



# Circular Quay Renewal



**PURPOSE OF EVALUATION**  
Proposal seeking funding



**EVALUATION OUTCOME**  
Investment-ready Proposal

**ASSESSMENT  
FRAMEWORK  
STAGE**



**LOCATION**

Sydney, NSW

**GEOGRAPHY**

Fast-growing cities

**SECTOR**

Transport

**OUTCOME CATEGORY**

Asset Renewal

**PROPONENT**

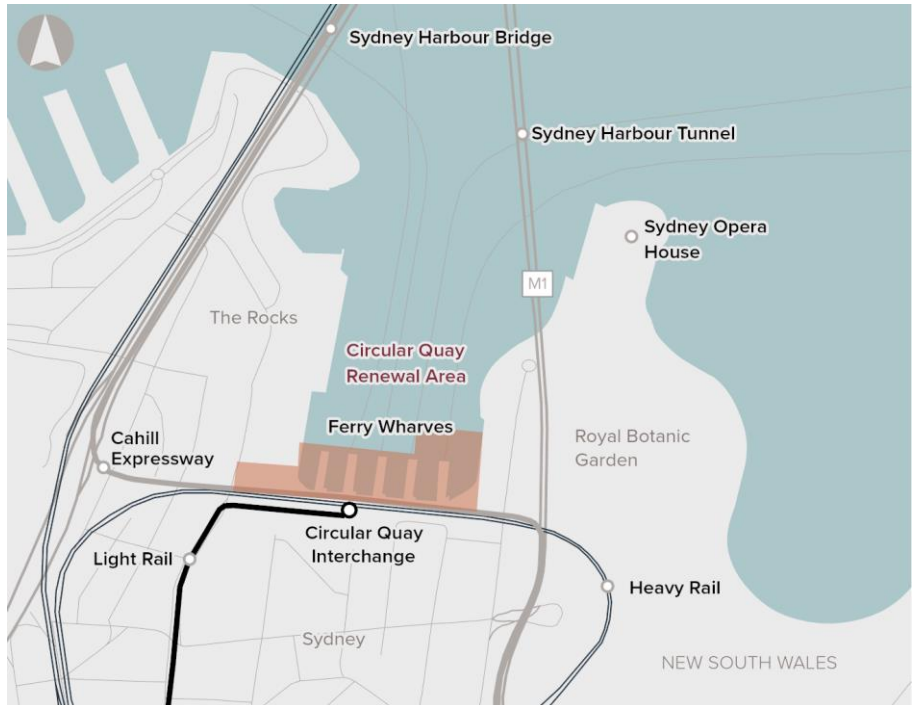
NSW Government

**INDICATIVE DELIVERY TIMEFRAME**

Construction start: January 2025  
(enabling works to commence in 2022)  
Completion by: Q2 2028

**EVALUATION DATE**

12 April 2022



**CAPITAL COST**

\$973.0 million (P50, outturn)  
\$1,049.8 million (P90, outturn)

**FUNDING SOUGHT (P50)**



## Review summary

Infrastructure Australia has evaluated the business case for **Circular Quay Renewal** in accordance with our Statement of Expectations, which requires us to evaluate proposals that are nationally significant or where Australian Government funding of \$250 million or more is sought. As a result of our assessment, **Circular Quay Renewal has been added to the Infrastructure Priority List as an Investment-ready proposal.**

Circular Quay is a popular gateway to many of Sydney’s cultural destinations and one of Sydney’s most important and iconic transport interchanges and public spaces. Despite Circular Quay’s strategic importance, transport infrastructure is deteriorating, with the wharves and promenade approaching their end of life. Amenity is poor and public spaces are disjointed and managed by multiple parties, resulting in safety concerns and diminishing visitor experience. The Circular Quay Renewal proposal seeks to update the transport infrastructure and amenities,

enhance and activate public spaces, improve retail offerings and increase awareness of and exposure to heritage assets and First Australians cultures and history.

