPLETION REVIEW

LOCATION
Sunshine Coast, Queensland
Kabi Kabi country

GEOGRAPHY
Smaller cities and regional centres

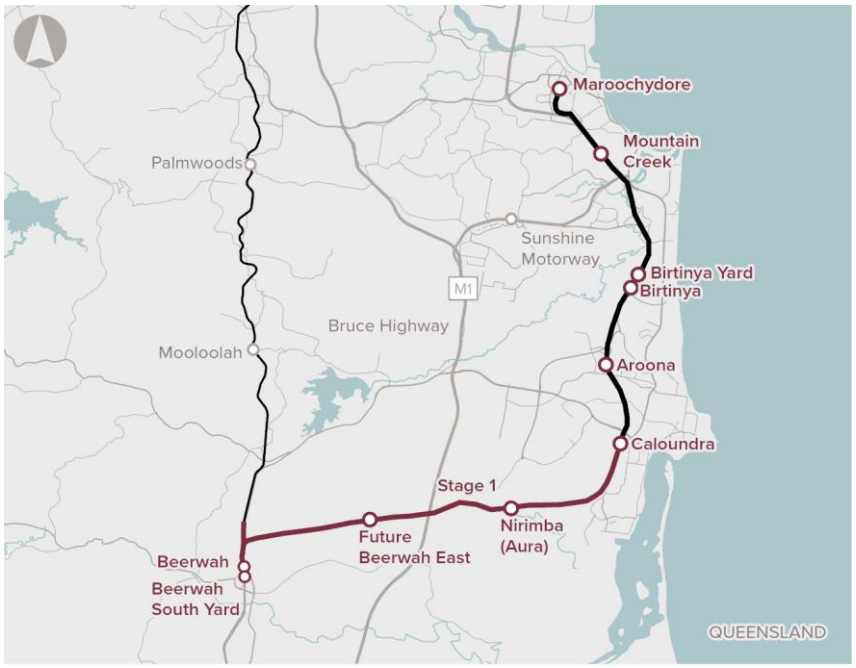
SECTOR
Transport

OUTCOME CATEGORY
Efficient urban transport networks

PROPONENT
Queensland Government

INDICATIVE DELIVERY TIMEFRAME
Construction start: 2025
Completion by: 2031

EVALUATION DATE
8 April 2024



CAPITAL COST –STAGE 1
$5,055 million (P50, outturn)
$5,423million (P90, outturn)

FUNDING COMMITTED AND SOUGHT – STAGE 1 (P90)[1]

Australian Government: $1,600 million committed
Queensland Government: $2,750 million committed
Funding Gap: $1,150 million (proposed additional Australian Government funding)

Review summary

- Infrastructure Australia has evaluated the business case for the Direct Sunshine Coast Rail Line (DSCRL). The proponent is seeking additional funding for Stage 1 of the proposal, which is therefore the focus of our evaluation. As a result of our review, we consider that further work is required before additional Australian Government investment is expended on the project.
- The DSCRL proposal aims to reduce pressure on the region's road network, which is being affected by population

[1] Total funding amount for Stage 1 ($5,500 million) includes an additional $77 million over the P90 capital cost estimate for client-side costs on full corridor protection to Maroochydore with updated alignment and pre-delivery work to Birtinya.

growth and limited public transport options. We recognise the potential for sustainable public transport options in the Sunshine Coast region to increase connectivity between new housing and employment and reduce reliance on private vehicles.

