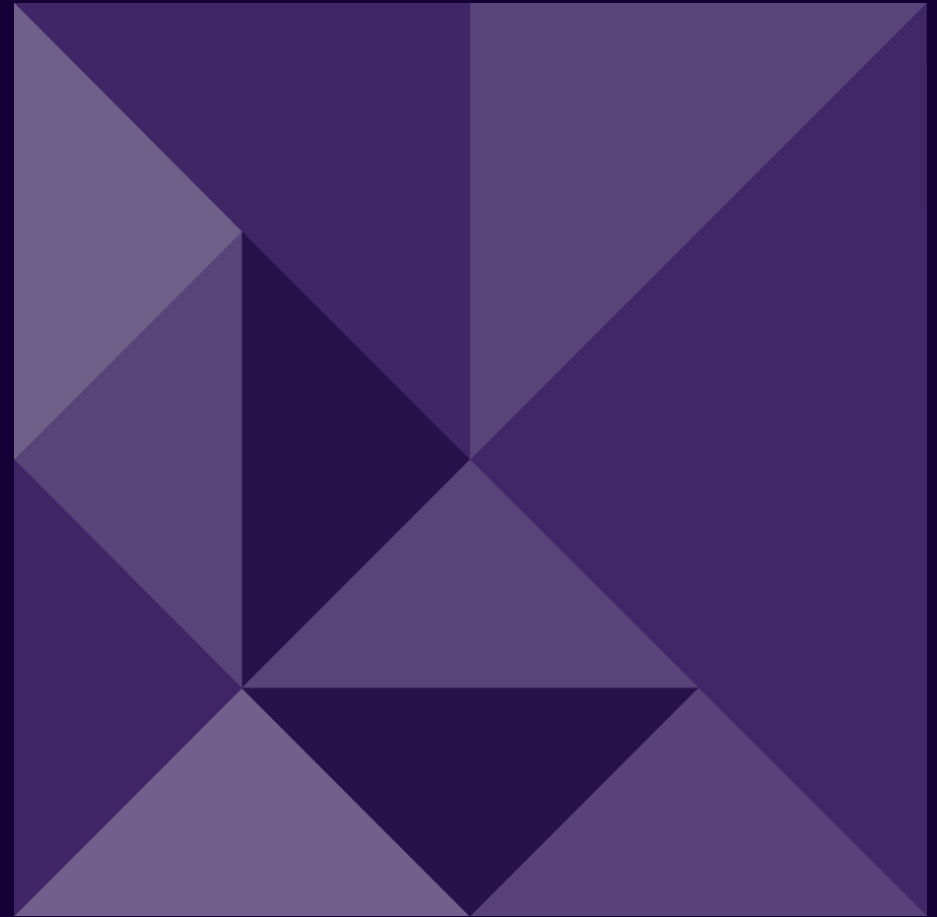


14 June 2021

# Preliminary Benefit Cost Assessment of One Mile Jetty Redevelopment

Final report



**ACIL ALLEN**

# Introduction and about this report

## Introduction and situation

ACIL Allen has been engaged by the Gascoyne Development Commission to complete an options analysis, benefit cost assessment and business case centred on finding a solution to the dilapidation of the historic One Mile Jetty in Carnarvon. The scope of services is based on the development of a traditional Treasury Business Case, with situation analysis, options assessment and impact assessment at its core.

The engagement initially began with a high level list of five options for consideration. Following initial advice from its engineering partner BMT Group, ACIL Allen recommended a variation to the scope of services to more specifically define a series of investment case options, increasing the list of options to 22 (including a demolition option and a do nothing option).