The proposal demonstrates alignment with local and state government strategies and priorities, and embeds a place-based, holistic approach to investment that activates the broader precinct. While the cost estimate appears robust, the proposal's contingency allowance may be low for a project of this scale and in the context of current industry-wide market capacity pressures. We consider the economic appraisal to provide a thorough assessment of the economic merits of the proposal, and that, despite some limitations, it is expected to deliver net economic benefits to society. The proponent's business case states that the net present value (NPV) of the proposal is estimated to be \$292 million with a benefit-cost ratio (BCR) of 1.38.<sup>1</sup>

If the proposal progresses, a key risk pertains to the current lack of community stakeholder engagement as the proposal or its design has not yet been made public. Circular Quay has been a contested space for past projects and there could be significant public input into the planning approval, which may result in variations to the scope, cost and schedule as presented in the business case. In addition, Circular Quay is an important transport interchange, such that construction impacts will need to be carefully managed to ensure they do not impact transport operations or significantly disrupt businesses in the surrounding area.

The Circular Quay Renewal proposal would be delivered as a public private partnership (PPP) to design, construct, operate, maintain and finance the proposal. The concession term is yet to be confirmed. However, as the majority of benefits are non-commercial in nature, the contractual arrangements will need to be carefully developed to ensure the full range of the proposal's benefits are delivered.

## Proposal description

The Circular Quay Renewal proposal<sup>2</sup> will deliver:

- Five new finger wharves and a new Wharf 1 (also known as the Eastern Pontoon). The design will retain the existing configuration, while enabling more efficient operations and improved accessibility.
- An upgraded Circular Quay Station. This will include works to reveal the heritage structure, and improve accessibility and crowd flow.
- 14,500m<sup>2</sup> of additional public space as well as improvements to existing public space. This includes closure of the current eastbound lane of the Cahill Expressway viaduct.
- New and refurbished built form across three levels to the east and west of the station, and under the Cahill Expressway.
- Conservation of heritage items and views to highlight the cultural and historical significance of the renewal area.
- A comprehensive and coordinated program of major events and activations once the proposal is operational.

The business case indicates that around 800 direct jobs will be supported during the peak of the construction phase. This estimate appears to be consistent with the approach to measuring direct job impacts outlined in the [Infrastructure Australia Assessment Framework](#).

## Review themes

### Strategic Fit **The case for action, contribution to the achievement of stated goals, and fit with the community.**

<b>Case for change</b>	<p>Circular Quay is one of Australia's most significant visitor destinations, attracting 11.2 million domestic and 5.0 million international visitors in 2019.</p> <p>The transport interchange and nearby public spaces have ageing and non-compliant infrastructure, with a substandard visitor experience, characterised by contested and disconnected spaces, poor amenity and limited retail offerings.</p> <p>Without intervention, the quality of the infrastructure and user experience will continue to deteriorate. This will result in compromised transport outcomes, increased maintenance costs and potential safety implications for members of the public and staff.</p>
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<sup>1</sup> Using a 7% real discount rate and a P50 capital cost estimate.

<sup>2</sup> Further information about the proposal can be found on the [Circular Quay Renewal](#) proposal website.