- There are significant opportunities in the region to deliver on these ambitions, however, the current proposal predicts that the new rail line would have little effect on public transport use or easing congestion. The business case reports that DSCRL is only expected to increase public transport use from 1.4% to 1.9% within the region by 2046, equivalent to an additional 9,400 people boarding a train per day.
- Stage 1 of DSCRL is estimated to reduce travel time to Brisbane from the Sunshine Coast by 106 minutes in 2046. However, the number of patrons traveling to Brisbane on the rail network is forecast to grow to only 12.5% in the same timeframe. Rail patronage may increase above current forecasts if population growth exceeds expectations and there is a greater shift in mode share, as has been experienced between Brisbane and the Gold Coast. However, low expected patronage between the Sunshine Coast and Brisbane reflects the high car dependency in the region.
- Based on the Queensland Government's analysis, the low level of patronage to Brisbane would not substantially increase with the extension of the rail line to Maroochydore as the region is heavily self-contained. Employment growth in the region, particularly in Maroochydore, and work-from-home behaviour, means that the majority of current and future residents north of Nirimba are not expected to travel to Brisbane daily.
- The proposal is forecast to generate a net increase in greenhouse gas (GHG) emissions because the emissions from construction and operation would not be offset by reductions in private car use. While there are likely to be opportunities to reduce emissions, these have not been well developed and costed in the proposal.
- The proponent is planning for Stage 1 (Beerwah to Caloundra) to be in operation for the 2032 Olympic and Paralympic Games. However, we understand that the majority of venues and accommodation will be located further north, meaning other transport services will be needed to support the operation of the Games.
- There are significant delivery risks with only limited geotechnical assessments undertaken to date and, noting the large volume of concurrent construction activity in South East Queensland, market sounding is not yet complete. Environmental and cultural heritage impacts require approvals, which also increases the risk for on-time and on budget delivery.
- Risks of cost escalation and delivery delays are significant, given the current market capacity and supply chain challenges. Overall, the cost of Stage 1 of the DSCRL will materially outweigh the monetised social, economic and environmental benefits. This is based on a cost estimate of $5.5 billion, however the proponent anticipates that Stage 1 costs could be as much as $7 billion, which would further reduce net benefits.

Recommendations

- We recommend that before additional Australian Government investment is expended, the proponent confirms the final cost estimate and improves certainty of the Stage 1 delivery schedule.
- Further consideration should be given to how land development opportunities, particularly at Beerwah East and new sites along the rail alignment, can be leveraged to encourage a broader range of density development that is more likely to benefit from public transport. For example, a station servicing the proposed Beerwah East development is expected to enable greater mode shift, demand and increase benefits, however the business case assumes only low-density development in this precinct and the cost of a station has not been included in the cost estimate.
- Future analysis should incorporate policy responses to address the high car dependency that is driving low demand for DSCRL. Behaviour change strategies and interventions such as pricing incentives should be implemented and included in updated analysis to demonstrate that demand may increase.
- Further evidence should be provided to the Australian Government demonstrating how opportunities to minimise GHG emissions have been incorporated and costed, and that sufficient contingency has been allowed for potential environmental approval delays and offsetting requirements.
- Careful consideration should also be given to how other transport projects in the region, in particular major road investments such as the Kawana Motorway, will draw users away from public transport.
- With Stage 2 and Stage 3 being deferred, we recommend commitment to corridor preservation, to minimise cost risk of future stages.

Proposal description

The business case analyses the full DSCRL and recommends staging delivery of a new rail line from Beerwah Station to Maroochydore. The first stage, which is the focus of this evaluation, includes upgrading the existing Beerwah Station, delivering a new rail line and stations at Nirimba (Aura) and Caloundra, and planning for full corridor protection to Maroochydore. Subsequent stages, expected to be further analysed in subsequent business cases, will consider an extension to Birtinya (Stage 2) and Maroochydore (Stage 3). Stage 1 includes:

- new dual track rail between Beerwah and Caloundra (approximately 19km)
- two new stations at Nirimba and Caloundra
- upgrade of Beerwah Station, including the provision of an additional platform and making the station Disability Discrimination Act (DDA) compliant
- active transport shared path along the rail corridor
- European Train Control System (ETCS) Level 2 signalling
- services of six trains per hour at opening, and up to eight trains per hour in the longer term (with a peak capacity of 10-12 trains per hour for events)
- pre-delivery work to Birtinya
- reprotection of the corridor to Maroochydore.

