Response to the 2022 review of the cost–benefit analysis methodology set out in the Infrastructure Australia Assessment Framework

February 2023

Introduction

The *Infrastructure Australia Act 2008* (Cth) requires that Infrastructure Australia's approved cost–benefit analysis (CBA) methodology is reviewed every two years. The CBA methodology is published within the Infrastructure Australia Assessment Framework (the Assessment Framework). The review must consider whether the methodology adequately takes into account social, environmental and economic costs and benefits.

The 2022 Review of our cost-benefit analysis methodology was published in March 2022 and is available on our website.

This paper presents the review's findings and our response to them, including how updates will be addressed in the Assessment Framework suite of documents, where applicable.

Unless otherwise stated, all updates are applicable immediately.

Overview of the review's findings

The review identified that:

> […] **the CBA guidance within the Assessment Framework provides an adequate and fit for purpose methodology** to support proponents in developing a robust CBA of infrastructure proposals.

The review found nine areas where the methodology could be strengthened. In addition, some broader opportunities were identified to provide clear guidance on emerging methodologies and strengthen the evidence base for CBA to more robustly capture a broad range of impacts. Some of the findings are recommended changes, while others are for consideration.

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Findings and responses

Finding 1:	Base case definition
Description	Revise the base case definition to focus on a "business as usual" base case. Currently, Infrastructure Australia's stated preference for "the committed and funded expenditure approach" to a base case could be misconstrued and result in "do nothing" base cases being developed when a "do minimum" or "business as usual" base case is the preferred approach.
Scope of finding	Recommended change
Status of our response	**Accepted**
Commentary	The intent of our base case definition is to recommend a "do minimum" base case, which is described clearly in **Section 2.3** of the **Guide to economic appraisal**. For clarity, the base case definitions we apply at **Stage 1** and **Stage 2** align with the definition provided in the **Guide to economic appraisal**.
Document references	This guidance is currently included in the **Guide to economic appraisal** and will be clarified in the following volumes at a later date: • **Stage 1** – Section 2.3 • **Stage 2** – Section 2.3 • **Assessment Framework Glossary**

Finding 2:	Benefit-cost ratio definition
Description	More clearly define the benefit-cost ratio (BCR) as the present value of economic, social and environmental benefits divided by the present value of economic, social and environmental costs. The current definition in the guidance could be problematic for analyses which include avoided costs or disbenefits.
Scope of finding	Recommended change
Status of our response	**Partial acceptance**
Commentary	Definitions for the BCR differ across jurisdictions. Our definition aligns with many jurisdictions and measures the **return on public sector costs**. Conversely, some jurisdictions have adopted a BCR definition that focuses on total **social returns**. The review recommends clarifying the definition of the BCR with respect to the treatment of two inputs: • Disbenefits • Avoided costs. **Disbenefits** The UK Green Book (2022) notes that the appropriate definition of BCR will depend on the decision being made: • ***Return on public sector costs**: Where optimising over a constrained budget, as is usually the case for government spending, the BCR can be constructed as a measure of social*

	value divided by the relevant public spending constraint, that is net benefits per [unit] of relevant public sector costs. […] • ***Social returns****: Where regulatory and spending measures need to be compared, a BCR can be constructed by dividing the Present Value of Social Benefits by the Present Value of Social Costs (including any public sector costs in the denominator).* Definitions for the BCR differ regarding the treatment of disbenefits. The difference between these definitions will be small when disbenefits are small. However, these definitions for BCR will provide different results where disbenefits are large. This is particularly relevant in the context of sustainability or circular economy proposals, where there may be a focus on mitigating negative impacts. Using the return on public sector costs approach will underestimate the BCR in this instance. As Infrastructure Australia's role is to provide guidance to the Australia Government to inform investment decisions, **we are maintaining our definition based on the return on public sector costs.** However, where there are large disbenefits, we recommend providing an additional BCR based on the social returns definition to support the analysis. We will continue to engage with stakeholders on the appropriateness of this definition for supporting proposals with a focus on sustainability, in particular reducing greenhouse gas emissions. In all cases, when comparing options, proponents should use a consistent formula to calculate the BCR of all options. Ideally, organisations should use a consistent approach to formulating BCRs for similar types of decision and remain consistent over time. **Avoided costs** In all cases, reduced operating costs should be considered as a benefit. This is particularly relevant where avoided operating costs make up a large portion of the benefits, as netting these off the investment costs can cause erroneous results (for example, a negative BCR when there should be net benefits).
Document references	This guidance will be incorporated in the next release of the **Guide to economic appraisal**.