In recent months three major changes have occurred which have altered the situation since ACIL Allen was engaged:

- An election commitment made by the State Government to provide \$4.5 million to “repairing the One Mile Jetty”
- A storm surge associated with Cyclone Seroja which destroyed a significant portion of the Jetty structure (see Figure 1).
- The development of a Building Better Regions Fund application by the Shire of Carnarvon and Carnarvon Heritage Group

These three events have resulted in an increased urgency to complete the preliminary analysis of the benefits and costs of maintaining the One Mile Jetty in some form. In order to address these, ACIL Allen has prepared a preliminary **Benefit Cost Assessment**, assessing the costs and benefits of undertaking a staged investment in the One Mile Jetty as part of a broader redevelopment. This assessment is based on the “staging” of a

rebuild of the Jetty structure in three parts, being:

- Stage 1: Delivery of the Western Australian Government’s \$4.5 million election commitment to “repair” the One Mile Jetty. This stage is based on an initial heritage material recovery program, and re-build of approximately 450 metres of the Jetty from the base, including 100 metres of the Jetty as a full heritage restoration.
- Stage 2: The addition of \$9 million in funding as part of the Shire of Carnarvon’s Building Better Regions Fund application, to advance the length of the Jetty to the deep water line off the coast.
- Stage 3: Further redevelopment of the Jetty, with the extent to be determined following a decision on Stage 2 and the commencement of ACIL Allen’s broader engagement.

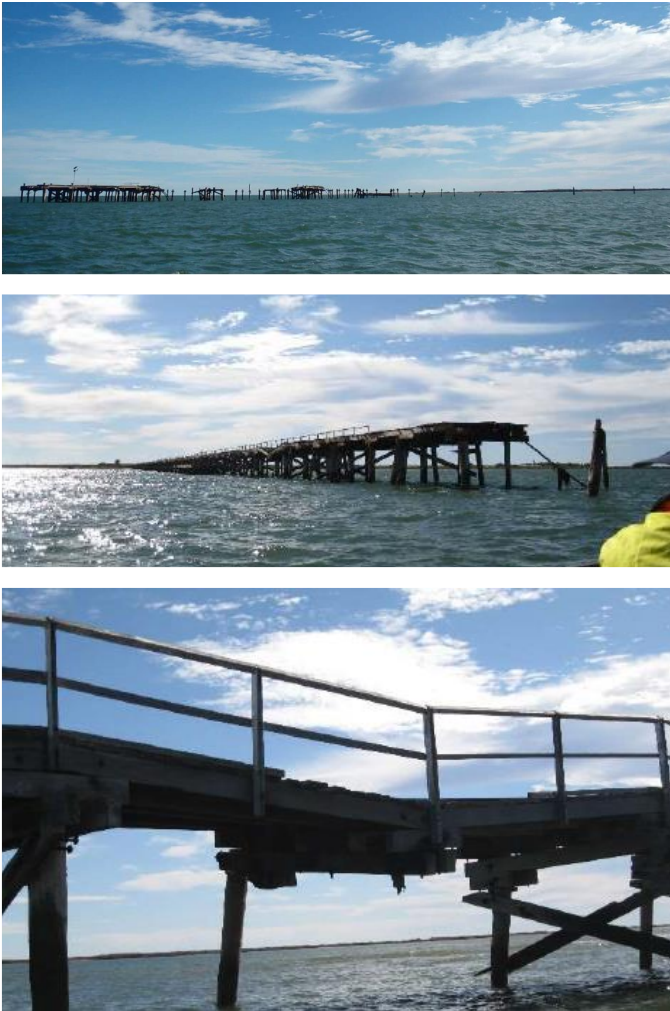
This Benefit Cost Assessment is based on the progression of the redevelopment of the Jetty from Stage 1 to Stage 2.

## About this report

This report presents the results of ACIL Allen’s rapid Benefit Cost Assessment of Stage 2 of the One Mile Jetty redevelopment. It is based on the inputs and assumptions derived from the Shire of Carnarvon’s Building Better Regions Fund application in support of the redevelopment, isolating the impacts of a decision to progress from Stage 1 of the build to Stage 2. The extent of the redevelopment in the context of the overall infrastructure is visualized on the next page.