The proponent estimates that constructing Stage 1 of the proposal would support an average of 2,200 direct Full-time Equivalent jobs.

We are pleased to see that the Queensland Government publicly released a business case summary on 7 March 2024 which outlines the key elements of all three stages of the DSCRL. This evaluation summary is based on our evaluation of the full business case and technical appendices submitted to Infrastructure Australia in February 2024.

Further information on the proposal can be found at: Direct Sunshine Coast Rail Line (tmr.qld.gov.au).

Review themes

Strategic Fit	The case for action, contribution to the achievement of stated goals, and fit with the community.
Case for change	The business case reports a strong case to invest in the Sunshine Coast's transport network, with the region's population forecast to grow from 341,900 in 2021 to 536,300 in 2046 – a 57% increase or about 1.8% per year. High car dependency and limited public transport connectivity mean that road congestion, safety and reliability are likely to worsen. Transport modelling in the business case estimates there will be a 45% increase in travel times on the Bruce Highway between Yandina and Caboolture in the morning peak. The proposal has been developed as a response to these challenges, and particularly to improve connectivity between the Sunshine Coast and Brisbane. The Infrastructure Priority List identifies *Sunshine Coast transport connectivity – Caloundra-Maroochydore* as a nationally significant early-stage proposal. This recognises transport problems on the coastal corridor, with planned residential growth to the south, and employment growth to the north. However, this relates more to Stages 2 and 3 of the DSCRL, whereas Stage 1 concerns movements between Caloundra and Brisbane only.
Alignment	DSCRL aligns with the Queensland Government's *Shaping SEQ 2023* regional plan where it is highlighted as 'priority region shaping infrastructure'. It leverages a large part of the Caboolture to Maroochydore Corridor Options Study (CAMCOS) corridor that was protected in 2001. Some deviations have been proposed for the corridor, such as enabling a dual-track layout, provisioning for stations (and facilities such as park 'n' rides) and active transport infrastructure, and some straightening of the corridor to avoid Beerwah Forest reserve and improve rail operations. The proposal broadly appears to align with Australian Government priorities and the Infrastructure Policy Statement, as it would ease some congestion on the National Land Transport Network and help improve connectivity and resilience of land transport