<b>Alignment</b>	<p>The proposal aligns with local, state and federal policies and strategies, including:</p> <ul style="list-style-type: none"> <li>• The Greater Sydney Commission’s <i>Eastern District Plan</i></li> <li>• The INSW <i>Building Momentum State Infrastructure Strategy 2018-2038</i></li> <li>• The Destination NSW <i>NSW Visitor Economy Strategy 2030</i></li> <li>• The <a href="#">2021 Australian Infrastructure Plan</a>, which identified the need to embed a place-based approach as a key area for reform.</li> </ul>
<b>Network and system integration</b>	<p>Circular Quay Station is one of Sydney’s largest transport interchanges, providing connections between ferries, heavy rail, light rail and buses. Improving integration of the overall public transport system is an important objective of the proposal. The proposal has interdependencies with several other projects and developments, including:</p> <ul style="list-style-type: none"> <li>• Wharf upgrades across Sydney, including at Manly</li> <li>• Heavy rail investment (Sydney Metro City and Southwest, and Sydney Metro West)</li> <li>• Road investments (Western Harbour Tunnel and Beaches Link)</li> <li>• Nearby private sector property development.</li> </ul> <p>Wharf upgrades and private development are expected to complement the proposal, while heavy rail and road investments may reduce the number of public transport interchanges at Circular Quay.<sup>3</sup> The proposed wharves have been designed to accommodate the existing fleet and current known future fleet in operational scenarios under an assumed 2056 timetable.</p>
<b>Solution justification</b>	<p>A non-traditional approach has been taken in developing this proposal, with the Final Business Case underpinned by options developed as part of a structured market engagement process.</p> <p>The business case includes two options; although the analysis does not compare them, rather they have been interpreted as representing different stages of the proposal design. However, the structured market engagement process provides some confidence that the developed scope incorporates best-practice solutions, design expertise and that the proposed solution is relatively well tested.</p> <p>While the analysis provides comfort that the solution has net benefits, the project development approach (i.e. the structured market engagement process) makes it difficult to meaningfully assess if the proposed solution is the best response.</p>
<b>Stakeholder endorsement</b>	<p>The proposed vision for the renewal of Circular Quay has been endorsed by the NSW Government, although a final funding decision is yet to be made.<sup>4</sup></p> <p>There has been high level engagement with industry through the structured market engagement process, which has been supported by an independent design review panel that included observers from The Government Architect NSW and the City of Sydney.</p> <p>Although the business case states that specifications and designs have been informed by community consultation, the level of broader stakeholder support is not clear as the proposal or its design has not yet been made public. A lack of wider stakeholder support for the design is identified as a key risk for the proposal.</p>
<b>Societal Impact</b>	<p><b>The social, economic and environmental value of the proposal, as demonstrated by evidence-based analysis.</b></p>
<b>Quality of life</b>	<p>The proposal will primarily improve the amenity for visitors to Circular Quay. This includes connectivity and amenity improvements to transport infrastructure (train station, ferry wharves, light rail and bus stops) and public spaces.</p> <p>The proposal is expected to reduce pedestrian crowding, improve accessibility for mobility impaired visitors, increase public awareness of and exposure to heritage assets and ‘Celebrate Country’ by highlighting First Nations arts, cultures and history in the area. The</p>

<sup>3</sup> These impacts have been accounted for in demand forecasts for the proposal.

<sup>4</sup> Funding will be sought from NSW Treasury in the upcoming 2022-23 State Budget.

proposal aims to improve cultural outcomes from major events and activations delivered as part of the operational phase of the proposal.

