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Department of Finance

GUIDE

Resource Management Guide No. 502

Guidance for the Two Stage Capital Works Approval
Process for Australian Government Construction
Projects

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This guide contains material that has been prepared to assist Commonwealth entities and companies to apply the principles and requirements of the *Public Governance, Performance and Accountability Act 2013* and associated rules, and any applicable policies. In this guide the: mandatory principles or requirements are set out as things entities and officials 'must' do; and actions, or practices, that entities and officials are expected to take into account to give effect to those and principles and/or requirements are set out as things entities and officials 'should consider' doing.

Property Management Guidance

This publication is one of a series designed to assist Australian Government entities in their management of property and form part of the Resource Management Guide series¹:



¹ Full series available at www.finance.gov.au.

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Audience

This Guide applies to those officials who are in the process of undertaking a business needs analysis prior to developing a capital works investment proposal.

This guide also applies to professional service providers and contractors who are assisting in the development of business case documentation for Commonwealth entities seeking authority and Budget funding to undertake Capital Works proposals.

Resources

This guide is available on the Department of Finance website at www.finance.gov.au.

The applicable Initial and Detailed Business Case templates and supporting Whole-of-Life Costing for Australian Government Property Management Guidance Document (RMG 503) is available from the Commonwealth Property Management Framework section of the Department of Finance website.

Introduction

Purpose

1. The purpose of the Guidance for the Two Stage Capital Works Approval Process for Australian Government Construction Projects (the 'Guidance') is to provide entities with instruction and direction when seeking approval to undertake capital works, remediation, acquire complex assets or divestment of property assets.
2. The principles and processes described in this guidance support entities to make financially sustainable investment decisions throughout the capital works lifecycle. This guidance encourages entities to perform balanced and transparent evaluations of investment options through mechanisms, the adoption of cost-benefit analysis (CBA) that take into consideration economic, environmental, social, heritage and other relevant issues in decision making.
3. This document guides entities through the Two Stage Capital Works Approval Process ('Two Stage process'), including Public Works Committee (PWC) endorsement.

Scope

4. This guidance applies to Non-Corporate Commonwealth Entities (Non-Corporate entities) under the *Public Governance, Performance and Accountability Act 2013* (PGPA Act), but may also be used by Corporate Commonwealth Entities (Corporate Entities) if co-opted by the Minister for Finance.
5. New Policy Proposals (NPPs) for capital works, excluding fit-outs, which are estimated to have a capital cost of \$30 million or more and are undertaken in

Australia, its external territories and overseas, are subject to the Two Stage process.²

6. Where a project falls outside of the scope of the Two Stage process, it can be to an entity's advantage to use this guidance and its principles as a matter of best practice.

Overview

7. The Two Stage process provides a methodical approach to developing the scope and cost estimate associated with the project, reducing risk and increasing cost certainty. This approach ensures that:
 - a. the Australian Government achieves maximum value for money in the investment being made, including that funds are utilised in the most effective, economical, ethical and efficient manner; and
 - b. the scope and budget approved is adhered to without deviation.
8. Under the Two Stage process, the First Stage involves the relevant portfolio Minister seeking the Government's in-principle agreement to a project. The NPP is based on a business need, a broad order of costs and an elementary consideration of options. The NPP is supported by an Initial Business Case (IBC) that identifies the preferred option and alternatives, underpinned by a primary analysis of each option. The purpose of First Stage approval is to reduce the option set for delivering the capability by down selecting the viable options suitable for further development and to secure the authority and funds necessary to develop the project concept for further consideration by Government. It does not guarantee or constitute approval to proceed with the project.
9. At the Second Stage, the relevant portfolio Minister presents an NPP seeking the Government's agreement to proceed with a project, based on the project scope being developed to functional design brief standards. Full costing of the project scope and analysis of project benefits, risks, timetable and contingencies must be included in this proposal. A Detailed Business Case (DBC) supplements the Second Stage NPP with comprehensive analysis of all options and risks and an increased level of confidence that the cost, performance, and time estimates will not be exceeded.
10. In addition to observing the Two Stage process, capital works projects that meet or exceed certain cost and risk thresholds may be subject to Gateway or an Implementation Readiness Assessment Review. To determine the applicability of either of these processes to a capital works project, contact the Assurance Reviews Branch within the Department of Finance (Finance).

² A capital works proposal should not be divided into separate parts for the purpose of avoiding the Two Stage Capital Works Approval Process. The Department of Defence maintains its own Two Stage approval process for capital works.