This first section of the report provides a summary of the assessment, as well as non-quantified benefits and costs which are material to the decision to invest. The second section provides additional details on the benefits, costs and their calculation.

Figure 1: Damage to One Mile Jetty following Cyclone Seroja



Note: Visuals courtesy of Gascoyne Development Commission

# The investment proposal: Redeveloping the One Mile Jetty to the coastline

The proposed staging of the One Mile Jetty Redevelopment is presented in Figure 2. As indicated in the figure, the State Government's 2021 State Election Commitment is sufficient to progress the redevelopment of the One Mile Jetty to the extent of the mangroves on the shore, with no access provided to shallow or deep water.

Progressing to Stage 2 of the redevelopment, with the inclusion of the funding provided under the Building Better Regions Fund, will allow the One Mile Jetty to extend to deep water. This provides additional recreation and heritage preservation opportunities, as well as improving the visual amenity and attractiveness of the Jetty versus a shorter redevelopment.

For both Stage 1 and Stage 2, it is proposed modern construction materials will be used for structural members of the Jetty (piles, stringers, half caps etc) such as concrete and steel, while timber will be used for visual members (the deck, handrailing etc). The exception to this is the first 100 metres of Stage 1, which will be rebuilt to a full heritage standard including timber piles. This is to ensure the heritage of the infrastructure is maintained to the extent possible within the constraints of the proposal.

Figure 2: Proposed staging of One Mile Jetty redevelopment



# Benefit Cost Assessment: Summary

## Summary of the assessment

The Benefit Cost Assessment of the BBRF-funded investment in the Carnarvon One Mile Jetty is based on the realisation of three financial costs and five economic and social benefits. These are presented in Figure 3 (in present value terms).

Overall, the preliminary Benefit Cost Assessment of the BBRF-funded investment in the Carnarvon One Mile Jetty is estimated to result in (present value terms at a 7% discount rate):

- Total costs of \$13.3 million
- Total benefits of \$15.3 million
- A net benefit of \$2.0 million

On this basis, the BBRF-funded investment in a portion of the One Mile Jetty is projected to generate a Benefit Cost Ratio ('BCR') of 1.15. The specific benefit and cost streams are discussed on the following pages.