<b>Productivity</b>	<p>The proposal is expected to have limited productivity impacts, as it primarily improves amenity for visitors to Circular Quay. However, the proposal would support the local and tourist economy, resulting in increased duration of stays in NSW and increased visitation.</p> <p>In the opening year (2028), a 10.1% uplift in local, interstate and international visitor trips is estimated, with further additional growth of 1.4% per year for five years. Of these additional trips, 21% are assumed to be additional demand for NSW (i.e. visits coming from outside of NSW), and 6% are assumed to be additional international tourists. This increase in visitation is expected to generate additional spending.</p>
<b>Environment</b>	<p>The proposal is expected to have a positive environmental impact through:</p> <ul style="list-style-type: none"> <li>• Net zero emissions during construction and operation, including the use of solar photovoltaic cells on wharves for green energy generation</li> <li>• Targets to reduce the volume of material going to landfill, through adaptive reuse of building waste and during the operation phase</li> <li>• Reducing demand for potable water through the collection of rainwater and incorporating operational changes to reduce water demand.</li> </ul> <p>Biodiversity will be impacted through the loss of most mature trees within First Fleet Park, although this would be offset through a tree offset and planting strategy. The proponent has completed a preliminary environmental assessment to demonstrate how environmental risks have been considered in selecting the preferred option and identify potential improvements. Further analysis of environmental impacts will be required as part of the proposal's approval pathway.</p>
<b>Sustainability</b>	<p>Desired sustainability outcomes, initiatives and targets have been identified. This includes initiatives adopting a whole-of-life approach, optimising resource efficiency, resilience, social sustainability, cultural heritage, biodiversity and sustainable procurement.</p> <p>The economic appraisal includes benefits associated with achieving net-zero emissions, tree canopy cover, health benefits due to active travel and circular economy impacts achieved through diversion from landfill and reduced potable water use.</p>
<b>Resilience</b>	<p>A preliminary climate change risk assessment and resilience assessment has informed potential adaptation measures. These include designing wharves to account for sea level rise expected to be 0.6m by 2075 at Circular Quay<sup>5</sup>, locating critical services above the current flood level and making provisions for urban cooling infrastructure. The proposal is also expected to improve wharf and interchange resilience, and reduce crowding during interruptions to services.</p> <p>The business case also identifies ageing power supply infrastructure which services Circular Quay Station and other parts of the renewal area. This presents a range of risks, such as signalling failures and delays across the train network. The proposal includes upgrades to Sydney Trains' substation to address fire safety and redundancy issues but these were not quantified in the Cost-Benefit Analysis (CBA).</p>
<b>Deliverability</b>	<p><b>The capability to deliver the proposal successfully, with risks being identified and sufficiently mitigated.</b></p>
<b>Ease of implementation</b>	<p>To progress the proposal toward delivery, the proponent will, subject to funding approval, continue to collaborate with its industry partner to refine the proposal's scope and design.</p> <p>The proponent has not yet received planning approval but has identified and commenced a planning and approval pathway involving the use of State Environmental Planning Policies and a State Significant Infrastructure declaration<sup>6</sup>. As the proposal is located</p>

<sup>5</sup> Based on the TfNSW Climate Change Risk Assessment Tool and analysis presented in the Circular Quay Renewal Preliminary Environmental Assessment.

<sup>6</sup> The State Significant Planning application approval is expected to be received by Q4 2023.

within the buffer zone of the World Heritage Listed Sydney Opera House, the proposal may also require approval under the Commonwealth Environment Protection and Biodiversity Conservation Act.

The main risks in relation to planning are that there has not been public exhibition of the proposal or its designs. Circular Quay has been a contested space for past projects and there could be significant public input into the planning approval which may result in variations to the scope, cost and schedule of the current proposal.

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### Capability & capacity

Transport for NSW (TfNSW) has experience delivering similar station renewal projects and is expected to have the required level of skill and expertise to deliver the proposal. Although the proposal's industry partner has not been officially announced, they have been selected from a competitive tendering process, providing confidence that they have the required capability to deliver the proposal.

Detailed planning, design and early works are expected to commence in 2022 and conclude in 2024, followed by the delivery phase from 2025. Infrastructure Australia's [2021 Infrastructure Market Capacity Report](#) forecasts shortages across a range of infrastructure resources critical to this proposal (i.e. structural engineers, finishing trades and labour, specialised machinery, materials such as concrete and steel) that are expected to persist until the end of 2024. These industry-wide capacity pressures need to be managed to mitigate impacts to the proposal's delivery time, scope and costs.

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### Project governance

Different governance arrangements have been developed for each phase of the proposal, including planning and design, delivery and operating phases. Governance arrangements will be confirmed as the proposal progresses. The proposal will be jointly led by TfNSW and the NSW Department of Planning and Environment, working closely with the industry partner. There is a risk that accountability may be diluted through the multiple groups involved in the governance arrangements.