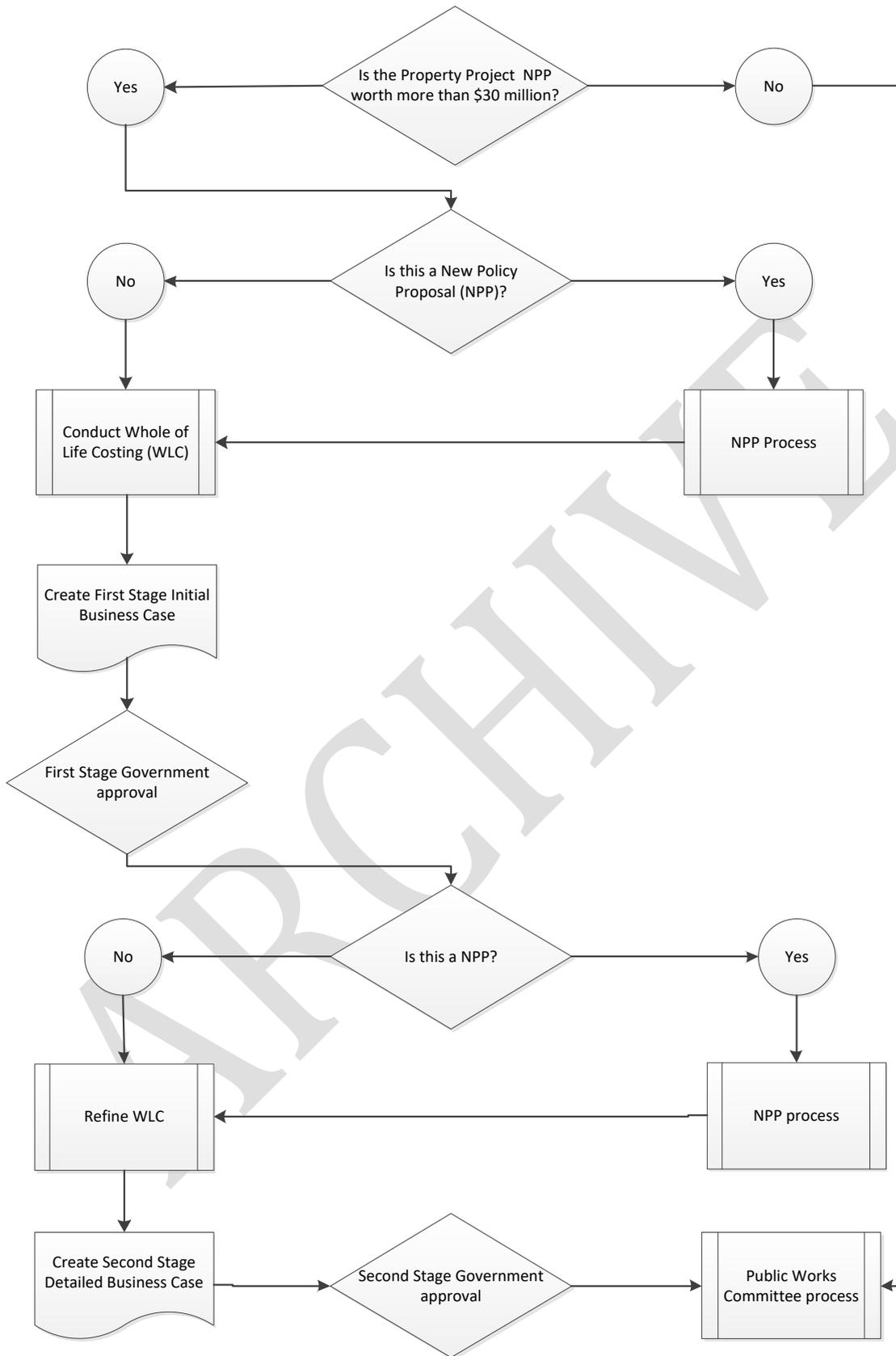


Figure 1: Two Stage Capital Works Approval Process

Strategic Assessment

Testing the Business Need

11. Developing a case for a capital works project should be driven by an entity's assessment of what it requires to deliver its relevant programs and objectives. Ideally, the testing of the project's contribution to the efficient and effective delivery of services should be quantified and comparable.
12. Where possible, entities should also assess the capability of existing resources to fill the need before seeking to add to the Australian Government's property inventory. This can be achieved through identifying opportunities to use existing, surplus property owned or leased by other entities.
13. The strategic assessment stage is where the fundamental factors that determine the worth of a project are identified and tested including:
 - a. the requirement to meet a business need;
 - b. the fit with the entity's strategic priorities and Government policy directives;
 - c. the appropriateness of the proposed investment;
 - d. the anticipated benefits and nominal timelines; and
 - e. the amount of inherent risks associated with such a project.
14. The content of a strategic assessment must be evidence based and clearly articulate the need for the capital works in terms of its contribution to facilitating the efficient delivery of government programs and objectives. On completion, the assessment should provide a comprehensive analysis of the merits of the proposal for decision makers to consider when deciding whether or not to progress the proposal to the IBC stage.
15. Entities should note that the detail and time spent completing a strategic assessment should be commensurate with the cost and complexity of the proposed capital works.

Compatibility with Strategic Priorities and Policy

16. Entities should be aware of any relevant legislation and government policies that interact with Commonwealth property management and how these relate to any proposed capital works. These include, but are not limited to:
 - a. Lands Acquisition Act 1989;
 - b. [Commonwealth Property Management Framework](#);
 - c. [Commonwealth Property Disposals Policy](#);
 - d. Budget Process Operational Rules;
 - e. Accountable Authority Instructions (AAIs);
 - f. Public Works Committee Act 1969 (PWC Act);
 - g. [The Gateway™ Review Process](#); and
 - h. The Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act).

Appropriateness of the Project

17. The next stage of the strategic assessment is to test the appropriateness of the project. This requires an examination of the proposed investment in terms of its ability to effectively deliver a solution to the business need.
18. Best practice requires the appropriateness of the project to be canvassed with both external and internal stakeholders, and rigorously tested using quantifiable benefits against a criteria which incorporates risk, costs and alternative uses for the funds.
19. To effectively track the benefits of a capital works, the expected benefits and key performance indicators and the actual achievement of them should be recorded as the project develops.
20. Tracking the benefits of a project can also assist the entity to quantify the results of a project and respond to queries regarding whether the project has delivered the expected benefits.
21. Once the strategic assessment has been undertaken and approved by the entity, it is critical that the strategic assessment is aligned with the information requirements of the business case templates as provided by the Two Stage process. This is to ensure that the business case documentation meets appropriate information quality standards for projects seeking approval.

Defining Project Scope

22. Entities and project managers are advised to note the deliverables, timeframes, costs and stakeholders associated with the Two Stage Process. It is important that entities build in sufficient time and resources to progress through the Two Stage Process. Examples of planning activities should include but are not limited to:
 - a. assigning sufficient time to undertake start-up activities, due diligence or market investigations associated with developing a capital works proposal, remediation project or procurement of complex assets respectively to the requisite quality of a DBC;
 - b. assigning resources to consult with external stakeholders. This is especially critical for remediation projects due to the sensitivities associated with these projects;
 - c. outlining change management processes; and
 - d. compliance and assurance related activities.