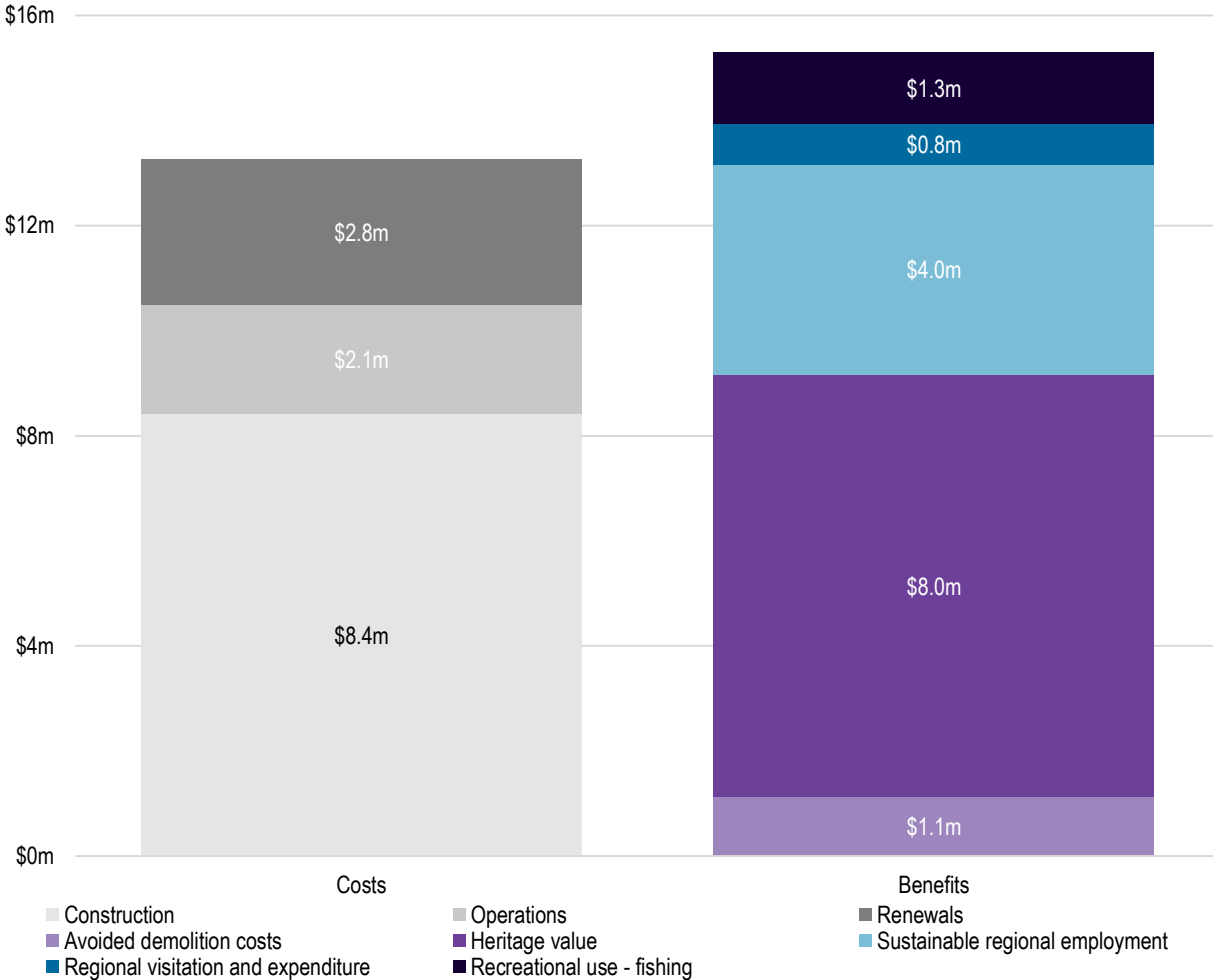
**This preliminary Benefit Cost Assessment supports a decision to invest in this stage of the One Mile Jetty redevelopment,** as the project has a positive BCR in present value terms. This means a decision to

invest in the One Mile Jetty delivers greater returns than an alternative investment which earns the chosen discount rate of 7% in annual returns.

The largest benefit stream is related to the restoration, or avoided loss, of the heritage value of the One Mile Jetty. This benefit is valued at \$8.0 million in present value terms, going a long way to offsetting the capital cost of the investment in a BCA framework. Other benefit streams include creation of sustainable regional employment (\$4.0 million), recreational use of the Jetty for fishing (\$1.3 million), avoided demolition costs for this portion of the Jetty (\$1.1 million) and regional visitation benefits (\$0.8 million).

These are adequate to offset the financial costs of this portion of the Jetty, noting there is a consideration required as to how these financial costs will actually be funded during the operations. This is likely to be a matter for the broader process which is underway to assess the benefits and costs of a full redevelopment of the One Mile Jetty. Further details are provided in the following pages.

**Figure 3: Benefit cost assessment of BBRF investment in the Carnarvon One Mile Jetty, \$m present value (7% discount rate)**



# Benefit Cost Assessment: Non-quantified benefits and costs

## Non-quantified benefits and costs

There are a number of additional benefits and costs associated with the decision to invest in this portion of the One Mile Jetty which were unable to be quantified for this assessment. These are discussed, and their implications for the quantitative BCA considered, in Figure 4.

It is important to reinforce one item in particular: avoided injuries and deaths. ACIL Allen understands despite the closure of the Jetty there are still a number of instances where the infrastructure is accessed in an unsafe manner. However no data is available to support this, or the quantification of the avoided costs. The quantification of the cost of injuries and death could be significant if data were available which discussed the extent of incidents and their nature at the Jetty today. Typically the economic and social cost of a single death is to be valued at over \$4.5 million according to the Department of Prime Minister and Cabinet.