	infrastructure. However, due to the significant emissions expected from construction, the extent of land clearing and the limited emission savings from operations, the proposal will lead to an overall increase in Australia's emissions and negatively impact emissions reduction targets (see section below on Sustainability). Infrastructure Australia's *2022 Regional Strengths and Infrastructure Gaps for Queensland* identified the capacity, connectivity and quality of public transport as a gap for the Sunshine Coast's growing population. The proposal would support local government priorities around better connectivity, sustainability and integration of land use and transport opportunities.
Network and system integration	DSCRL has been developed to integrate with and support major regional activity centres, such as at Caloundra, Birtinya and Maroochydore, to create placemaking opportunities. There is also evidence that the business case has been prepared in coordination with other major investments that are underway or in planning, such as the Mooloolah River Interchange project, Beerburrum to Nambour Rail Upgrade project, ETCS Level 2 roll-out and the Sunshine Coast Public Transport proposal. The proposal has considered how to integrate with these works to form a cohesive transport network. We note that the Kawana Motorway is also in planning, which proposes a new motorway link between Parrearra and Meridan Plains along the same alignment as future stages of the DSCRL. While there is no commitment to delivery of this project, there is a risk that major road investments of this nature will further weaken the case for public transport initiatives and uptake in the region.
Solution justification	As a result of the significant history of investigations and planning for the CAMCOS corridor, the proponent identified rail early on in project development as the preferred response to the identified problems and opportunities. The options analysis tested seven different rail options and one non-asset option (bus service enhancement) through a multi-criteria analysis (MCA). The proponent also undertook a separate exercise to assess two additional options within the CAMCOS corridor – a fully-dedicated Bus Rapid Transport (BRT) and a road alternative – through the same MCA process. The two best performing options shortlisted for analysis were very similar, only differing in the number of stations, either four or six. A cost-benefit analysis (CBA) identified the six-station option as the preferred option, though we note that the cost of these solutions significantly exceeds the scale of the problems. The proponent tested the financial, economic and delivery impacts of a staged delivery for the preferred option to investigate more affordable options for investment and enable delivery in time for the Games in 2032. The proponent has selected the Stage 1 (Beerwah to Caloundra) option as their preferred approach, with subsequent delivery of stages to Birtinya and Maroochydore by 2040. These future stages would require separate business cases to be submitted to Infrastructure Australia for evaluation. We agree with the proponent's findings that road options are unlikely to address the underlying objectives, however the cost of the proposed solution substantially exceeds the scale of the problems.
Stakeholder endorsement	The proposal has the approval of all relevant Department of Transport and Main Roads (TMR) divisions and general support from all levels of government. The business case shows broad support from a range of interest groups and future users, noting that there would be some severe localised impacts, such as property acquisition, construction disruption, and environmental and cultural impacts, that will require careful management. Key stakeholders such as Sunshine Coast Council, TMR North Coast, Queensland Rail and Translink were involved in the iterative station design, rail operations, minimising impacts on nearby land (e.g. Beerwah Conservation Park), impacts to the local road network, active transport and public utility integration. Community engagement occurred between July and August 2023, and focused on receiving feedback on corridor alignment, stations (locations, number of stations and naming conventions) and active transport. The majority of survey respondents conveyed support for the Project, with 'general support' identified as a theme for 75 per cent of free text responses. The proponent has described how stakeholder suggestions and concerns have

	been incorporated into the station design and noted broader feedback about impacts on the road network, noise mitigation and visual amenity. The proponent has outlined an approach for engagement with government, non-government and community stakeholders in the future stages.
Societal Impact	**The social, economic and environmental value of the proposal, as demonstrated by evidence-based analysis.**
Quality of life	The proposal would deliver significant travel time savings and reliability improvements to users switching from the road network to the new rail line, along with safety and improved health benefits. It would provide an attractive transport option compared to the existing public transport network or longer driving trips, such as to Brisbane. The business case estimates that the train trip from Caloundra Station to Brisbane (Roma Street Underground) would take 83 minutes (in-vehicle time only – excluding people getting to and from the station). This is compared to projected AM peak travel times of 143 minutes by car in 2031 or 189 minutes by car in 2046. Despite the potential time savings, and social inclusion benefits, the number of users forecast to use the rail line is relatively low based on current population and housing growth forecasts. The DSCRL proposal will result in an additional 9,400 people per day boarding a train on the Sunshine Coast in 2046. However, updated forecasts would improve the projected benefits if public transport demand increases as a result of the new rail line. The proponent estimates that public transport mode share on the Sunshine Coast would increase from 1.4% to just 1.9% with the full DSCRL in 2046 – largely driven by new inter-regional train travellers growing to 12.5% (equivalent to 1,200 trips per day). This is a significant increase from the current inter-regional public transport mode share of 3.8%. The proposal will contribute to a reduction of 52,000km travelled by private vehicles per day in 2031 and a reduction of 46,000km in 2046. However, the detailed transport modelling indicates the DSCRL will only improve travel speeds by 0.2km/h in 2046, which highlights the broader decline in network performance. While there is increased demand for inter-regional public transport and a reduction in the distance travelled on the road network, the high employment self-containment on the Sunshine Coast (approaching 93% by 2046), means that despite the increased demand for inter-regional public transport that Stage 1 seeks to address, the number and mode share of localised trips almost remains unchanged with DSCRL. An estimated 87.3% of trips produced on the Sunshine Coast would be private vehicles (compared to 87.7% without the DSCRL), and key arterial roads will remain congested. This means the DSCRL is primarily benefiting inter-regional travel, rather than addressing the growing road congestion, poor network performance and inadequate public transport alternatives within the Sunshine Coast.
Productivity	The largest productivity benefits are travel time savings for people switching to using the new rail services, and travel time savings for those continuing to use the road network. DSCRL is forecast to ease some congestion on the regional network, however Nicklin Way, Sunshine Motorway and the Bruce Highway remain key bottlenecks. While time savings are significant for new rail users, they are relatively small overall due to the low forecast patronage. The business case estimates that in 2031, there would be approximately 2,500 additional public transport trips across the full day as a result of delivering Stage 1. This translates to only a 0.1% reduction in private vehicle trips and no material change in average road network speeds. This is reflected in the proponent's economic appraisal, which estimates that the costs of the proposal are much greater than its monetised benefits.
Environment	The project area contains Threatened Ecological Communities and habitat for a number of flora and fauna species listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and Queensland's *Nature Conservation Act 1992*. About 122 hectares of remnant vegetation and 197 hectares of non-remnant vegetation will be