A PPP procurement model has been selected to deliver the proposal, which will link the entire project lifecycle to commercially driven outcomes. However, the PPP model introduces the risk that the industry partner may focus on maximising the commercial benefits, which only comprise a small proportion of total benefits, at the expense of the non-commercial benefits, such as outcomes for public transport passengers. Mitigating this risk will require careful development of the contractual arrangements. The proponent has indicated that this will be achieved through contract key performance indicators (KPIs), which will be linked closely to the Circular Quay Renewal Benefits Realisation Plan (and therefore the non-commercial benefits) which are to be developed.

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### Risk

The main risks are a lack of broad stakeholder support for the design, and construction impacts on Circular Quay transport operations.<sup>7</sup> The lack of public engagement may be exacerbated due to the nature of the PPP procurement model, as changes to scope will not occur in a competitive market.

The proposal risk assessment has been undertaken in accordance with TfNSW's standard processes for identifying and managing risks, including the costing of risks for the purposes of the economic appraisal. The approach appears to consider all relevant risks and appropriate mitigation strategies.

The contingency allowance for the proposal is 14% of the base capital costs (P50), which may be low for a project of this scale and in the context of industry-wide market capacity pressures. Escalation was noted as a key capital expenditure risk and was based on the TfNSW Road and Rail Cost Escalation Index.

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### Lessons learnt

TfNSW has undertaken major station renewals such as Wynyard Station, and a number of wharf upgrades. However, the business case has not explicitly indicated if learnings from these projects have been incorporated into the development of this proposal. The proponent has, however, indicated that the proposal has incorporated lessons learnt regarding the procurement approach and delivery, the approach to economic analysis, and

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<sup>7</sup> Possible construction impacts include public transport service disruptions, timetable change and impacts on waterside operations. These potential impacts have not been included in the CBA.

cost estimation and risk assessment.

A benefits realisation management plan, which includes reference to Infrastructure Australia's Post Completion Review (Stage 4), has been prepared, although specific KPIs are yet to be confirmed.

## Economic appraisal results (preferred option)

The proponent's business case states that the NPV of the proposal is estimated to be \$292 million with a BCR of 1.38.<sup>8</sup>

The proponent has estimated cost and benefits for two reference groups:

- NSW residents and businesses – this assessment was undertaken to comply with NSW Treasury requirements and reflects the costs and benefits of the proposal from the perspective of NSW residents and businesses.
- Total benefits – this assessment is broadly consistent with Infrastructure Australia's requirements and is the focus of this review. This reflects the costs and benefits of the proposal to the Australian community, irrespective of the visitor's origin.<sup>9</sup>

The central base case for the analysis is referred to as the Minimum Safety and Accessibility Upgrade (MSAU) base case.<sup>10</sup> This assumes capital works on the ferry wharves are undertaken to fully comply with the Disability Discrimination Act (DDA) and Disability Standard for Accessible Public Transport (DSAPT) legislation by 2026. The NSW Government has set a target to address DDA/DSAPT compliance issues across the transport network by 2026, but these capital costs are unfunded for Circular Quay (present value capital cost of \$71 million) and present a risk to the BCR.

The proponent has drawn on a wide range of data sources to estimate Circular Quay visitation that underpins benefits estimated in the CBA. This results in a unique data set, which measures current usage of the renewal area and makes modest assumptions to infer how demand may change due to the proposal. The impact of the proposal is based on benchmarks estimated from actual projects in Australia and overseas and gives a reasonable estimate of visitation uplift. This data set enables pedestrian movements in the renewal area to be simulated, which is critical to estimating amenity benefits that are material to the analysis.

Overall, we consider the economic appraisal to provide a robust assessment of the economic merits of the proposal. Accounting for the benefits noted below which may be overstated, the proposal is expected to deliver net benefits to the community in excess of costs.