It is also important to reinforce that a decision to invest in this stage of the One Mile Jetty redevelopment is supportive of future decisions to

undertake further investment. This is because the cost of such investments, which may be born by non-Commonwealth funding parties, would be reduced. This in turn would assist in unlocking further benefits including potential commercialisation and activation opportunities associated with further extending the extent of the Jetty structure.

There are limited non-quantified costs included in this preliminary BCA, for a number of reasons. First, there are limited environmental impacts as the investment will not result in the disturbance of additional land beyond areas which are already disturbed. The isolation of the Jetty structure from residential populations means there is limited visual or acoustic amenity impacts. The unique nature of the Jetty infrastructure means there is limited prospect of crowding out or capture of visitation or spend from other tourism assets.

On balance, it is likely the non-quantified benefits and costs would be positive for the overall BCA, as the majority of these reflect the realisation of additional benefits and avoidance of additional costs.

Figure 4: Unquantified benefits and costs of proposal

Benefit or cost	Stream name	Description	Impact on BCA / BCR if quantified
Benefit	Avoided cost of injuries and deaths.	There is anecdotal evidence people have continued to access the One Mile Jetty following its closure in 2017 despite its dilapidation. The area also remains popular for boating despite submerged piles posing a risk. This raises the risk of incidents where people are injured due to the poor condition of the structure. At the most extreme people could receive fatal injuries. This is not quantifiable as there is no record of incidents made available to ACIL Allen.	Positive impact, due to avoided costs associated with refurbishment.
Benefit	De-risking future investment	Undertaking this stage of the One Mile Jetty assists in de-risking future decisions to invest in a full redevelopment of the Jetty as the length of the next stage of investment is reduced. This assists in lowering capital costs for future investments, potentially improving the ROI for these stages.	Positive impact, due to lowering future capital costs and de-risking investment.
Benefit	Commercial development opportunities	Investment in this stage of the One Mile Jetty assists in driving commercial outcomes for the One Mile Jetty Interpretive Centre, and other businesses in the Shire of Carnarvon, by improving foot traffic to the area and region.	Positive impact, albeit not possible to quantify without hard evidence.
Costs	Construction disruption	Construction of this section of the One Mile Jetty may result in some disruption to individuals and businesses.	Slight negative, although isolation of infrastructure will mitigate
Costs	Environment disturbance	The existing footprint of the One Mile Jetty will not be expanded in this stage, meaning environmental impacts are negligible.	Negligible, hence decision to leave as unquantified

# Benefit Cost Assessment: Summary

## Summary

Overall, the Benefit Cost Assessment on the proposed staged investment in the One Mile Jetty funded by the BBRF supports a decision to invest in the facility. The quantifiable benefits exceed the costs in present value terms (meaning the economic and social return on investment exceeds 7% per annum), and on balance the non-quantified benefits and costs would likely improve the BCR.

Importantly, a decision to undertake this investment will assist in supporting future decisions to fund further investment in the One Mile Jetty and return it to its full extent. Returning the Jetty to the water line, allowing residents and visitors to use the facility for recreation, will maintain the community's connection to the asset.

Notwithstanding, there is an important decision to be made regarding ongoing management and funding of the operations and maintenance of the One Mile Jetty. This is not currently considered as part of this Benefit Cost Assessment.

ACIL Allen estimates the operations and maintenance expenditure associated with this stage of the facility total \$309,000 per annum in real (inflation-adjusted) terms. Maintenance activity will not commence immediately due to the strength of the materials used in construction. However, a funding source will need to be identified before this occurs.

Figure 5: Summary and future directions

The quantitative Benefit Cost Assessment supports a decision to invest in this stage of the redevelopment of the One Mile Jetty.

