



## Outline of *Infrastructure Australia's* Prioritisation Methodology

This document outlines the key steps that *Infrastructure Australia* will be undertaking to determine the **Infrastructure Priority List** once all audit submissions and subsequent advice have been received from stakeholders.

This document assists all stakeholders in the approach, form and content of their information and data submitted to *Infrastructure Australia* for the purpose of consideration and evaluation of initiatives for the **Infrastructure Priority List**. It includes detailed advice on carrying out profiling and economic appraisals of initiatives.

### 1. Introduction

#### 1.1. Infrastructure Australia

*Infrastructure Australia* is a statutory advisory council with twelve members drawn from industry and all levels of government, including five from the private sector, with Sir Rod Eddington as Chair. Infrastructure Australia is supported by an Infrastructure Coordinator, who leads the Office of Infrastructure Coordination within the Australian Government's Infrastructure, Transport, Regional Development and Local Government portfolio.

*Infrastructure Australia* has the primary function of providing advice to governments, investors and owners of infrastructure on the following:

1. Australia's current and future needs and priorities relating to nationally significant infrastructure;
2. Policy, pricing and regulatory issues that may impact on the utilisation of infrastructure;
3. Impediments to the efficient utilisation of national infrastructure networks;
4. Options and reforms, including regulatory reforms, to make the utilisation of national infrastructure networks more efficient;
5. The needs of users of infrastructure; and
6. Mechanisms for financing investment in infrastructure.

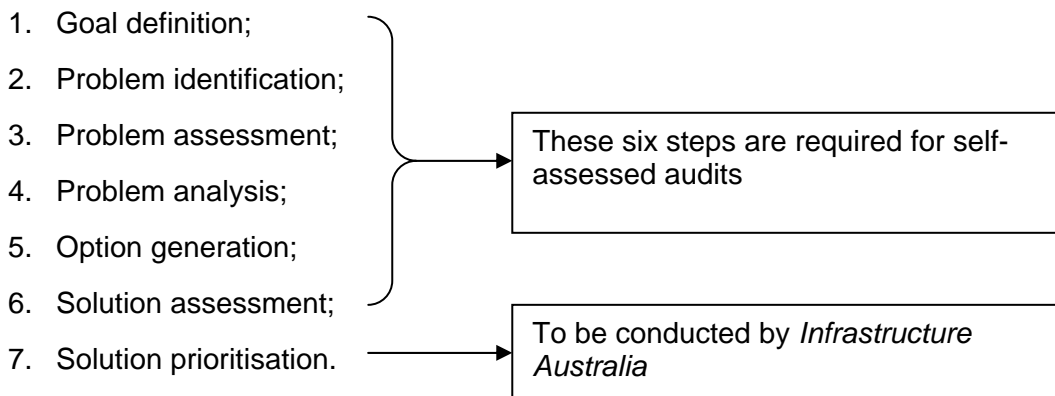
*Infrastructure Australia's* immediate tasks are to:

- conduct an **infrastructure audit** to determine the adequacy, capacity and condition of nationally significant water, transport, energy, and communications infrastructure;
- produce an **infrastructure priority list**; and
- produce best practice, nationally consistent guidelines for Public Private Partnerships.

*Infrastructure Australia* is also in a position to provide advice on the harmonisation of policies, and laws, relating to development of, utilisation of, and investment in, infrastructure. *Infrastructure Australia* will also guide the allocation of the Federal Government's Building Australia Fund. *Infrastructure Australia's* focus is on infrastructure issues of significance to national productivity.

## 1.2. National Infrastructure Audit and the Infrastructure Priority List

A key input into *Infrastructure Australia's* audit is the self-assessed audits conducted by stakeholders. *Infrastructure Australia* has established an audit framework to outline the process, stages and rationale for stakeholders in carrying out their self-assessed audits. This framework seeks to assist stakeholders in clearly and objectively articulating the 'problem' to be addressed and thoroughness in identifying and assessing optional 'solutions'. The thorough analysis of existing and future problems and solutions are an integral part of the framework, therefore clear evidence of existing and future problems and solutions need to be presented in self-assessed audits. The audit framework consists of 7 steps:



A description, rationale and outputs of the audit framework are included in *Appendix A*.

The purpose of this document is to outline the **prioritisation methodology** that *Infrastructure Australia* will use to determine the **infrastructure priority list**. It also assists stakeholders in their self-assessed **solution prioritisation** by outlining a logical, evidence-driven and robust methodology.