Initial Business Case

23. For capital works that are subject to the Two Stage process, the initial case for the project is argued via an IBC and associated NPP. The Business Case expands upon the preliminary work of the project team with a higher level of analysis to assist informed decision-making. The purpose of the IBC is to lay out the possible benefits and costs associated with the project in a consistent and logical format and to secure approval from the Government to further develop the option(s) for the delivery of the desired level of capability.
24. There are several key documents that will inform the IBC and consequently the NPP. These are:
 - a. options analysis;

- b. statement of requirements (based purely on performance, including a proposed “threshold” level of performance);
 - c. risk management strategy and risk plan;
 - d. project program (including steps to go from IBC to DBC);
 - e. proposed governance arrangements that include project management and project oversight arrangements;
 - f. detail of pre-second stage activities (including what will be delivered, including market testing);
 - g. cost plan including probabilistic risk components (to P₅₀ confidence, see [Appendix A](#));
 - h. whole-of-life costing estimate (based on parametrics to P₅₀ confidence, see [Appendix A](#));
 - i. detail of how the proposal will be funded, including whether existing funds will be used;
 - j. cost benefit analysis; and
 - k. plan for meeting obligations required (such as environment and heritage and National Capital Authority approvals if required).
25. In selecting the preferred solution, it is essential that the relative benefits offered by each option be assessed objectively and consistently. Whole-of-life Costing (WLC) should be applied from the outset and the level of CBA refined as the project proceeds. Further information of WLC can be found at [Whole-of-Life Costing for Australian Government Property Management 3](#)
26. This guidance does not mandate the use of any particular tool or technique when developing the project. Regardless of the tools and techniques employed, the involvement of key internal and external stakeholders at this embryonic phase of the capital works is critical.
27. Best practice for the development of the IBC may:
- a. be based around current levels of performance provided by the asset;
 - b. consider the performance shortcomings of the existing asset and the requirement to enhance the capability;
 - c. include an understanding of the trade-offs between the asset’s capability and performance with capital and ownership costs;
 - d. consider the ability to translate policy requirements into capabilities; and
 - e. include an understanding of the headline risks associated with each of the possible options.
28. The NPP will form the basis of Government deliberation for the capital works. For this reason, it is essential that the IBC incorporates all required information to the First Stage Approval standards. First Stage Approval commissions further development of the IBC, including any scoping and/or independent feasibility study, and may provide funds to facilitate this work.

³ *Whole-of-Life Costing for Australian Government Property Management* is available at <http://www.finance.gov.au/property/property/property-management-framework.html>

29. Best practice requires the information provided in the IBC to cover the performance requirements for the project, how this project is aligned with the goals and outcomes desired by the Government and a indicative risks, costs and schedule for the project to the appropriate standard.
30. The IBC must also highlight the further analysis and funding needed to develop the project to meet the information standards for Second Stage consideration via the DBC.

Establishing the Need

31. Often capital works originate from a perceived need to respond to a demand, which may result in a reactionary and 'hurried' project initiation. Such a reactive approach brings a high risk of disconnect between the proposed solution and the business need. Ultimately, this may substantially delay the development and implementation of the project or, in extreme circumstances, lead to premature termination. Investing time and resources into testing the business need at the conceptual stage may realise significant savings over the life of the project.
32. Before the business need is determined, the problem must be examined and its cause and effect analysed. Once the business requirement has been clearly defined, options can be identified and a preferred solution or solutions chosen.
33. As the IBC phase offers the greatest opportunity to influence the capability and cost of a project, it is critical that the business need be quantifiable and attributable to the outcomes and outputs for the particular policy directive. Otherwise, it will be difficult to justify value for money or undertake cost capability trade-offs.

Due Diligence

34. To facilitate comparison of options at the IBC stage, it is important that appropriate prior due diligence is undertaken to provide for sufficiently informed evaluation of these options commensurate with a P50 confidence level. The nature and complexity of the project will inform the nature and degree of the required due diligence.
35. By way of example, for new construction or major refurbishment projects the presence of ecological values, heritage values, site contamination, hazardous materials, incompatible neighbouring land uses, site topography, drainage, service availability, geotechnical services and other site characteristics can have a significant impact on the cost and feasibility of an option. Therefore, an appropriate level of investigation should be undertaken to broadly establish the risks associated with each option in the IBC.
36. In particular, significant site contamination can inflict a high degree of cost if the nature and extent of contamination is not adequately understood to provide for informed options analysis. This is an important consideration for any capital works project incorporating earthworks on a site which may have historical uses that involved potential contaminants, as well as known remediation projects.
37. For projects involving earthworks, the following outlines the corresponding site contamination due diligence for the IBC stage:
 - a. If the historical uses of the site are well understood and do not involve any potential contaminants, no further contamination assessment is required; or

- b. For a site that may have historical uses that involved potential contaminants, a contamination Preliminary Site Investigation should be undertaken.

Additional Due Diligence for Site Contamination

38. In the event that the Preliminary Site Investigation flags the potential for significant site contamination, the following outlines the additional site contamination due diligence that should inform the IBC:
 - a. Detailed Site Investigation (DSI), which includes sampling in accordance with sampling analysis and quality procedures;
 - b. If a potential end state is divestment, a state Environmental Protection Authority (EPA) accredited independent Site Auditor has reviewed and accepted the sampling analysis and quality procedures and the results of the DSI;
 - c. Identification of on site and offsite constraints for future land uses and remediation solutions (e.g. ecological values, heritage values, community impacts, neighbouring land uses and planning, geotechnical, hydrology, etc); and
 - d. Remediation Options Analysis undertaken to inform a cost-benefit analysis to determine proposed future land uses and, if applicable, the preferred divestment strategy.

Options Analysis

39. During the IBC, it is important that all possible options that meet the threshold level of capability and desired level of capability are developed for consideration. Once the option set has been developed, the individual options are then scrutinised and analysed.
40. Firstly, the options are analysed to ascertain the monetary impact on the entity rather than the broader community. Its focus is the cash flow into and out of the entity.
41. Secondly, the options are analysed to measure the benefits and costs, including social benefits, project and implementation risks are considered in the context of a CBA performed on a WLC basis.
42. It is also important when developing options to put forward a status quo or 'do nothing' option. This option establishes a baseline for comparison of costs and benefits.