	directly impacted by construction works and land clearing. These risks are particularly present around the Beerwah State Forest and Bells Creek for Stage 1, as well as for future stages between Caloundra and Aroona. The business case recognises the proposal will require a referral to the Australian Government under the EPBC Act and environmental surveys have commenced. We recommend the proponent consider measures to minimise these impacts and provide further evidence to the Australian Government that sufficient contingency has been allowed for environmental approval delays and costs. The project site is on the traditional lands of the Kabi Kabi and Jinibara peoples, and the Kabi Kabi peoples Title Claim Group has an active claim over the entire project area. Large portions of the project area have been assessed as High Risk under the Aboriginal Heritage Duty of Care Guidelines. We strongly recommend close engagement and a comprehensive cultural heritage management plan to minimise the impact of the proposal on the landscape's cultural heritage.
Sustainability	DSCRL would help support Sunshine Coast's growing population and transport network demand, as well as somewhat encourage more sustainable development near public transport. However, this is not expected to be significant due to the planned gentle intensification of density (as opposed to medium or high density) in priority growth areas along the alignment. Land use modelling in the business case indicates that in 2046, the DSCRL could increase the number of homes on the Sunshine Coast by about 3,800 dwellings. The proponent has estimated that constructing the DSCRL would create approximately 2,490,000 tonnes of GHG emissions (including embodied and emitted emissions). They estimate that once operational, the reduction in vehicle trips would lower GHG emissions by about 12,500 tonnes per year by 2046. Based on these estimates, there is a significant risk that delivering the DSCRL would generate more GHG emissions than it avoids during its usable life. While construction emissions would be lower with the staged option, and the proponent is considering how material choices can reduce emissions, it is likely that the emissions generated will exceed the emissions the proposal reduces leading to a net increase in Australia's emissions. The business case outlines measures to achieve project sustainability goals, however it does not appear the costs of these measures have been captured in the cost estimate.
Resilience	The proposal would improve the resilience of the Sunshine Coast's transport network, providing a competitive alternative mode if there are disruptions in the road network. This is particularly the case for the full extent of the DSCRL, which would provide more access points for local communities.
Deliverability	**The capability to deliver the proposal successfully, with risks being identified and sufficiently mitigated.**
Ease of implementation	The proponent's business case explores and recommends staged delivery of the DSCRL to meet the timelines for the 2032 Brisbane Games. Construction must reach 'practical completion' by 2031 to be operational for the Games, though this leaves minimal time for testing and commissioning, or contingency for delays. While a staged approach improves its technical feasibility, delivering Stage 1 remains a large-scale, highly complex and risky task due to time and market capacity pressures. The proponent has undertaken significant planning analysis of the proposal, however, further design development and cost accuracy is required for an investment of this scale.
Capability & capacity	The proponent identified that market capacity will be a significant issue due to work associated with the 2032 Brisbane Games, plus the strong rail and road project pipeline and the clean energy transition. There are further acute pressures, such as the limited number of contractors that can deliver ETCS Level 2, which may drive up costs and reduce competitive tension. Infrastructure Australia's 2023 *Infrastructure Market Capacity* report also highlighted quarry products are a key supply risk over the next decade for South East Queensland. Despite these market conditions, the proposal's capital cost estimate uses very low escalation