The application of this document ensures that the evidence-based outcomes of the audit framework are presented in a clear and consistent manner to ensure the range of proposed initiatives address national productivity issues while recognising the broad range of cost and benefits of all solutions.

## 1.3. Who should use this document

This document is aimed at sponsors and practitioners responsible for the compilation of submission material for consideration and evaluation by *Infrastructure Australia* in conducting the National Infrastructure Audit and Infrastructure Priority List.

The early sections are relevant to sponsors and provide a high level overview of the **prioritisation methodology**. Appendices provide more detailed guidance to practitioners on *Infrastructure Australia's* expectations on profiling, cost-benefit analyses and deliverables for the purpose of *Infrastructure Australia's* evaluation and comment.

#### 1.4. When to use this document

This document needs to be used by stakeholders for the purpose of carrying out profiling and appraisal of initiatives for further consideration and evaluation by *Infrastructure Australia* for the infrastructure priority list.

As the infrastructure priority list should consist of solutions that are well developed, can immediately respond to Australia's challenges and contributes to national productivity, it is expected that the Infrastructure Priority list will be reviewed on an annual business cycle basis once further information and data on potential initiatives is available.

*Infrastructure Australia* is aware of the practicalities associated with the information, tools and techniques that are currently available in this **prioritisation methodology** and consider it prudent to flag further improvements to the process in subsequent business cycle so as to best serve the national interest on an ongoing basis. Stakeholders' comments are welcome in this regard.

## 2. Prioritisation Methodology

### 2.1 Methodology aim and outcome

The methodology provides an integrated framework that harmonises the information and data resulting in a balanced range of initiatives and uses cost benefit analysis (CBA) as the primary tool for prioritising initiatives.

The aim of the methodology is to be:

- Logical and well defined – as it is systems focused and based on and conforms to *Infrastructure Australia's* aims, objectives, strategic priorities and principles;
- Clear and transparent – as it promotes the open sharing of information;
- Evidence driven – as it uses quality and suitable data and consistent tools; and;
- Robust – as it is comprehensive by looking through multi-lenses to solving a complex problem.

This **prioritisation methodology** provides a best-practice approach for infrastructure prioritisation and has been drawn from international and national based practices and research.

### 2.2 Methodology phases

The **prioritisation methodology** is one process incorporating three phases:

- profiling;
- appraisal; and
- selection.

A description of these phases is included in the following sections.

## 2.2.1 Profiling

The profiling phase of the *Infrastructure Australia's* prioritisation methodology assesses the compatibility of the range of initiatives to *Infrastructure Australia's* strategic priorities. A picture of the potential national productivity value of initiatives can be determined while producing a balanced view of the initiatives and their linkages and dependencies to other initiatives.

***Infrastructure Australia* considers that the broadest possible range of initiatives, offering both infrastructure investment and other solutions, presents the best prospect for an effective response to addressing issues of national productivity. Such other solutions are policy and regulatory initiatives, demand management and pricing initiatives and supply side enhancement initiatives all of which will make better use of current infrastructure.**

A **Summary of Initiative Profiling** proforma has been developed to assist responses. This is included in Appendix C.

The profiling of initiatives needs to outline:

- rating of compatibility to *Infrastructure Australia's* strategic priorities;
- how the strategic priorities are to be addressed by the initiative, and;
- how the initiative is dependant on other complementary and dependant initiatives being policy, regulatory, demand and pricing solutions, enhancement and capital investment solutions.

Profiling creates the coherent argument as to why the initiative is being considered in the first place and what is it actually trying to achieve relative to *Infrastructure Australia's* strategic priorities. The simplicity of testing and reporting against the strategic priorities defines the appropriateness of any initiative at the outset.

For more details on application of the *Infrastructure Australia* profiling phase, including the ratings to be used, refer to Appendix B.

## 2.2.2 Appraisal

The appraisal phase of the *Infrastructure Australia's* prioritisation methodology adopts 'monetised' cost benefit analysis as its core tool. This is complemented by 'non-monetised' effects. Together, a picture of the wider economic, environmental and social merits of each initiative can be determined.

*Infrastructure Australia* will:

- Use objective cost-benefit analysis as the primary driver of decision making;
- Consider a wide range of benefits and costs – not just economic, but also social and environmental;
- Give monetised CBA (through the benefit cost ratio) a key role in decision making;
- Ensure non-monetised effects are also taken into account; and;
- Consider both efficiency and equity impacts.

The *Infrastructure Australia* appraisal phase adopts a wide-ranging perspective. It is interested in all the costs and benefits associated with an initiative, interpreted in the broadest sense. These effects can be economic, social and environmental in nature. The *Infrastructure Australia* appraisal process therefore has a holistic perspective.