Defining the Requirement

43. Having confirmed the business need, the next phase in developing an IBC is to define the requirement(s) and anticipated benefits. In determining the requirements underpinning the proposed project, the focus should be on what is to be achieved more so than how it is to be achieved. Identifying the intended benefits at this early stage provides a platform for evaluating the optional responses and measuring the success of the project later in the life cycle.
44. While the business requirement can only be defined at a high level at this stage of the project, it is imperative that it aligns with the strategic directions of the entity and the broader policy priorities and objectives of the Australian Government.
45. The requirement description for a capital works IBC should have regard to, and reflect, the established need of the entity and key stakeholders. It should establish:

- a. how the project aligns to relevant Australian Government policies and priorities;
 - b. how it links entity's strategic plan and corporate objectives;
 - c. how it links to the entity's property management plan and capital management plan;
 - d. the efficiencies created by the project (e.g. consolidating tenancies from moving into a single or fewer locations, improvement in energy performance of the building accommodating more employees due to a refurbishment etc.);
 - e. the policy, government decision or entity operations which have led to a need for the proposed capital works; and
 - f. the capability and capacity of pre-existing facilities.
46. Depending on the capabilities of the entity and the complexity of the project, it could be appropriate to engage a start-up contractor to work up the First Stage IBC and supporting documentation. If the project is for capital works accommodation solution, there is often a significant amount of parametric data and open source data on construction costs available. However, for unusual capital works projects, remediation and decontamination and complex assets, it may be appropriate to engage a start-up contractor to develop the business case.

Successful Planning

47. In developing the IBC, which will underpin Government's initial consideration of the project, the important factors to be addressed include:
- a. the minimum level of capability or performance (also known as the threshold level of capability) where below this level of capability, the project no longer is viable at any cost;
 - b. the governance arrangements that establish how the project will be managed and the form of oversight;
 - c. canvassing a wide range of potential solutions, including asset and non-asset;
 - d. stakeholder requirement and expectations;
 - e. the scale and location of the project; and
 - f. timing for development and implementation (including milestones).
48. Entities should draw this information together to populate the business case template and progress the proposal through the relevant Minister and subsequently through the Government approval process.
49. Planning the guidelines, structure, roles and authority of a project before it begins will ensure that the project is set up for success. It is important that all entities and stakeholders affected by a project are informed and aware of what is happening and why.
50. It is critical that entities build in sufficient time and resources to progress through the Two Stage Process. Examples of planning activities should include but are not limited to:
- a. Assigning sufficient time to undertake start-up activities, due diligence or market investigations associated with developing a capital works proposal, remediation project or procurement of complex assets respectively to the requisite quality of a Detail Business Case;

- b. Assigning resources to consult with external stakeholders. This is especially critical for remediation projects due to the sensitivities associated with these projects; and
 - c. Compliance and assurance related activities.
51. Using this early engagement to manage stakeholder expectations will help to prevent any surprises for the executive and may assist in smoother project development and delivery.

Delivery Capability

52. It is important to address whether the sponsoring entity has personnel with the appropriate technical skills and knowledge to both develop and deliver the planned project. Skill gaps can be addressed by acquiring resources with the appropriate skills; procuring external consultants and/or contractors; or developing and/or delivering the project in partnership with Finance.

Seeking First Stage Approval

53. The First Stage NPP is supported by an IBC, which seeks 'in principle' Australian Government approval of the project, and funding to develop a DBC for Second Stage consideration.
54. At First Stage, the only funding being sought in the NPP is a sum adequate to advance the project and further develop it to the Second Stage DBC level. The cost plan for construction and delivery of the identified option/s will be a parametric estimation with contingencies (risk allowances) to a First Stage confidence level. This cost plan is provided only to inform the decision to proceed, not for approval.
55. For remediation projects, First Stage Approval normally seeks funding for further due diligence studies and risk management activities with the aim to increase the quality of information on the site's contamination and to investigate the different options for decontamination and different levels of decontamination.
56. The IBC will provide sufficient detailed information on the proposed project, and seeks approval to undertake a scoping study and planning due diligence studies. The IBC should address the overarching business need to undertake this project, the project scope, and the outcomes which the project will deliver.
57. In the IBC, entities must demonstrate that all options have been considered and justify the reasons why options were or were not pursued. Ideally, the IBC must identify the threshold level of capability and identify the options that were considered suitable for further development as well as those which are proposed to be discarded from further consideration.
58. The IBC is to be supported by the following documents: statement of requirements, cost plan, project program, project risk management plan, and the CBA for each of the options considered.
59. The project cost estimates at the IBC can be based on standard industry construction parameters. Entities may choose to have a detailed quantity surveyor quality cost estimate, however there is no requirement for this at First Stage. As the project is further developed through Second Stage, entities can refine the performance characteristics of the project and improve the overall cost estimate (see [Appendix A](#)).

60. The estimated cost includes an allowance for risk which is based on the probabilistic cost of all the identified risks. That is, the most likely consequence (\$) multiplied by the corresponding probability (%) is the allowance to be included. Note that these are the residual risk consequences and probabilities after the mitigation/management method is applied.
61. This detailed cost plan must include the WLC costs of the project, not just the upfront capital costs. Examples of typical WLC cost elements can be found in the *Whole-of-Life Costing for Australian Government Property Management guidance* document.
62. Entities should create Risk Management Plans as early as possible. These should be monitored and updated throughout the project life. A project that manages risk well is likely to be more successful in delivery and better able to remain on time and budget. These risk management plans should also be developed consistent with the Standard ISO31000:2009 – *Risk Management – Principles and Guidelines*.
63. The IBC and its attachments, together with the NPP, form the First Stage submission. This information is required to provide sufficient detail to allow government to make an informed decision to proceed/not proceed. Entities should consider as appropriate options related to Public Private Partnerships (PPP) and other innovative funding arrangements.

The Australian Government Approval Process

64. Once the IBC and all supporting documentation is completed, the proposal is ordinarily considered by Government as part of the development of the Budget. However, if this is not suitable, alternative processes for Government consideration can be negotiated through the appropriate Agency Advice Unit in Finance or through the Cabinet Secretariat in the Department of Prime Minister and Cabinet.
65. If the IBC is approved, the entity will be instructed to return for Second Stage consideration, generally as part of the next budget process. However, the timeline for Second Stage consideration will be dependent on the complexity of the project and processes required to further develop the project's supporting information.