	rates over the next several years (e.g., 0.82% in FY2024/25, 1.08% in FY2025/26), as per Queensland Government's cost escalation guidance. While the business case notes that these escalation rates are under review, we strongly recommend that the cost estimate is updated with more appropriate cost escalation rates before an investment decision is made.
Project governance	The governance model is relatively high-level for the scale of the proposal. The proponent has assessed an appropriate range of procurement models and recommends: • A line-wide package (e.g., signalling, overhead catenary, systems integration, etc.) procured through an Alliance model • A greenfield civil package from Beerwah to Bells Creek (rail line, stations, etc.) procured through an Incentivised Target Cost (ITC) model, based on a Design & Construct contract • A greenfield civil package from Bells Creek to Caloundra also procured through an ITC model • A brownfield package procured through an Alliance model We agree with the analysis of the preferred packaging options but note that market sounding is critical to verifying this approach and the market's appetite.
Risk	There are significant risks with delivering Stage 1 on-time and within budget due to several outstanding uncertainties and the 2032 delivery constraint. Key risks include: • Environmental approval timeframes and costs, including EPBC referral and engaging with traditional owners • Only limited geotechnical assessment has been undertaken so far • Formal market sounding has not yet been conducted • Inputs and assumptions are high level, resulting in a low level of confidence of the cost estimate • A change management plan has not yet been developed • Cultural heritage management, with the Kabi Kabi First Nations Traditional Owners Native Title Claim Group having an active claim over the project area. Other key risks identified by the proponent are property resumptions, managing construction impacts and managing public utility plant. The business case states that environmental approvals will take up to three years. During this time, the Stage 1 proposal would need to undertake early works design and construction, as well as procuring and commencing design for civil and line-wide packages. Construction of civil packages is scheduled to start at the same time as environmental and cultural heritage approvals are finalised, meaning there will be limited scope to consider design changes from these approval processes.
Lessons learnt	The proponent has made clear efforts to learn from previous and current projects in Queensland. Stakeholder engagement was a key area of applying lessons learnt, such as having a Queensland Rail Interface Manager co-located with the proposal team. Other lessons learnt follow general good practice, such as regular meetings with key stakeholders, undertaking genuine community consultation and engaging with other departmental project teams when developing cost estimates. The proponent is also taking steps to document lessons learnt from the development of this proposal, which would be valuable input into planning work for Stage 2 and Stage 3. The proponent has developed a benefits realisation plan but states that further detailed planning for this would take place in the next phase of the proposal, and that it would align with TMR's Post Implementation Review template. If the proposal proceeds, we recommend that the detailed planning capture the full Post Completion Review requirements included in the Infrastructure Australia Assessment Framework (Stage 4).

Economic appraisal results (preferred option)

The proponent's CBA of Stage 1 reports that the economic costs of the proposal will outweigh the social, economic and environmental benefits, with a BCR of 0.15 and an NPV of -$3,382 million at a 7% discount rate. Including Wider

Economic Benefits[2], the BCR is 0.19 and the NPV is -$3,210 million.

At a 4% discount rate, the proponent estimates the BCR is 0.29 with an NPV of -$3,541 million. The proponent recommends considering the 4% discount rate results to reflect the intergenerational nature of benefits from the proposal.

Sensitivity testing across a wide range of different assumptions and scenarios, and taking into consideration potential upside benefits, demonstrates that the costs of the proposal are still likely to significantly outweigh its benefits.