Finding 3:	**Distributional analysis**
Description	Reposition the distributional analysis advice to solely focus on articulating the distribution of costs and benefits. The current recommended steps for distributional analysis align with a funding analysis.
Scope of finding	Recommended change
Status of our response	**Accepted**
Commentary	Our **Guide to non-monetised impacts** will provide more detailed guidance on the process and considerations for equity and distributional analysis, as well as how to consider these alongside CBA outputs. This guidance will enhance the existing Assessment Framework guidance.

	We plan to release a consultation draft of this guidance in 2023, for comment from our stakeholders.
Document references	This guidance will be incorporated in the following documents: • **Overview** • **Stage 3** • **Guide to economic appraisal** • **Guide to non-monetised impacts** (under development)

Finding 4:	**Economic vs financial analysis**
Description	Highlight the difference between financial and economic analysis – in terms of objective, scope and information requirements – earlier in the Guide to economic appraisal.
Scope of finding	Recommended change
Status of our response	**Accepted**
Commentary	Economic and financial analysis are both central elements of a business case to support decision-making. This is identified in **Section 2.3** of **Stage 3** as an important element in option appraisal, but will be further emphasised in future updates to the **Guide to economic appraisal**.
Document references	This guidance is included in the **Stage 3** volume and will be emphasised in the next release of the **Guide to economic appraisal**.

Finding 5:	**Treatment of transfers**
Description	Give more prominence to the treatment of transfers in CBA in the guidelines. Transfers should be excluded from CBA and it is important to provide clear guidance to practitioners on this point.
Scope of finding	For consideration
Status of our response	**Accepted**
Commentary	It is the intent of the Assessment Framework that transfers are not included in CBA, except in specific situations such as where acquisition of land is a material investment cost. This is identified as a footnote in **Section 2.1** of the **Guide to economic appraisal**.
Document references	This guidance is currently included in the **Guide to economic appraisal** and will be further emphasised in the next release of that document.

Finding 6:	**Greater clarity on Infrastructure Australia's expectations for applying CBA guidance in practice**
Description	Communicate more clearly in the **Guide to economic appraisal** and **Stage 3: Developing a business case** documents that the complexity and level of effort spent on a CBA should be proportional to the complexity, level of risk and estimated cost of

	the infrastructure investment. This could include guidance on the factors or drivers that suggest more resources be spent on the CBA, and how the analysis would change.
Scope of finding	For consideration
Status of our response	**Not accepted**
Commentary	We recognise that CBA is flexible in its application to different types of infrastructure projects and programs and its application will depend on the scale and complexity of the planned investment. However, as the Assessment Framework primarily applies to major infrastructure proposals, including specific guidance on scaling the level of detail or resourcing required for CBA for less complex proposals is not relevant. Proponents are encouraged to refer to their relevant jurisdictional or sector-specific CBA guidance to inform the level of detail required for their application of CBA. **Appendix A** of the **Guide to economic appraisal** details relevant jurisdictional and sector-specific CBA guidance.
Document references	Not applicable.

Finding 7:	**Non-monetised impacts**
Description	Provide greater clarity on how non-monetised costs and benefits should be incorporated into a CBA and presented to decision-makers. Consider including additional guidance regarding the type and scale of non-monetised costs and benefits that may impact on the selection of a preferred option
Scope of finding	For consideration
Status of our response	**Accepted**
Commentary	Our **Guide to non-monetised impacts** will provide detailed technical guidance on how to objectively account for, and consistently present, costs and benefits that cannot be included in monetary terms, and how to progressively account for these throughout the stages of the Assessment Framework. This guidance will enhance the existing Assessment Framework guidance. We plan to release a consultation draft of this guidance in 2023, for comment from our stakeholders.
Document references	This guidance will be incorporated in the following documents: • **Overview** • **Stage 1** • **Stage 2** • **Stage 3** • **Guide to economic appraisal** • **Guide to non-monetised impacts** (under development)

Finding 8:	Deferral test
Description	Provide clearer guidance on the implications of findings from a deferral test. For example, if a marginal project doesn't improve from a five year deferral (relative to a well-defined base case) it is unclear whether the implication is that the original option should be maintained or that the option be tested against deferral for a further five years.
Scope of finding	For consideration
Status of our response	**Accepted**
Commentary	The CBA is just one input for assessing the merit of a proposal. Therefore, the results of the deferral test will continue to be considered on a case-by-case basis alongside other considerations, such as the strategic need for a proposal, the appraisal period, benefits profile and interdependencies. To provide further clarity in the guidance, where the deferral test finds that delaying the intervention by five years: • improves the CBA results – it may be appropriate to defer the proposal. • results in similar CBA results to the original option – there is no benefit from deferring the proposal, so proposal timing should be determined by the other considerations noted above. • worsens the CBA results – greatest net benefits can be achieved by implementing the proposal now. However, the proposal may have limited merit in the long term, so it may be worth considering alternative options. The above are in addition to our existing recommendation in the Assessment Framework that "you should defer the proposal until the [first year rate of return] either equals or exceeds the discount rate."
Document references	This guidance will be incorporated in the next releases of the following technical guides: • **Guide to economic appraisal** • **Guide to risk and uncertainty analysis**