The appraisal phase is interested in both the overall efficiency of an initiative (- the combined scale of benefits and costs -), as well as its equity and distributional impacts.

Efficiency is determined by comparing the benefits and costs of an initiative – it specifically addresses the question: “When all the benefits and costs are combined, will the initiative deliver net benefits (benefits in excess of costs )?”

On the other hand, the issue of equity and distributional effects is concerned with who bears the benefits and costs.

Cost benefit analysis (CBA) is the primary appraisal tool by which *Infrastructure Australia* assesses the net benefit of an initiative. It is an objective tool that combines ‘monetised’ benefits and costs – those expressed in dollar value terms. In the *Infrastructure Australia* methodology, as many benefit and cost are monetised as widely as possible. Estimates of wider economic benefits and costs (WEBs) are to be included where relevant and Appendix D provides additional information for practitioners.

Benefits and costs that cannot be expressed in money units, referred to here as ‘non-monetised’ benefits and costs, are also brought to account in the appraisal process. This is done using a qualitative rating scale, with individual rating values ranging from ‘highly beneficial’ to ‘highly detrimental’.

The consideration of risk and uncertainty is also addressed in the *Infrastructure Australia* appraisal process to ensure that decision making is robust. This occurs via sensitivity testing of the CBA results.

For more details on application of the *Infrastructure Australia* appraisal phase refer to Appendix D.

For more details on the deliverables required by stakeholders for *Infrastructure Australia's* appraisal phase refer to Appendix E. This includes a proforma titled the **Summary of Initiative Appraisal Key Results and Assumptions**.

### 2.2.3 Selection

The selection phase of the *Infrastructure Australia's* Prioritisation methodology integrates the profiling and appraisal assessments and other data and information. As such the national productivity impact of individual initiatives can be compared. Together, the picture of the national productivity impact of the entire range of solutions across all sectors can be created into the infrastructure priority

The *Infrastructure Australia* selection phase aims to utilise the outputs of the preceding profiling and appraisal phases to create a priority list of initiatives to enable informed decision-making for allocation of funding. The selection of the best initiatives rests upon the high degree of problem understanding that is brought through the prioritisation process by analysis and a rigorous approach to definition of the priority list.

While strategic assessment and appraisal assessment have been previously considered individually, the selection phase integrates the multiple inputs to enable choice between initiatives.

Evaluation of each initiative using the multiple inputs provides a wider range of consideration in the prioritisation. Other lenses are then used to ensure that a balance is achieved in the range of initiatives that deliver national productivity improvements.

The integration of the multiple inputs to produce a single prioritised list of initiatives is complex but will be simplified by using matrix mapping of the inputs to offer an easy to visualise assessment of priority. This is being developed by *Infrastructure Australia*.

Central to priority choices are the benefit-cost ratios of initiatives and these are given primacy in the integrated assessment of all inputs or indicators.

All of the other inputs and indicators are considered to be of comparable significance – no weightings are applied and their reporting gives a clearer and more transparent basis to determine the priorities for action.

Using the matrix, priority categories will be determined so as to give emphasis to proposals that promote a balanced view and productivity, strategic fit, and sustainability.

Once an initiative has been assigned a priority category it is further classified according to its degree of development which evaluates deliverability, timing and packaging of initiatives. A proforma for these inputs has been provided in **Appendix F – Inputs into Initiative Selection**.

Thank you for taking the time to read this methodology paper.

All queries in response to this paper should be directed via email at [mail@infrastructureaustralia.gov.au](mailto:mail@infrastructureaustralia.gov.au) or sent to:

The Infrastructure Coordinator  
Infrastructure Australia  
Level 21  
Deutsche Bank Building  
126 Phillip St  
Sydney NSW 2000