Detailed Business Case

66. Having achieved the First Stage approval, the next priority for the project team is to undertake a body of work that will fully inform the Government decision as to whether to proceed with the project. This Stage brings together all of the steps critical to a successful argument for the project and incorporates the DBC.
67. The development of the DBC may require a feasibility study to test the integrity of the preliminary analysis and/or the capacity to implement the preferred option. Scoping studies may be necessary to complete the analysis of financing options, options for remediation and/or the delivery procurement strategy. Each of these tasks may proceed simultaneously with the evolution of the DBC. Furthermore, if the development of the DBC uncovers a more effective and efficient method of achieving the agreed level of capability, then this option could be provided in the DBC.
68. The documents that make up a DBC in order of requirement are:
 - a. cost benefit analysis (using the information from the cost plan and whole-of-life estimate at DBC stage) or financial analysis (as appropriate) of the available options, and of the base case (do nothing scenario);

- b. functional design brief;
 - c. preliminary designs and drawings;
 - d. risk management plan and project/whole-of-life risk analysis;
 - e. project delivery and procurement strategy;
 - f. project program (including getting PWC approval);
 - g. cost plan including probabilistic risk components (to P80 confidence –provided by a certified quantity surveyor, see [Appendix A](#));
 - h. whole-of-life cost estimate (to P80 confidence – provided by a certified quantity surveyor, see [Appendix A](#));
 - i. other legislative requirements such as environment and heritage obligations, and stakeholder management plans and communications strategy.
69. Further supporting information, based on the outcomes of the due diligence studies may include:
- a. governance and communication documents:
 - i. stakeholder management plan;
 - ii. memorandum of understanding, typically only necessary where more than one entities are involved;
 - iii. delivery and procurement strategy;
 - iv. public relations/communications plan; and
 - v. details of communications with the market.
 - b. concept designs;
 - c. cost and cash flow details; and
 - d. legislation, policy and regulation impacts.
70. During the preparation of the DBC, entities may also wish to consider alternative funding/financing arrangement;
71. The DBC is similar in function and content to the IBC. The key difference is in the level of detail contained in the text and supporting documents, and the confidence of the accuracy of the specifications and outcomes communicated in the document. The DBC template contains significant technical guidance and assistance in developing a logical, sequential and comprehensive business case.
72. The DBC should contain sufficient detail to support a decision on whether or not to proceed with the project.

Detailed Analysis of the Identified Options

73. The detailed analysis of the options requires each viable option to be individually assessed and analysed. Ideally, the assessment of the individual options should be assessed on a consistent and comparable basis. For capital works projects, it could be the Net Present Cost/Internal Rate of Return with provisions for monetarised risk for the useful life of the asset. For remediation proposals, it could be the costs/value of the remediated property/land and best alternative use or size of the existing liability for the Commonwealth.

74. For capital works projects this analysis should include feasibility and cash flow estimates, initial design and concept studies. The aim of this activity is to provide a compelling case to undertake a specific option from the number selected for further investigation. A comparable analysis is to be made of the base case (the “status quo” case). Whilst this case is unlikely to be a reasonable option, it must be analysed to fully inform Government of the costs associated with the decision it takes.
75. As the DBC is a more developed and comprehensive version of the IBC, it is critical that the assumptions underpinning the desired levels of performance, risk, costs and market conditions are updated as part of the development of the DBC. This is required to ensure that the information previously provided remains relevant.
76. As the development of the DBC is a considerably more technical and comprehensive document, the practical option is to engage a start-up contractor to develop the DBC and supporting documents. Alternatively, entities may engage Finance to undertake the development of the DBC.

Develop the Functional Design Brief

77. The Functional Design Brief (FDB) is a more refined and detailed version of the Statement of Requirements developed as part of the IBC. As such, it is necessary to ensure the information and specifications contained in the Statement of Requirements are still accurate, comprehensive and relevant.
78. The FDB is a detailed specification register for the proposed building. The role of the FDB is to inform all project stakeholders of the performance requirements, technical specifications, constraints and important physical aspects of the completed building. Further, this document forms part of the suite of documents informing tenderers of the building specifications. If material changes need to be made to the FDB during the detailed design or construction phases, the cost will be far greater than if the changes could be made prior to seeking Second Stage approval.
79. For inexperienced practitioners, the most pragmatic method of developing the FDB is to utilise the skills and expertise of the start-up contractor, likely assisted by engineering and architectural input. The benefits of engaging a start-up contractor is the ability of the professional to mobilise expertise in the different areas for developing the FDB, such as quantity surveyors, environmental and heritage specialists, engineering and geotechnical services.
80. It is also important that the future requirements for the project are incorporated into the FDB. Provisions for growth, changing technologies and evolving business requirements and service delivery processes. These are necessary to ensure the asset remains effective throughout its economic life.

Remediation Projects

81. For a remediation project, the following information is required to inform and convey the standards of remediation that would be achieved, as well as the methods and technologies that will be used in the remediation and the long-term plan for the site:
 - a. detailed remediation options analysis completed for detailed design of remediation solutions, including post-remediation site management;

- b. Remediation Action Plan (RAP) prepared, including draft Remediation Environmental Management Plan, draft Post-remediation Site Environmental Management Plan and cost estimates for both initial and whole-of-life implementation;
- c. site auditor endorsement of RAP (if a potential end state is divestment);
- d. technical specifications for preferred remediation solution;
- e. contract model for RAP implementation and associated cost estimates, (e.g. where applicable: project manager, head contractor, remediation consultant, remediation works contractor, disposal contractor/s, auditor etc.);
- f. EPBC Act approval (or self-assessment if not likely to have a significant impact on the environment or adverse impacts on Commonwealth heritage values);
- g. purchaser/traditional owner endorsement of the “subject-to-funding” RAP if a select sale or priority transfer; and
- h. state/territory EPA, planning authority and/or local Council consultation regarding the “subject-to-funding” RAP (if a potential end state is divestment out of Commonwealth ownership).