Finding 9:	Broader discussion of appraisal periods
Description	Provide guidance in the Guide to economic appraisal on the appraisal period for short- and long-life infrastructure options.
Scope of finding	For consideration
Status of our response	**Accepted**
Commentary	Our current guidance on appraisal periods aligns with the majority of jurisdictional guidance (see **Section 2.4** of the **Guide to economic appraisal).** The Assessment Framework primarily applies to major infrastructure proposals, therefore we consider a minimum 30-year appraisal period is most appropriate for these types of proposals. However, we note this is a recommendation only and will depend on the context of the proposal under consideration.

	The following additional guidance should be considered when determining an appropriate appraisal period: • The appraisal period should be based on the expected economic or design life of the asset or the decision being made. For shorter-life assets, it is usually appropriate to understand and plan for service delivery over a period longer than the design life to enable appropriate long-term planning. For example, an Intelligent Transport System initiative may have a design life of 10 years, but should be considered in the context of the freeway it is servicing that has design life of 30 years. • For assets with a long life, it may be appropriate to use a residual value at 30 or 50 years due to the uncertainty of estimates beyond this point. However, this should be considered on a case by case basis, as the objective of these projects is usually to provide significant long term, intergenerational benefits. • For assets where the primary objective relates to climate adaptation, longer appraisal periods (for example, 40 to 60 years) may be appropriate. • Where an appraisal period of more than 30 years is adopted, sensitivity analysis should be undertaken to understand the impact of a 30-year appraisal period. Where you are unclear about the appropriate appraisal period for a proposal, we encourage you to engage with us.
Document references	This guidance will be incorporated in the next release of the **Guide to economic appraisal**.

Broader opportunities

As part of the review, opportunities were identified for Infrastructure Australia to provide clear guidance on accepted methodologies and strengthen the evidence base for CBA to more robustly capture a broad range of impacts.

Accounting for social and environmental impacts in CBA	

Description	When it comes to applying the Assessment Framework's CBA guidance, we expect a key challenge is keeping pace with emerging methods to value relevant social and environmental impacts, including climate sustainability, community resilience and social value.
	While there are some useful sources for valuing CBA impacts, consistent parameter values and guidance for applying accepted methodologies for valuing social and environmental impacts is lacking. Priority areas for appropriately accounting for social and environmental impacts include valuing:
	• Social impacts such as:
	    o Community resilience
	    o Changes in human health
	    o Quality of life impacts
	• Environmental impacts:
	    o Cost of carbon
	    o Urban heat island impacts

	○ Biodiversity impacts.
Status of our response	**Accepted**
Commentary	We are developing the following guidance and resources to further account for social and environmental impacts in CBA: • **Guide to assessing greenhouse gas emissions (interim)** • **Guide to non-monetised impacts** (under development) • **Guide to monetising problems and opportunities** (under development) • **Quality of Life practice note** (under development) • **Online library of references** to support proposal development (under development). We constantly seek to develop further guidance and welcome the opportunity to engage with stakeholders and proponents on emerging areas.

Addressing broader challenges around treatment of transformational projects:	
Description	We are aware that some infrastructure projects are identified as being "transformational" and, in some instances, seek to use this as a rationale to take a non-standard approach to CBA (e.g. lower discount rates, longer analysis periods, focus on wider economic benefits). To the best of our knowledge, there is a gap from both Infrastructure Australia and State and Territory Governments in defining what constitutes a transformational project, their appropriate treatment and any requirements for their assessment. It may be beneficial for Infrastructure Australia to work with other stakeholders to define transformational infrastructure (noting that such a definition should be flexible to the context of an intervention). As an extension to this, it may be worth considering whether any additional CBA guidance is required for transformational projects or whether the existing CBA guidance within the Assessment Framework is appropriate.
Status of our response	**Partial acceptance**
Commentary	We have received submissions for a number of proposals that proponents have identified as 'transformational', but limited explanation of the reasons for this or how they should be treated differently in project appraisal. We note that any 'transformational' elements of a proposal will need to be supported by a strong strategic narrative, as well as government and community support. Our Assessment Framework also provides flexibility for a holistic assessment of the proposal to consider overall merit, even where the quantified benefits may not exceed the costs. We will continue to review proposals that are considered 'transformational' and consider the appropriateness of the application of any non-standard approaches to the business case or CBA. We encourage proponents to engage with us throughout proposal development, particularly when a proposal is considered 'transformational'.