## Appendix A – Infrastructure Australia's Audit Framework

Stage	Description	Components required	Rationale
1. Goal definition	Definition of the fundamental economic, environmental and social goals that society seeks to achieve, for example: sustained economic growth and increased productivity, lower carbon emissions and lower local pollution, greater social amenity and improved quality of life.	<ul style="list-style-type: none"> <li>Formalised, comprehensive, and agreed goals/targets.</li> <li>Quantified, objective and specific goals/targets.</li> </ul>	A performance benchmark is needed against which the adequacy of infrastructure can be assessed.
↓			
2. Problem identification	Objective, specific, evidence-based, and data rich identification of deficiencies with the condition, operation and services provided by infrastructure that may hinder the achievement of those economic, environmental and social goals.	<ul style="list-style-type: none"> <li>A list of specific problems clearly identified, including network or geographical location.</li> <li>Those problems accurately quantified and defined, including an assessment of future trends.</li> </ul>	Specificity re inadequacies is essential in order to take targeted and therefore more effective action.
↓			
3. Problem assessment	Objective and quantified appraisal of the economic, environmental and social costs of those deficiencies, so that the most damaging deficiencies can be identified and prioritised.	<ul style="list-style-type: none"> <li>Accurate and objective assessment of the econ/envt/soc impacts of those problems.</li> <li>Priorities identified which reflect the scale of impacts.</li> </ul>	Understanding the costs/impact of deficiencies allows the worst problems to be identified and prioritised.
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4. Problem analysis	Objective policy and economic analysis of why these deficiencies exist – i.e. what is the underlying cause (depending on the sector, reasons could include market failure, government failure, capital restrictions, etc.). This should include an assessment of non-infrastructure reasons for the problem – e.g. land use patterns, peaky demand; or education/business hours.	<ul style="list-style-type: none"> <li>For each deficiency, analysis of why those problems have developed</li> <li>Covers both immediate and underlying causes (e.g. not just 'lack of investment', but causes of underinvestment, e.g. regulatory environment).</li> </ul>	Understanding the causes allows effective and targeted solutions to be created. Infrastructure not the only cause of problems.
↓			
5. Option generation	Development of a full range of interventions that might address the issue – e.g. pricing, regulatory, better use, packages/systems, capacity increases, informed by the Problem Analysis completed at Stage 4.	<ul style="list-style-type: none"> <li>A full range of option types have been identified for each deficiency/problem.</li> <li>Those options have been objectively assessed, without some options having been ruled out early or favoured.</li> </ul>	Looking at a range of options rather than relying on early judgements is more likely to identify the best solutions.
↓			
6. Solution assessment	Use of cost-benefit analysis to assess those options/solutions. The appraisal should incorporate the full range of economic, environmental and social impacts (including agglomeration and trade impacts, carbon impacts, noise, and social amenity) so that the impact on all society's goals is measured and understood as far as is possible.	<ul style="list-style-type: none"> <li>Accurate and justifiable Cost-Benefit Analysis has been used to appraise options.</li> <li>CBA is comprehensive and includes wider economic, environmental and social impacts.</li> </ul>	An understanding of the impact of solutions on all goals is essential to understand how the portfolio will achieve those goals.
↓			
7. Solution prioritisation	Identification of policy and project priorities from the list of solutions, on an objective basis. The objective basis should give primacy to the Benefit-Cost Ratio (BCR) of policies, but could include broader considerations set out in a transparent framework – such as portfolio/package issues, deliverability, risk, and affordability.	<ul style="list-style-type: none"> <li>Priority List clearly identified.</li> <li>Priorities reflect primacy of BCR analysis alongside objective framework</li> <li>Relationship to State-funded policies/projects clear – i.e. prioritisation reflects all ideas, not just the unfunded.</li> </ul>	BCRs provide the best available objective evidence as to how well solutions will impact on goals – but not the whole story.

## Appendix B - Outline of *Infrastructure Australia's* approach to profiling

This document is provided as a guide to *Infrastructure Australia's* approach to the **profiling** of nationally significant infrastructure initiatives.

*Infrastructure Australia* will be using profiling as a key tool in determining the **Infrastructure Priority List**.

Stakeholders should use this document as a guide when undertaking **profiling** and presenting a **Summary of Initiative Profiling** for *Infrastructure Australia*.

*Infrastructure Australia* will be working collaboratively with stakeholders to assist and guide them in preparing profiles and presenting the results.

Stakeholders need to carry out profiling and submit the results to *Infrastructure Australia*. The profiling needs to comply with this guide.

The 7 strategic priorities are the criteria to be used for the rating of initiatives. The materiality of each initiative with respect to each strategic priority is addressed through the application of a qualitative rating scale ranging from 'highly beneficial' to 'highly detrimental' as shown in the below table. No weightings will be applied.

The descriptions in the following table will assist in making appropriate rating selections.