Risk Management Plan

82. For the DBC, the risk analysis and risk allowances are to be refined to a Second Stage cost confidence level. This requires that the risks identified for First Stage approval be thoroughly analysed and the mitigation strategies be put in place. This may include commissioning a risk manager to produce reports on infrastructure availability; environmental and heritage impact assessment and approvals; planning approvals; regulatory authority engagement; geotechnical investigations; stakeholder consultations; and further cost analysis. These investigations will incur a cost, which is to be covered under the funds approved at First Stage.
83. The Risk Management Plan commenced during the lead up to First Stage Approval will inform the Second Stage risk controls. The risks identified earlier will sequentially be refined, realised or retired as the mitigation strategies take effect, or as consequences begin to occur. The due diligence assessments will be designed to address the risks identified, by either controlling the uncontrolled, or investigating the unknowns.
84. Include in the Risk Management Plan a discussion of any additional risks or new risks that have been identified and included since the First Stage risk analysis. These will highlight what the ‘unknown unknowns’ were in the project and serve as a good lesson for future First Stage risk assessments. The more effective the risk identification and mitigation process, the greater the likely knowledge of the constraints and impacts on the project. Further, analysis and mitigation of the risks gives confidence that the outcome can be better controlled and the project will be successful.
85. Entities should also endeavor to apply lessons learned from similar projects to capitalise on the lessons, risks, and expertise of those involved.
86. Similarly to the initial business case, risk management plans should be developed consistent with the ISO:31000:2009 – *Risk management – principles and guidelines* standard, with the factors for risk incorporated into the cost estimates – including the WLC estimates.

Develop the Second Stage Cost Plan and Whole-of-Life Costs

87. The proposed project will be fully specified following completion of the FDB, which will allow the completion of Engineering, Services and Architectural 'Return Briefs'. These Return Briefs are detailed technical specifications prepared by subcontracted engineering and architectural organisations spelling out how the systems will be designed to meet the functional and spatial requirements specified. From these Return Briefs, it is possible to establish a thorough schedule of inclusions and spatial layout constraints to determine a reasonably accurate estimate of the construction cost.
88. Entities should procure the services of a quantity surveyor to provide the detailed cost analysis. The resulting cost estimate is a thorough analysis of the capital costs associated with constructing the specified asset and include contractor management fees, profits, overheads, preliminaries and other contractor work as well as provision for escalation. The estimate must also incorporate risk allowances, administrative/delivery costs and optimism bias.
89. Ideally, project contingency at this stage will be embedded in the cost estimate taking into consideration the probabilistic risk estimates. At this stage, the quantity surveyors and the project team must consider addressing the issue of optimism bias for the project.
90. A robust WLC annual cash flow for the project also provides the Government with visibility of the magnitude of the funding commitment for the economic life of the project.

Delivery and Procurement Strategy

91. A Delivery Strategy is a document detailing the benefits and limitations associated with each available delivery methodology. This would generally include discussion of head contracting, managing contracting, design and construct, construct only and document and construct delivery methods. The delivery strategy and contracting methodologies will be driven by the risk profile identified in the risk management plan. Different contract arrangements distribute risk responsibility differently.
92. Best practice requires an investigation and analysis of the different delivery and procurement strategies with an eye to addressing value for money and appropriately managing project and ownership risks. These should be factored into the cost estimates.
93. Depending on the complexity of the project, there may be some utility in testing the market to gauge whether there is sufficient market appetite to perform the construction or procurement, or undertake any innovative funding proposals. The investigation of the market provides further robustness to the estimated costs.

Cost-Benefit Analysis and Financial Evaluation

94. As detailed in the Handbook of Cost-Benefit Analysis, there are three methods of analysing projects:
 - a. cost effectiveness assessment;
 - b. financial evaluation; and
 - c. CBA.

The methodology used should be ascertained on a case-by-case basis.

95. The applicability of a cost-effectiveness assessment is limited as the metric does not thoroughly define the project constraints, and has the potential to be oversimplified to the point of being misleading. Similarly, a direct financial evaluation may miss some of the applicable social environmental benefits and costs, and hence may not be adequately thorough for the purpose. Conversely, a full-blown CBA with quantified intangibles (such as social, environment and heritage values potentially determined through contingent evaluation) will ensure all WLC and benefits are assessed and considered for a well-informed project decision.
96. Ideally, consistency in the methods used is critical for comparison of results and informed decision-making is the key for having a robust CBA.

Seeking Second Stage Approval

97. Having completed the DBC, the next step towards securing the funding is to seek Government approval to proceed to implementation and delivery in accordance with the FDB.
98. The Second Stage submission is supported by a DBC and associated documents, and seeks approval and funding to deliver the preferred option. The DBC should also include discussions of the other, non-preferred options to support the selection of the preferred option. The DBC builds on the work completed in First Stage. This chapter guides entities through the process of completing documents for Second Stage approval, including preparation of the DBC and key deliverables.
99. In order to receive the requisite authority to proceed and the funding approval, the DBC may need to be incorporated into an NPP. Similar to the requirements for the First Stage Approval, the Second Stage Approval NPP can be included as part of the entity's Portfolio Budget Submission or a stand-alone Submission. More detail on the requirements and consideration of NPPs can be found in the Budget Process Operational Rules and Cabinet Handbook.
100. The second stage NPP is the key deliverable at this stage, and should be fully supported, costed and detailed with a DBC incorporating a cost plan, risk plan, FDB and project programme at the very minimum.

Next Steps

101. With the required approvals received, it is time to procure the necessary contractors to design, build, manage and commission the structure or commence the engagement of those experts to commence the process of managing and undertaking the remediation activities. However, before any of the work can be commenced, it is likely that any project progressing through the Two Stage Approval Process would be referred to the Parliamentary Standing Committee on Public Works (PWC).

Public Works Committee

102. Projects subject to the Two Stage process are also subject to the PWC. The PWC is required to consider the need, scope, cost, purpose and value for money of proposed works and report its findings to Parliament.
103. The PWC is a joint parliamentary committee, comprised of six members of the House of Representatives and three Senators, which inquires into and reports to Parliament on public

works. The PWC process is an integral component of the project quality assurance process and assists entities in achieving value for money outcomes.