	Discount rate:	4%	7% (central)	10%
<b>Core evaluation results<sup>11</sup></b>	<b>BCR:</b>	2.00	1.38	1.03
	<b>NPV (\$m):</b>	930	292	19
<b>Key benefits measured:</b>	<p>The majority of proposal benefits (58%) are those relating to visitor experience and amenity. The remaining benefits are driven by avoided costs from the base case (18%) and the benefits of induced visitation (11%), which includes tax revenue (producer surplus) and negative crowding externalities. The proposal also results in modest disbenefits due to the closure of one lane of the Cahill Expressway, reduction in tree canopy in the renewal area and reduction in retail space.</p> <p>Several benefits have not been monetised as part of the analysis. These include:</p> <ul style="list-style-type: none"> <li>• improved sightlines, which are not captured by measures of amenity</li> <li>• operational benefits from faster berthing and double berthing</li> <li>• dis-amenity and potential disruption during construction</li> <li>• improvements in safety, such as including the benefit of lower gradient ramps on ferry wharves and provision of hearing augmentation and tactile ground surface indicators</li> <li>• improved staff facilities.</li> </ul>			

<sup>8</sup> Using a 7% real discount rate and a P50 cost estimate.

<sup>9</sup> This reference group appears to include continuing overseas visitors, but does not include induced overseas visitors. In practice this would mean that welfare benefits are measured for foreigners who visit in the base case and the project case, but not those who only visit in the project case.

<sup>10</sup> Results are also reported against a business-as-usual base case.

<sup>11</sup> Costs reported in this table are based on P50 cost estimates.

## Key observations and issues

Promenade and public domain amenity impacts are quantified using the Pedestrian Environment Review System (PERs), which applies willingness-to-pay (WTP) parameters for different pedestrian environment characteristics to the amount of time pedestrians spend in that environment. The analysis relies on qualitative ratings of public spaces, as determined by open space assessors. The proponent has proactively sought to manage potential biases of assessors. PERs is a useful tool to measure a range of amenity impacts, however there are some limitations with application to this proposal:

- WTP parameters used in PERs are based on surveys of the UK population and may not reflect Australian preferences or that of visitors to Circular Quay. Analysis undertaken by the proponent indicates that this may understate the proposal benefits.
- PERS is limited by the attributes which are monetised through the methodology. Although it captures a wide range of amenity attributes, it excludes some which are likely relevant for the proposal, such as improved sightlines to the harbour and Opera House, which may understate benefits.

A range of different approaches have been used to estimate social and quality of life impacts. While in most cases the approaches used are sound, there are some aspects where benefits may be over or understated:

- The CBA includes a benefit for improved views from the Cahill Expressway. This benefit, which is only measured for new visits, accounts for 12% of total benefits and is significantly higher than the amenity benefit measured using PERs (\$9.50 per new visit compared to around \$0.15 per continuing user). As the view is unchanged between the base and project cases, this will overstate benefits where increased visitation is primarily due to the improved amenity.
- In some cases, the parameters used in the CBA do not match the impacts of the proposal (proxies have been used). These benefits include increased exposure to culture and heritage (8% of total benefits) and better access for new and existing mobility impaired users (3% of total benefits). Where benefit parameters are uncertain, they should be included as part of a sensitivity test.

Nevertheless, the results of the CBA are robust to a range of sensitivity tests undertaken by the proponent, including a COVID-specific test (combining population impacts, increased work from home and reduced tourism).

## Proposal development

In 2018, the project team developed a range of NSW Government-led strategic options, ranging from non-infrastructure options such as timetabling and demand management, and infrastructure options ranging from meeting DDA requirements, to replacing wharves and refreshing or renewing the public domain.

The NSW Government-led options were assessed using CBA in a strategic business case. This focused on five options, all of which were estimated to have net benefits. The strategic business case recommended further development of the preferred NSW Government-led options and renewal of Circular Quay through partnership with the private sector. As such, non-binding market-led proposals were sought to renew Circular Quay through a structured market engagement. Analysis of the NSW Government-led options was discontinued before developing the business case due to capital funding constraints,<sup>12</sup> resulting in the market-led approach becoming the only option considered in the business case. This approach does not appear to have considered alternative funding sources to meet the capital costs for NSW Government-led options.