Rating Level	Description
Highly beneficial	Major positive impacts resulting in substantial and long-term improvements or enhancements of the existing environment.
Moderately beneficial	Moderate positive impact, possibly of short-, medium- or longer-term duration. Positive outcome may be in terms of new opportunities and outcomes of enhancement or improvement.
Slightly beneficial	Minimal positive impact, possibly only lasting over the short-term. May be confined to a limited area.
Neutral	Neutral—no discernible or predicted positive or negative impact.
Slightly detrimental	Minimal negative impact, probably short-term, able to be managed or mitigated, and will not cause substantial detrimental effects. May be confined to a small area.
Moderately detrimental	Moderate negative impact. Impacts may be short-, medium- or long-term and impacts will most likely respond to management actions.
Highly detrimental	Major negative impacts with serious, long-term and possibly irreversible effects leading to serious damage, degradation or deterioration of the physical, economic or social environment. Requires a major re-scope of concept, design, location, justification, or requires major commitment to extensive management strategies to mitigate the effect.

The rating needs to be justified with data and evidence that has been determined through comprehensive problem and solution definition and assessment in the early stages of the Audit.

Another important component of profiling is how the initiative explores the broadest possible range of infrastructure investments and other solutions. These solutions include policy and regulatory initiatives, demand management and pricing initiatives and supply side enhancement initiatives all of which will make better use of current infrastructure. Solutions are to be clearly outlined and backed with data and evidence in the supplied proforma - **A Summary of Initiative Profiling** (refer Appendix C).

Stakeholders need to provide *Infrastructure Australia* with:

- **A Summary of Initiative Profiling** (refer Appendix C); and
- Any other supporting data and information that is referenced in the Summary.

If *Infrastructure Australia* requires further details or justification about the profiling, it will seek further advice from the stakeholder.

## Appendix C – Summary of Initiative Profiling

### Part A - Overview

Title of Initiative – *Insert title*

Summary of Initiative –  
*A paragraph description.*

### Part B – Rating and Justification

*Complete the following table. In doing so, ensure that all sources of data and information are adequately referenced*

Item	Expand Australia's productive capacity	Increase Australia's productivity	Diversify Australia's economic capabilities	Build on Australia's global competitive advantages	Develop our cities and/or regions	Reduce greenhouse emissions	Improve social equity, and quality of life, in our cities and our regions	Linkages
Rating								
How does the initiative meet/does not meet the strategic priority?								
Provide data and evidence of how the initiative meets/does not meet the strategic priority								
Provide an outline of how the initiative is dependant on policy, regulatory, demand pricing, efficiency and/or capital investment initiatives.								

# Appendix D - Outline of *Infrastructure Australia's* approach to appraisal

This document is provided as a guide to *Infrastructure Australia's* approach to the **appraisal** of nationally significant infrastructure initiatives.

*Infrastructure Australia* will be using Cost Benefit Analysis as a key tool in determining the Infrastructure Priority List.

Stakeholders should use this document as a guide when undertaking appraisals and presenting a **Summary of Appraisal Key Results and Assumptions** for *Infrastructure Australia*.

*Infrastructure Australia* will be working collaboratively with stakeholders to assist and guide them in preparing appraisals and presenting the key results and assumptions.

This document includes guidance on: what costs and benefits to include in the appraisals, what assumptions and key variables should be used, and how to present the appraisal results and assumptions. A proforma **Summary of Appraisal Key Results and Assumptions** is included in Appendix E to assist stakeholders in the presentation of appraisals for *Infrastructure Australia*.

## D1. Appraisal Overview

See previous section 2.2.2.

## D2. Monetised Benefits and Costs

The following table provides a list of the costs and benefits that *Infrastructure Australia* expects to be monetised and included in a CBA of any initiative.

Benefit / Cost
<b>Financial costs and benefits</b>
Capital costs
Operating costs
Revenues / fees / fares charges, traded outputs
<b>Economic cost or benefits to the <i>user of the service</i></b>
Higher/lower prices for good/service
Time savings
Deaths / injuries
<b>Economic cost or benefits to <i>non-users</i>:</b>
Agglomeration impacts (1)
Noise impacts
<b>Environmental and social cost and benefits – <i>whole of society</i></b>
Local air pollution
Carbon emissions
Physical fitness

(1) This is an example of 'wider economic benefits' that have traditionally not been included in CBA. See following section for further details

## D2.1 Outline of approach to the monetisation of Wider Economic Benefits

Most of the economic costs and benefits that *Infrastructure Australia* will consider are consistent with national and State and Territory guidelines on economic appraisal. The main area of departure from existing guidelines is that *Infrastructure Australia* would like to take into consideration what have been referred to as "wider economic benefits" (WEB) of initiatives, such as agglomeration effects. These particularly apply to transport initiatives.

WEB are improvements in economic welfare that are acknowledged but which have not been typically captured in traditional CBA. The identification and measurement of these effects are currently confined to the transport sector. They are not the same as the economic benefits determined by CGE (computable general equilibrium) models.