[2] Including agglomeration, labour supply and imperfect market benefits

	Discount rate:	4%	7% (central)	10%
Core evaluation results[1]	**BCR:**	0.29	0.15	0.09
	NPV ($m):	-$3,541	-$3,382	-$3,041
Results with WEBs, if applicable[2]	**BCR:**	0.37	0.19	0.12
	NPV ($m):	-$3,175	-$3,210	-$2,947
Key benefits measured:	The proponent has undertaken an extensive analysis of the proposal's economic impacts, with benefits to public transport users, road users and the broader community estimated. The largest benefits are: • Travel time savings for public transport users (38% of total benefits) • Travel time savings for continuing road users (22% of total benefits) • Improved health outcomes for people now walking or cycling to stations (18% of total benefits) We recognise that the CBA results for the proposal do not capture potential land use benefits, which the proponent only estimated for the full six-station DSCRL option (Beerwah to Maroochydore). For that option, land use benefits increased the core scenario benefits by 36%, resulting in a BCR of 0.21. The staged proposal is also likely to generate some land use benefits, though not of the same scale.			
Key observations and issues	We commend the proponent for undertaking a wide range of sensitivity testing on key parameters and different scenarios, including longer appraisal periods and different land use assumptions. The appraisal aligned with Infrastructure Australia's Assessment Framework in the majority of areas. Some limitations of the analysis are: • Potential land use benefits for the staged proposal not estimated (as noted above) • Construction disruption impacts are not estimated, though we note much of the rail corridor is in greenfield areas • Carbon emissions from construction not included in the CBA • Option and non-use value may be overstated, as parameters assume that users currently have no public transport access – this is unlikely for many areas that currently do have bus services. However, these limitations are unlikely to have a material impact on the overall findings of the proponent's economic appraisal.			

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

(2) Including agglomeration, labour supply and imperfect market benefits

Proposal development

The proposal has a long development history, with an initial assessment of the CAMCOS corridor in 1998, protection of the corridor in 2001, a Strategic Assessment of Service Requirement (SASR) in 2010, a Preliminary Evaluation approved in 2023, and development of the business case by early 2024.

The business case has been prepared in a highly compressed timeframe and we recognise the significant volume of work and collaboration that the proponent undertook in this short period. We note that the Preliminary Evaluation and business case have largely focused on rail solutions. Two bus alternatives were considered - a localised bus network enhancement and a major fully dedicated Bus Rapid Transit (inc. tunnelling) option. In our view, a more fit-for-purpose bus option could have been considered, particularly in response to the demand for greater public transport within the Sunshine Coast between Caloundra and Maroochydore.

The business case itself assesses two full DSCRL options through CBA and multi-criteria analysis:

- Four stations: Nirimba, Caloundra, Birtinya and Maroochydore

- Six stations: Mountain Creek, Aroona, Nirimba, Caloundra, Birtinya and Maroochydore.

It recommends the six-station option based on greater patronage, network integration, resilience and other factors. The business case then considers two different staging options to meet the 2032 Brisbane Games timeframe:

- Stage 1: delivery from Beerwah to Caloundra, with the rest of the line indicatively by 2040
- Stage 1 and 2: delivery from Beerwah to Birtinya, with the rest of the line indicatively by 2040.

The Queensland Government has identified Stage 1 as their preferred option, though aims to continue undertaking pre-delivery work for Stage 2 to Birtinya, such as site investigations and cost development, as well as updated corridor protection to Maroochydore.

The evidence in the business case indicates that the remainder of the program faces similar challenges to the first stage, including significant environmental impacts, relatively low patronage forecasts and program costs that are likely to outweigh its benefits. The overall program still has a limited impact on public transport usage.