ACIL Allen finds a decision to invest in this stage of the One Mile Jetty redevelopment has a Benefit Cost Ratio of 1.15.

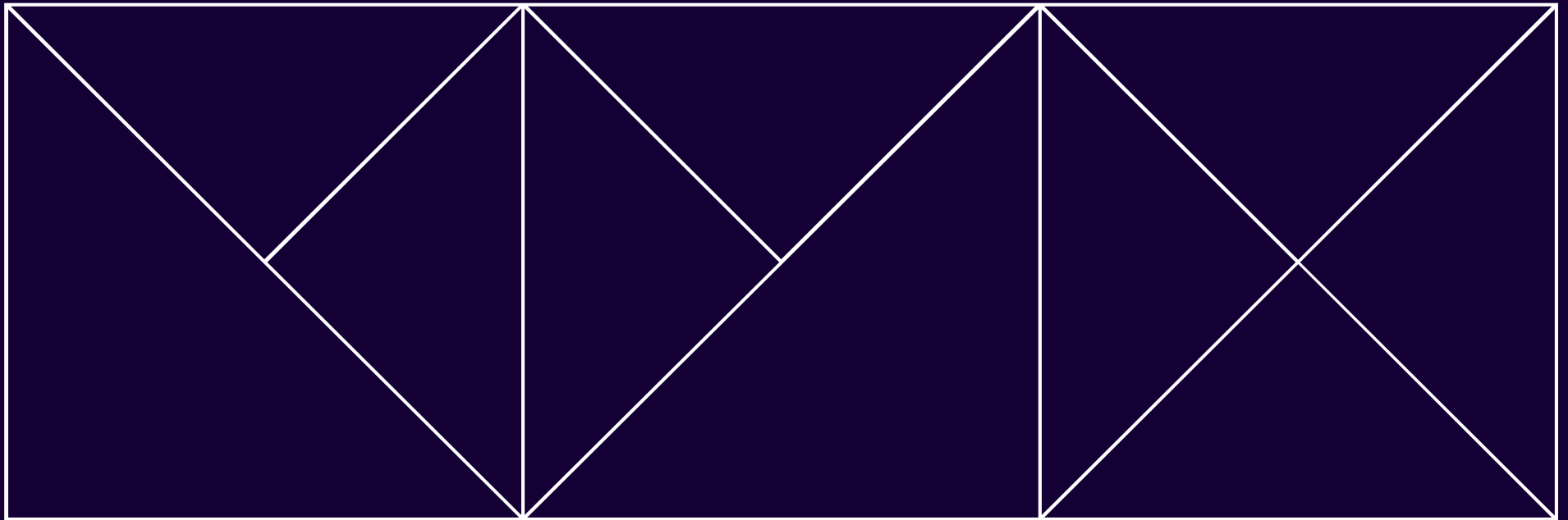
For every \$1 of costs, \$1.15 worth of benefits are created. The benefits are broad-based and reflect the multiple uses of the infrastructure.

Non-quantified benefits and costs are likely to further tip the scales towards a decision to invest in the redevelopment.

This is particularly true for two benefits: safety, and aiding future redevelopment and the associated economic benefits this could unlock.

Further work is required to address funding for the ongoing maintenance (post five years) of the One Mile Jetty, to ensure it is managed to a high standard and a repeat of the previous deterioration is avoided.

## Additional details



# Overall input and assumptions, and sensitivity testing

## Critical assumptions

Critical modelling assumptions required to underpin the benefit cost assessment are outlined in Figure A1 below.

Figure A1: Critical assumptions

Assumption	Value	Source/s
Modelling period	30 years	Generally considered the maximum length of a BCA despite design life of 50 years
Inflation adjustment	2.5%	Middle of the RBA's long run inflation target band.
Discount rate	7%	In line with central agency requirements. Sensitivity testing conducted to the right

## Sensitivity testing

A series of sensitivity tests on the assumptions used to develop the benefit cost assessment are provided below. The sensitivity testing demonstrates the importance of managing the cost of the redevelopment, as any significant upward revision to the capital cost would push the assessment into a negative position. However the sensitivity testing also demonstrates the conservative treatment of benefits, with significant upside built in across all benefit streams.