104. The [Public Works Committee Act 1969](#) (the PWC Act) requires that any public works (with certain limited exceptions) with an estimated cost exceeding \$15 million will not be commenced unless:
 105. It has been referred to the PWC; and
 106. The House of Representatives has resolved, following examination and report by the PWC that it is expedient to proceed with the work.
 107. Under an agreement between the PWC and successive Finance Ministers, works estimated to cost between \$2 million and \$15 million must be notified to the PWC as medium works, before the works have commenced. Tenders should not be called for until the PWC has agreed in writing for the work to proceed.
 108. CBA and WLC exercises undertaken by the entity in consultation with Finance can be drawn upon in order to harmonise the information being provided to the PWC.
 109. The PWC Act provides that a work should be referred to the PWC when all particulars substantially affecting its cost have been determined. Works must not commence and contracts cannot be entered into until Parliament has agreed that the work proceed. It is important to note that concurrent building design cannot occur pending PWC consideration. Approval may be sought under the 'Concurrent Documentation' process, following the public hearing.
 110. Entities considering undertaking a public works proposal should consult the Parliamentary Standing Committee on Public Works Procedure Manual, which can be found [here](#).
 111. The Manual outlines the expectations, functions and responsibilities of the PWC and the processes that need to be undertaken in the PWC process. It also outlines the content requirements for Statements of Evidence.
 112. Typically, large projects have financial, social and environmental impacts on local areas and on the community at large. For this reason, the PWC requires that sponsoring entities consult local groups, organisations and authorities, unions and environmental groups during the development of a proposal.
 113. Finance plays a co-ordinating role in the PWC process and is responsible for administering the PWC Act on behalf of the Minister for Finance. It is also responsible for preparing referring motions, expediency motions and exemptions, and briefs the Finance Minister on works requiring referral to the PWC. Referrals are made in the House of Representatives by the Finance Minister.
 114. Entities should consult Finance and the PWC Secretariat as early as possible, in relation to the PWC approval process.
 115. Prior to seeking referral of a work to the PWC, entities should consult the Checklist for the PWC process (attached). In addition, the PWC Manual provides a general timeline for the PWC process. This has been reproduced in Figure 2, The Public Works Committee Process.

116. Entities should note that there is a continuing obligation to update the PWC on project changes and to provide it with a Post Implementation Report on completion of the project.

117. Entities should also note that they are responsible for the timeliness of their submission. Requests for exemptions based on urgency will not be considered unless a business case can demonstrate exceptional circumstances. Failure to account for the timing of the PWC process is not considered to be an exceptional circumstance and entities will bear the responsibility for any delays caused by failure to account for the PWC process in their timelines.

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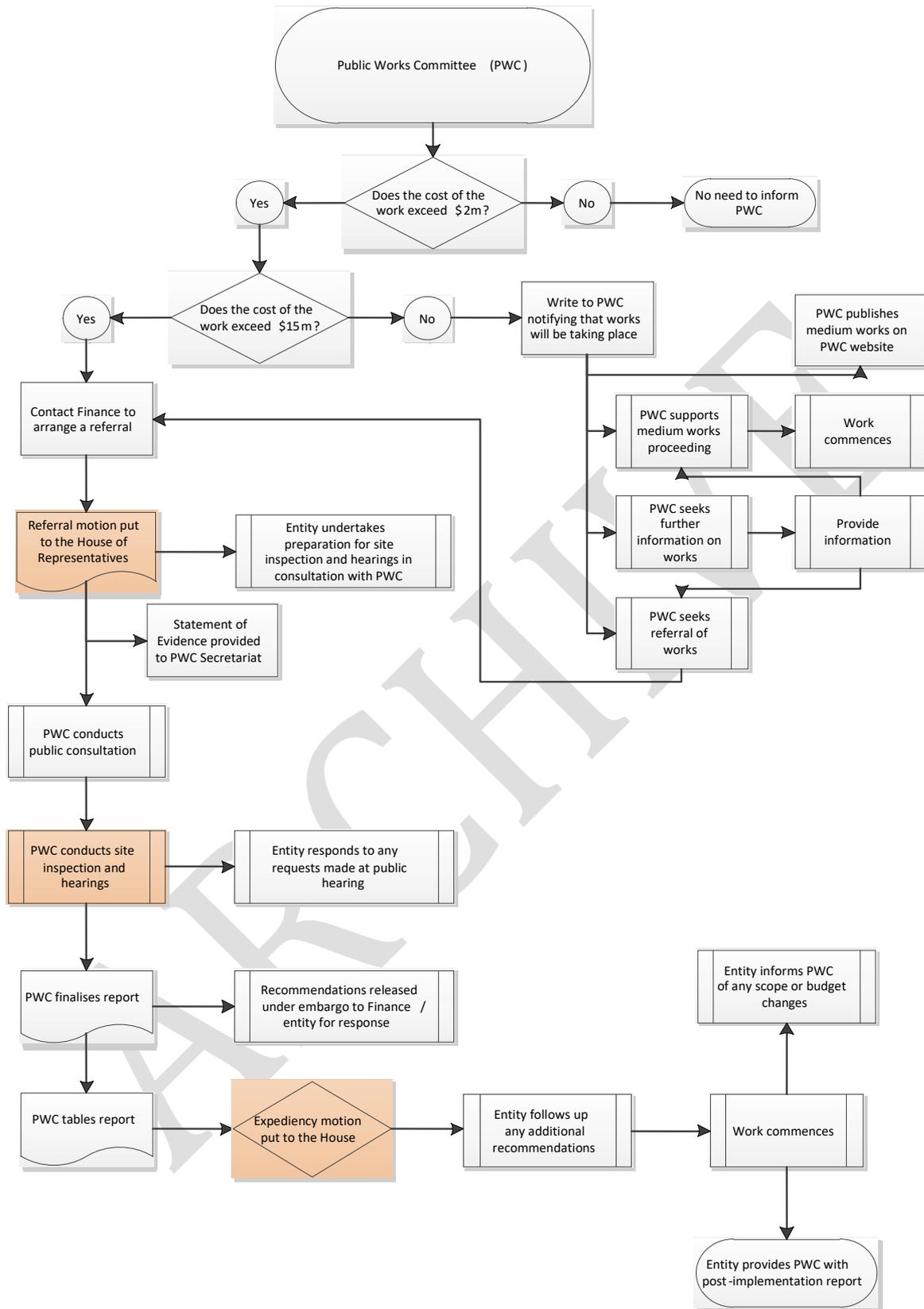