The approach used to develop and refine options has provided an innovative way to generate new ideas. The main weakness is that the level of cost associated with the options developed by market participants appears to be beyond what the NSW Government was intending to contribute, due to changes in scope and assumptions.

The options development does not appear to have considered very large-scale options such as the removal of vehicles from the Cahill Expressway, which is often noted in public discussions about Circular Quay. Although the analysis provides evidence the proposal is expected to deliver net benefits, there is some risk that another option could deliver higher net benefits.

<sup>12</sup> NSW Government-led options all had estimated capital costs of \$580 million - \$900 million (P90, nominal), which was greater than the proposal's initial funding from the NSW Government of \$200 million.

## Proposal engagement history

In 2021, Infrastructure Australia received a Stage 1 submission for the Circular Quay Renewal proposal. Before the assessment of the submission was completed, the Stage 3 (business case) submission was received, superseding the previous Stage 1 submission.



## 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, 2021/22)			% of total for 7% results
	4%	7%	10%	
<b>Discount rate (real)</b>	<b>4%</b>	<b>7%</b>	<b>10%</b>	
<b>Costs</b>				
Phase 3 (Planning and Design Phase)	\$156	\$147	\$139	19.4%
Phase 4 (Delivery Phase)	\$527	\$446	\$401	60.4%
Phase 5 (Operating Phase)	\$244	\$150	\$107	20.2%
<b>Total costs<sup>1,2</sup></b>	<b>\$927</b>	<b>\$743</b>	<b>\$647</b>	<b>100%</b>
<b>Benefits</b>				
<b>Visitor experience</b>				
Improved public transport amenity	\$571	\$319	\$199	30.4%
Improved views, promenade and public domain amenity	\$503	\$271	\$164	25.9%
<b>Renewal Area and transport interchange efficiency, safety and accessibility</b>				
Reduced pedestrian crowding during peak periods	\$16	\$11	\$7.5	1.0%
<i>Better access for new/existing mobility impaired visitors</i>	\$66	\$34	\$20	3.3%
Wharf and interchange resilience	\$2.3	\$1.5	\$1.0	0.1%
<b>Vibrant place with a unified identity</b>				
Increased exposure to culture and heritage	\$138	\$80	\$48	7.4%
<b>Innovative and sustainable design</b>				
Benefits associated with achieving net-zero emissions	\$11	\$6.7	\$4.3	0.6%
Diversion from landfill and reduced potable water use	\$2.3	\$1.3	\$0.8	0.1%
Capacity reduction on the Cahill Expressway	-\$82	-\$48	-\$31	-4.6%
Impacts of changes to tree canopy cover	\$94	\$15	\$10	3.3%
Health benefits from active travel	\$5.5	\$3.1	\$1.9	0.3%
<b>Support and grow the local &amp; tourist economy</b>				



Benefits from induced visitation	\$189	\$108	\$68	10.3%
Retail rent impacts	-\$35	-\$26	-\$16	-2.1%
Benefits associated with activations	\$118	\$65	\$44	6.5%
<b><i>Management and operational efficiencies</i></b>				
Avoided capital, major periodic and routine maintenance costs	\$246	\$180	\$144	17.1%
Residual value of assets	\$11	\$2.7	\$0.8	0.3%
<b>Total benefits<sup>1</sup></b>	<b>\$1,857</b>	<b>\$1,025</b>	<b>\$666</b>	<b>100%</b>
<b>Net present value (NPV)<sup>3</sup></b>	<b>\$930</b>	<b>\$292</b>	<b>\$19</b>	<b>n/a</b>
<b>Benefit-cost ratio (BCR)<sup>4</sup></b>	<b>2.00</b>	<b>1.38</b>	<b>1.03</b>	<b>n/a</b>

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.