Figure A2: Benefit cost assessment sensitivity testing

Scenario	What changes	PV (\$m) Impact	BCR Impact (+/-)	Comments
Capital cost increase	The capital cost of building this stage of the project is 20% higher.	-\$0.64m (-\$2.65m)	0.96 (-0.19)	A higher capital cost results in the project delivering a negative BCR. This also impacts on the operating expenses of the project.
Heritage value is overstated	The heritage value of the One Mile Jetty is 50% of the assumed value	-\$1.99m (-\$4.01m)	0.85 (-0.30)	This underscores the importance of maintaining and promoting the heritage value of the One Mile Jetty as part of the redevelopment project.
Higher discount rate	The discount rate applied is 10%, rather than 7%	\$1.41m (-\$0.60m)	1.12 (-0.03)	A higher discount rate has a limited impact on the BCA as the benefits and costs are skewed towards the start of the modelling period.
Lower discount rate	The discount rate applied is 4%, rather than 7%	\$2.92m (+\$0.90m)	1.18 (+0.03)	A lower discount rate has a limited impact on the BCA as the benefits and costs are skewed towards the start of the modelling period.
Visitation benefits are higher than estimated	The number of visitors to the One Mile Jetty increases by 20,000 per annum, rather than 5,000	\$4.33m (+\$2.31m)	1.33 (+0.17)	Given the conservative treatment of visitation benefits in the base case, any upward revision to the uplift in visitors has a material impact on the BCA.



# Quantification of benefits: Detailed inputs and assumptions

The benefit streams considered in the Benefit Cost Assessment are outlined in Figure A3. In total there are five benefit streams, reflecting the quantifiable benefits and avoided costs associated with a decision to invest in this stage of the One Mile Jetty redevelopment.

Overall ACIL Allen estimates the benefits of investing in this stage of the One Mile Jetty redevelopment are valued at \$15.3 million in present value terms (7% discount rate). In real (inflation-adjusted) terms the benefits are valued at \$21.9 million over the 30 year modelling period.

These benefits are compared to the costs as part of the BCA framework.

**Figure A3: Quantification of benefits of One Mile Jetty redevelopment Stage 2**

Stream	Basis	Quantification method	Source/s
Avoided demolition costs	This benefit arises as a decision to rebuild the Jetty avoids a future decision to demolish this section of the structure for no gain.	ACIL Allen estimates the value of avoided demolition costs using the BMT Group draft Technical Note prepared to support the long list Options Assessment. This analysis found that demolition of the Jetty between the “short” redevelopment options and the “partial” redevelopment options would cost ~\$1.2 million. This is included as a benefit, accruing in the first year of the study.	BMT Group draft Technical Note on One Mile Jetty Options Assessment Long List
Maintaining heritage value	This benefit arises as a decision to rebuild part of the Jetty contributes to the restoration of the heritage value of the infrastructure.	ACIL Allen estimates the heritage value of the One Mile Jetty using the Replacement Cost method, as per established social valuation literature. The heritage value of the One Mile Jetty is worth at least the financial cost of a complete, like-for-like redevelopment. This is costed at \$37.6 million by BMT Group. This project results in ~24% of the Jetty being rebuilt, resulting in the realisation of 23% of this value.	BMT Group draft Technical Note on One Mile Jetty Options Assessment Long List Navrud, S. 2005. <i>Valuing cultural heritage</i> . Structural Studies, Repairs and Maintenance of Heritage Architecture IX
Sustainable regional employment	Regional employment creation is a central policy objective of the BBRF application. This project will support employment.	The Shire of Carnarvon’s BBRF submission contends eight direct jobs will be supported by a decision to invest in the combined Stage 1 and Stage two of the One Mile Jetty redevelopment. ACIL Allen assumes four of these jobs are due to the Stage 2 investment. The jobs are valued at an FTE wage of \$65,000 per annum being the average of the sector in 2021.	Shire of Carnarvon BBRF application. Australian Bureau of Statistics.
Regional visitation and expenditure	The One Mile Jetty is a significant tourist attraction for the Shire of Carnarvon. Improvement in the amenity will drive visitation.	Data regarding visitation and expenditure associated with the One Mile Jetty is limited. Anecdotal evidence suggests between 5,000 and 100,000 people visit the infrastructure per annum. As a conservative assumption ACIL Allen has modelled the low end of this range, and valued individual visitor trips at \$10 per head to reflect purchase of a light meal/coffee in the region.	Shire of Carnarvon BBRF application/
Recreational uses - fishing	This stage of the One Mile Jetty redevelopment allows access to deeper water. This will allow users to fish from end of the Jetty.	The value of recreational fishing is based on the Oregon State University Recreational Use Values database, which tracks studies undertaken in the United States of America on the contingent value individuals place on participation in free or low fee outdoor recreation. The value for saltwater fishing is converted to 2021 Australian dollars at market exchange rates and CPI. It is assumed there are 706 recreational fishers in Carnarvon, in line with the latest Department of Fisheries participation survey (13.9% of population of 5,077)	Oregon State University. 2016. <i>Recreational use values database</i> . Accessed online at <a href="http://www.oregonstate.edu/">http://www.oregonstate.edu/</a>  Department of Fisheries 2018-19 fishing participation survey