Recent evidence suggests that WEB adds between 5 and 40 per cent<sup>1</sup> to the traditionally evaluated benefits. WEB can be disaggregated into a number of specific sources of benefit. The most significant is agglomeration, the notion that similar firms are drawn towards to the same location since 'proximity generates positive externality'<sup>2</sup>. These are the benefits derived from face to face contact, information exchange and networking only available to industries working close to each other.

Another source of benefit covered by WEB is that related to imperfect competition in the labour market. Travel time savings are used as a measure of improved productivity following the reduction in journey time associated with a transport improvement. However, if the labour market is imperfect, the value of the travel time change is not equal to the production change, so that the travel time benefit will underestimate the true production improvement.

Finally, WEB can include the labour market impact resulting from welfare benefits generated from improvements to the supply of labour as a result of transport improvements.

The following links provide additional information on WEB and their calculation to assist those preparing economic appraisals:

- General guidance on wider economic benefits is included at the UK Department of Transport site: <http://www.dft.gov.uk/pgr/economics/rdg/webia/>
- Specific technical guidance on the calculation of wider economic benefit is in the UK Department of Transport document titled, *Transport, Wider Economic Benefits and Impacts on GDP*, June 2006, available at the following site:

<http://www.dft.gov.uk/pgr/economics/rdg/webia/webmethodology/transportwidereconomicbenefi3137>

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<sup>1</sup> See Meyrick et al., 2008, *East West Needs Assessment Economic Benefits and Cost Analysis – Technical Report*, Victorian Government

<sup>2</sup> Head, Ries, Swenson, 1995, 'Agglomeration benefits and location choice: Evidence from Japanese manufacturing investment in the United States', *Journal of International Economics*, 38, pp223-247.

## D2.2 The use of Computable Equilibrium (CGE) Models

WEB discussed above are genuine efficiency effects to be considered in a CBA. In contrast, the outputs of CGE (computable general equilibrium) models do not generally play a role in CBA. CGE models focus on ‘economic activity impacts’, which are not a measure of efficiency effects.

*Infrastructure Australia* does not encourage stakeholders to undertake CGE modelling, however recognises that some initiatives will have CGE information available which will be included in submissions to *Infrastructure Australia*.

*Infrastructure Australia* will primarily use CBA data for measuring the benefits of an initiative and will not consider CGE benefits as additive to CBA benefits.

If CGE analysis outputs are submitted in support of an initiative and constitute a significant portion of the business case, *Infrastructure Australia* will scrutinise the CGE model assumptions and methodology in order to provide advice to *Infrastructure Australia* on any double counting.

## D3 Non-Monetised Benefits and Costs

The following are benefit and cost categories that are relevant to the determination of net benefits of an initiative, but generally cannot be monetised.

Benefit / Cost
Visual / landscape
Social amenity, e.g. parklands
Social cohesion
Heritage or cultural impacts

In the **Summary of the Key Results and Assumptions**, these non-monetised benefits/costs should be discussed after the monetised CBA results. Refer to Appendix E for the required proforma.

Each non-monetised benefit/cost shall be rated using the rating scale in the Table below. The descriptions in the following table will assist in making appropriate rating selections.

Rating Level	Description
Highly beneficial	Major positive impacts resulting in substantial and long-term improvements or enhancements of the existing environment.
Moderately beneficial	Moderate positive impact, possibly of short-, medium- or longer-term duration. Positive outcome may be in terms of new opportunities and outcomes of enhancement or improvement.
Slightly beneficial	Minimal positive impact, possibly only lasting over the short-term. May be confined to a limited area.
Neutral	Neutral—no discernible or predicted positive or negative impact.
Slightly detrimental	Minimal negative impact, probably short-term, able to be managed or mitigated, and will not cause substantial detrimental effects. May be confined to a small area.
Moderately detrimental	Moderate negative impact. Impacts may be short-, medium- or long-term and impacts will most likely respond to management actions.

Highly detrimental	Major negative impacts with serious, long-term and possibly irreversible effects leading to serious damage, degradation or deterioration of the physical, economic or social environment. Requires a major re-scope of concept, design, location, justification, or requires major commitment to extensive management strategies to mitigate the effect.
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## D4 Key parameters

The CBA uses a number of key parameters, including the discount rate, the appraisal period and the base case.

Literature on CBA contains a number of debates about the key parameters that should be used in different circumstances. For example, there are a range of views about the method that should be used to set the public sector's discount rate for different asset types.