The proponent completed CBA scenarios of delivering the full DSCRL and delaying delivery of future stages. The analysis demonstrated the following results when discounted at 7%:

- Full DSCRL six-station option delivered as one package produces a BCR of 0.17 and NPV of -$6,696 million
- Delivering Stage 1 (Beerwah to Caloundra) and delaying Stages 2 (Caloundra to Birtinya) and Stage 3 (Birtinya to Maroochydore) to 2040 produces a BCR of 0.12 and NPV of -$5,953 million

The result of delaying future stages is lower than the full DSCRL and Stage 1 due to the higher costs and the benefits realisation commencing in 2040.

Proposal engagement history

The *Infrastructure Priority List* includes an early-stage proposal for Sunshine Coast transport connectivity – Caloundra-Maroochydore. This recognises that transport connectivity and capacity on the coastal corridor is a nationally significant problem. While Stage 2 and Stage 3 of the DSCRL respond to these problems, Stage 1 of the proposal covers the section between Caloundra and Beerwah which is not part of the study area in the early-stage proposal.

The proponent completed an options analysis with a Preliminary Evaluation that examined solutions to addressing the transport connectivity and capacity problems – identifying passenger rail as the preferred solution. The proponent did not formally submit a Stage 2 (Options Analysis) submission to Infrastructure Australia. However, through early engagement with the proponent in 2023, Infrastructure Australia provided advice on the project and recommended:

- reconsidering and rigorously assessing if comparable bus rapid transport options, road enhancements or lower cost rail options could address the identified problems
- consider the potential for alternative options to be packaged with non-infrastructure strategies and measures to support increased mode shift such as planning and policy mechanisms.

Recommended for Priority List: June 2022

For the section on the Sunshine Coast between Caloundra and Maroochydore

Not submitted for Priority List consideration

Not recommended for the Priority List: 8 April 2024

Detailed economic appraisal results

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

Benefits and costs breakdown

Proponent's stated benefits and costs	Present value ($m, 2023)			% of total for 7% results
Discount rate (real)	**4%**	**7%**	**10%**	
Costs				
Total capital costs (P50)	$3,866.6	$3,400.5	$3,004.5	85%
Rail operating costs	$1,033.5	$530.7	$307.5	13%
Bus operating costs	$101.3	$53.4	$31.6	1%
Total costs[1,2]	**$5,001.4**	**$3,984.5**	**$3,343.6**	**100%**
Benefits				
Public transport – travel time savings	$501.7	$227.3	$119.6	38%
Public transport – station amenity benefits	$3.2	$2.3	$1.6	0%
Public transport – farebox resource cost correction	$58.4	$28.0	$15.4	5%
Road – travel time savings	$304.0	$133.8	$68.1	22%
Road – vehicle operating cost savings	$110.5	$51.9	$27.7	9%
Road – travel time reliability	$4.5	$2.1	$1.1	0%
Safety improvements	$11.8	$5.8	$3.3	1%
Avoided environmental externalities	-$32.6	-$15.3	-$8.2	-3%
Avoided GHG emissions	$18.1	$7.4	$3.5	1%
Avoided road maintenance	$3.0	$1.3	$0.7	0%
Improved health outcomes	$230.0	$110.3	$60.6	18%
Residual value	$247.7	$47.5	$9.6	8%
Total benefits[1]	**$1,460.3**	**$602.4**	**$303.0**	**100%**
Net present value (NPV)[3]	**-$3,541.1**	**-$3,382.1**	**-$3,040.6**	**n/a**
Benefit-cost ratio (BCR)[4]	**0.29**	**0.15**	**0.09**	**n/a**
Total Wider Economic Benefits (WEBs)	**$365.8**	**$172.2**	**$93.2**	**100%**
Total benefits, including WEBs[1]	**$1,826.1**	**$774.6**	**$396.2**	**n/a**
Net present value (NPV), including WEBs[3]	**-$3,175.3**	**-$3,209.9**	**-$2,947.4**	**n/a**
Benefit-cost ratio (BCR), including WEBs[4]	**0.37**	**0.19**	**0.12**	**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.