# Quantification of costs: Detailed inputs and assumptions

The cost streams considered in the Benefit Cost Assessment are outlined in Figure A4. In total there are five benefit streams, reflecting the quantifiable benefits and avoided costs associated with a decision to invest in this stage of the One Mile Jetty redevelopment.

Overall ACIL Allen estimates the costs of investing in this stage of the One Mile Jetty redevelopment are valued at \$13.3 million in present value terms (7% discount rate). In real (inflation-adjusted) terms the costs are valued at \$18.4 million over the 30 year modelling period.

These costs are compared to the benefits as part of the BCA framework.

**Figure A4: Quantification of costs of One Mile Jetty redevelopment Stage 2**

Stream	Basis	Quantification method	Source/s
Capital costs	This cost stream arises due to the decision to invest in the project.	The capital cost has been developed using the Shire of Carnarvon’s BBRF funding submission, adopting a rounded figure of \$9 million to reflect the need to define the full extent of the staging once the funding for the project is confirmed.	Shire of Carnarvon BBRF funding submission.
Operations and maintenance costs	This cost arises due to the need to provision for the ongoing management of the One Mile Jetty.	ACIL Allen assumes the operating costs of the One Mile Jetty and surrounding precinct will not change substantially as a result of the decision to invest in this stage of the project. However, as a conservative assumption, ACIL Allen assumes an operational expenditure ratio of 1.5% of capital costs applies in line with guidance notes for marine infrastructure.	ACIL Allen assumption
Renewals expenditure	The One Mile Jetty will require ongoing maintenance capital to ensure it is in working order.	ACIL Allen assumes a renewals budget of 2% of capital costs per annum applies, reflecting a design life of the infrastructure of 50 years (ie 2% renewals per annum is equal to depreciation expenditure).	ACIL Allen assumption

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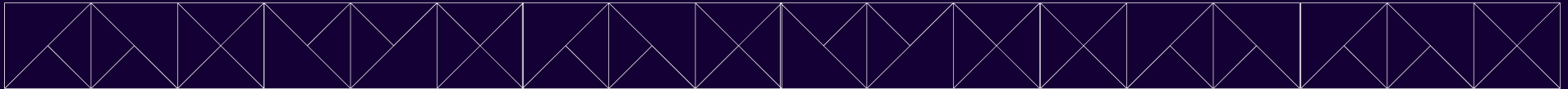
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