*Infrastructure Australia* will generally consider appraisals that have been prepared in accordance with Commonwealth, State and Territory guidelines and at this stage, *Infrastructure Australia* will not be providing separate detailed technical guidelines on appraisal that will resolve all of these debates.

Assumptions and methodologies used in appraisals will be carefully scrutinised by *Infrastructure Australia* to prevent the overstatement of benefits or understatement of costs. Unrealistic or inappropriate assumptions will be discounted by *Infrastructure Australia* in its prioritisation process.

In order to provide consistency of presentation of appraisals being prepared for *Infrastructure Australia*, stakeholders should follow the following advice for the selection of key parameters.

### D4.1 Base case and project case

Appraisals compare the costs and benefits of doing something (for example, building infrastructure) – the '**Project Case**' - with a '**Base Case**' - or the situation that would have occurred without the initiative.

The **Summary of Appraisal Key Results and Assumptions** should include a clear and specific explanation of the base case.

### D4.2 Discount Rates;

Summary results should be presented for the **real risk-free discount rates** of:

- 4 per cent;
- 7 per cent; and
- 10 per cent.

This is in accordance with national, state and territory guidelines on CBA.

In cases where a different discount rate is used in an appraisal, the **Summary of Appraisal Key Results and Assumptions** should specify the basis for doing so and stakeholders should contact *Infrastructure Australia* for specific advice in each case.

### D4.3 Appraisal period and residual values

Appraisals should typically be conducted using a **thirty (30) year** timeframe.

In cases where a different appraisal period is used (such as a telecommunications initiative with a shorter asset life), the **Summary of Appraisal Key Results and Assumptions** should specify the basis for doing so, and stakeholders should contact *Infrastructure Australia* for specific advice in each case.

For infrastructure assets with a life of more than 30 years, a **residual value** should be included, where appropriate.

The **Summary of Appraisal Key Results and Assumptions** should list the residual value, where one is included.

#### **D4.4 Other parameters**

Where best practice & standard parameter values are available (e.g. Austroads report for road appraisals), their use is encouraged.

#### **D5 Sensitivity testing**

Sensitivity testing of the CBA is a key element of risk assessment. The purpose of the sensitivity analysis is to acknowledge that there is always a degree of uncertainty and ultimately risk surrounding an initiative. Typically there are four sources of uncertainty surrounding an initiative:

- Capital costs;
- Construction duration and therefore opening date;
- Operating (including maintenance) costs; and
- Under and over estimation of the benefits (typically demand for the service).

A risk assessment should be undertaken to estimate the typical variations around these inputs with the sensitivity testing undertaken based on the variations.

#### **D6 Equity and Distributional Impacts**

Other important impacts, especially equity and distributional effects, should be assessed and reported separately from the above net benefit assessment.

No detailed guidance is provided here for undertaking equity and distributional analyses.

Stakeholders should describe and assess as best as possible who the gainers and losers are as a result of the initiative. An indication of the scale of those effects is also desirable.

This will be key information for assessing an initiative's performance.

Regeneration can be an important public policy goal. The economic benefits of regeneration are already captured in cost-benefit analysis, since such an approach appraises an initiative's economic costs and benefits. However, the specific spatial element is not fully described, and where this is a policy objective it may be appropriate to describe this impact qualitatively alongside the cost-benefit analysis.

## D7 Reporting and Documentation

The results of the appraisal need to form a central element of the business case for each initiative submitted to *Infrastructure Australia*. The appraisal needs to comply with this guide. All appraisals will be closely scrutinised by *Infrastructure Australia*.

Stakeholders need to provide *Infrastructure Australia* with:

- **A Summary of Appraisal Key Results and Assumptions** (refer Appendix E); and
- Business Cases and any other supporting data and information with regard to the Business Case documentation.

The **Summary of Appraisal Key Results and Assumptions** will assist *Infrastructure Australia* in analysing the appraisals and understanding the costs and benefits and assumptions of the analysis.

If *Infrastructure Australia* requires further details about an appraisal, it will seek the full Appraisal Report from the stakeholder. The full Appraisal Report provides the opportunity for the stakeholder of each initiative to demonstrate that the appraisal is soundly based and defensible.

The appraisal needs to carefully define all inputs and the methodology used. Capital, maintenance and operating costs over the life of the initiative need to be documented with a credible degree of detail. All monetised benefits over the life of the initiative also need to be well documented. The parameters used to calculate benefits and costs should be outlined, properly sourced and referenced, and where appropriate justified for their use.

## Appendix E – Summary of Initiative Appraisal - Key Results and Assumptions

### Part A - Overview

Title of Initiative – *Insert title*

Stakeholder –

*Insert name*

*e.g. Government of XXX*

*Department YYY*

*ABN ZZZ*

Contact –

*Ms Aaa Bbbbb*

*Director, XXXX*

*ZZZ Division*

*(ph) 0x xxxxxxxxx*

*(fax) oz zzzzzzzzz*

*(email) xxxx @cccccccc*

*(street address)*

Summary of submission –

*A half page description that covers scope, cost, timing and BCR*

## Appendix E – Summary of Initiative Appraisal - Key Results and Assumptions

### Part B – Cost Benefit Analysis (CBA) – Monetised Benefits and Costs

#### B.1 Key Assumptions

*Complete the following table. In doing so, ensure that all sources of data and information are adequately reference*

<i>Item</i>	<i>Assumption</i>
Key drivers	<i>What assumptions are made about future developments that will affect the need, and likely success, of the initiative, e.g. developments of new industries and conurbations, other initiatives being implemented</i>
Base case	<i>Describe the situation 'without' the initiative, including:</i> <ul style="list-style-type: none"> <li><i>• how the underlying problem will evolve over time</i></li> <li><i>• the time stream of future works, and associated capital, maintenance and operating costs, that would occur, and their impact on the problem</i></li> </ul>
First year of construction	
Last year of construction	
Discount rate	<i>State discount rate(s) used (if different from those in Table 1), and the basis for its selection.</i>
Appraisal period	<i>State appraisal period in years, and basis for its selection.</i>
Remaining life	<i>Remaining life of the initiative at the end of the appraisal period</i>
Residual value	<i>State the size of the residual value, and methodology used.</i>
Benefit ramp up	<i>Describe how benefits ramp up over the construction period (if at all), and basis for it.</i>
Capital cost	<i>Describe the basis for estimating all capital costs (for both base and project cases).</i>
Maintenance costs	<i>Describe the basis for estimating all maintenance costs, including growth rates over time (for both base and project cases).</i>
Operating costs	<i>Describe the basis for estimating all operating costs, including growth rates over time (for both base and project cases).</i>
Benefit components	<i>Describe the basis for estimating each benefit component, including growth rates over time.</i>
Cost and benefit time streams	<i>Attach an appendix showing the time stream for each benefit and cost component expressed in undiscounted 2008 \$s.</i>
Other	<i>List and describe any other key assumptions that have been made</i>
Related initiatives	<i>Are the benefits and costs closely related to another initiative(s). If so, explain how that has been accounted for in the BCA.</i>

## B.2 CBA Results

Complete the following table.

**TABLE 1 – CBA RESULTS**

	Discount Rate (%)		
	4%	7%	10%
BCR			
NPV (\$m, 2008 dollars) i.e. 'Net Benefit'			
NPV / \$			
IRR			

In the following table:

- Column 1 - List all cost and benefit elements that have been monetised
- Column 2 - State the \$ value of each cost and benefit element
- Column 3 - Include the % contribution of each cost and benefit element – adding to a total of 100% across costs; and 100% across benefits

If no benefit cost analysis has been undertaken, provide a rough estimate of the percentage of total benefits and cost and some assumptions that will be made in the future BCA.

**TABLE 2 – MONETISED BENEFITS AND COSTS (\$m, 2008 dollars)**

Monetised costs/benefits	Cost	
<b>COSTS</b>		
Capital Cost		
Operating Cost		
Etc		
	Value	Percentage
<b>BENEFITS</b>		
		100%

## B.3 Sensitivity Testing

Complete the following table as a summary of the results of the sensitivity testing undertaken. The Appraisal Guidelines refer to four types of area of uncertainty to test:

- Capital costs
- Construction duration and therefore opening date
- Operating (including maintenance) costs
- Under and over estimation of the benefits (typically demand for the service).

**TABLE 3: BCR SENSITIVITY TESTING RESULTS**

Test #	Variation	BCR	% Increase from '0'
0	Starting result		
1	Discount rate 4%		
2	Discount rate 10%		
3			
4			
5			
etc	etc		



## Appendix F – Further inputs for Initiative Selection

### Part A - Overview

Title of Initiative – *Insert title*

Summary of Initiative –

*A paragraph description.*

### Part B – Response

*Complete the following table. In doing so, ensure that all sources of data and information are adequately referenced*

<i>Item</i>	<i>Response</i>
Deliverability (risks, acceptability, staging, governance model surrounding project, ownership structure)	
Timing	
Packaging	