Figure 2: The Public Works Committee process

Glossary

Entity	Non-Corporate Commonwealth Entities under the PGPA Act and those Corporate Commonwealth Entities who may wish to refer to the Guidance as a tool.
Base Case	A statement of what would have happened in the absence of the project or program.
Benefit	A gain in utility or welfare resulting from a project or program.
Cash Flow	Common shorthand for 'net cash flow', which is the difference between the expenditures and the receipts over time of a project or program.
Cost-Benefit Analysis (CBA)	A method of economic evaluation for projects, programs or policies that measures benefits and costs as far as possible in monetary terms. It differs from a financial appraisal or evaluation in that it considers all gains (benefits) and losses (costs), regardless of to whom they accrue.
Detailed Business Case (DBC)	The body of work that will fully inform the Government decision as to whether to proceed with the project.
Discounted Cash Flow	The technique of appraising projects based on the idea of 'discounting' future costs and benefits to their present values.
Evaluation	A considered assessment of a program, project or activity. Whereas an 'appraisal' is invariably 'before the fact' (ex ante), an evaluation may take place 'after the fact' (ex post), or while an activity is in progress.
Feasibility Study	Feasibility studies aim to objectively and rationally uncover the strengths and weaknesses
Financial Evaluation	An assessment of the financial effects of a project or policy from the perspective of some defined entity, which may include the whole of government. Gains and losses accruing elsewhere in the economy are not included.
First Stage Confidence Level (P50)	The cost estimate based on parametric analysis plus an allowance for risk based on probabilistic costs (consequence multiplied by the probability of occurrence).
Fit-out	The design and delivery of the interior partitioning, floor, ceiling, mechanical, electrical and environmental components to meet the requirements of the buildings occupants. This includes the customising and finishing of the base building (where base building is the raw floor space bounded by walls but not specifically adapted to the requirements of its occupants).
Gateway™	The United Kingdom's Office of Government Commerce (OGC) Gateway™ Review Process, which is a project and program assurance methodology that involves short, intensive reviews at up to six critical stages in a project's or program's lifecycle.
Initial Business Case (IBC)	The IBC is the initial argument for Government support. The purpose of the IBC is to lay out the possible benefits and costs associated with the project in a consistent and logical format, and to secure approval from the Government to further develop the option(s) for the delivery of the desired level of capability.

Lease	A legal agreement made between the lessee and a lesser which grants possession of a premises for a fixed period in exchange for the payment of rent.
Life Cycle	The time interval between a product's recognition of need or opportunity and its disposal.
Life Cycle Costing	A process to determine the sum of all expenses associated with a product or project, including acquisition, installation, operation, maintenance, refurbishment, discarding and disposal costs (from AS/NZ 4536:Life Cycle Costing: An application guide 1999).
Key Performance Indicator (KPI)	KPIs are quantitative measurements that help an organization measure progress towards goals and identify areas for improvement.
Maintenance Costs	Costs associated with maintaining the efficiency and dependability of the asset.
Major fit-out	Fabrication and/or renovation on the non-base elements of half or more of a property's usable office area to create the internal layout of an office area (where the usable office area is over 500 m2).
Major Public Works	Capital works that are estimated to cost in excess of \$15 million. See the Public Works Committee Act 1969 for additional information.
New Policy Proposal (NPP)	An NPP is defined as any proposal that requires a government decision and that: <ul style="list-style-type: none"> • has a certain or potential financial impact on existing estimates within the forward estimates period or beyond; or • has changes in expenses offset by changes in other expenses or user charges (revenue); or • creates a legal, financial, contingent or other commitment for the Commonwealth; or • changes the intent of a previous policy decision or position. This includes proposals that are fully offset or involve movements between or within outcomes.
Official	A person who is in an Entity or is part of an Entity.
Optimism Bias	The demonstrated systematic tendency to be overly optimistic about the outcome(s) of a project, whether by underestimating cost, underestimating schedules or overestimating outcomes.
Property	Infrastructure, land, buildings or heritage assets owned or leased by the Commonwealth or an Australian Government entity.
Property management plan	A plan set out for an entity which details its proposed property management activity over a given period.
PGPA Act	<i>Public Governance, Performance and Accountability Act 2013</i>
Public Private Partnership	A partnership between a government and an organisation in the public sector for the delivery of infrastructure and associated services traditionally provided by the government, such as railways, freeways, etc.
PWC	Public Works Committee.

Second Stage Confidence Level (P80)	The cost estimate based on detailed cost analysis from the Functional Design Brief, site due diligence and Concept designs plus an allowance for risk based on probabilistic costs (consequence x probability of occurrence).
Stakeholder	An individual or entity who is either potentially affected by the project or program or who has a potential effect on the project or program.
Whole-of-Life Costs (WLC)	An estimate of all expected costs over the lifetime of the relevant lease or property, including costs of acquisition, operation and maintenance.

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Appendix A – Cost Analysis for First and Second Stage Approval

Better practice probabilistic cost estimation and determination of statistical cost-confidence levels in a public sector construction context

Intent

The Two Stage Capital Works Approval Process specifies two different cost confidence levels; First Stage Cost Confidence (P_{50}), and Second Stage Cost Confidence (P_{80}). There is a requirement for increased cost confidence at the second stage reflecting:

- a. A recognition that the expected project maturity (specifically in the areas of project scope and performance of the asset) has advanced considerably,
- b. The understanding that, from a whole of government perspective, project financial risk can be partially ameliorated by cross subsidisation which is only plausible with a portfolio of projects with a consistent, statistically derived risk allowance development methodology, and
- c. recognition that project risks will be realized, refined or retired as the project progresses, dictating that project cost modification is statistically inevitable through the development stages.

Complex projects such as high value construction have a long lead times and significant development costs to allow for detailed planning, design, consultation, approvals and risk management. Noting this, First stage approval generally provides a sum of money to advance these works to a point where their inherent risk is managed to an appropriate level, and the actual required scope is determined hence there is significantly improved confidence in the cost estimates. Further, contingent risk is more thoroughly understood and is comprehensively assessed. For this reason, the First Stage approval cost estimate is aimed at achieving a cost confidence of P_{50} . This confidence level is given by the parametric cost analysis plus the risk allowance developed through the risk management plan.

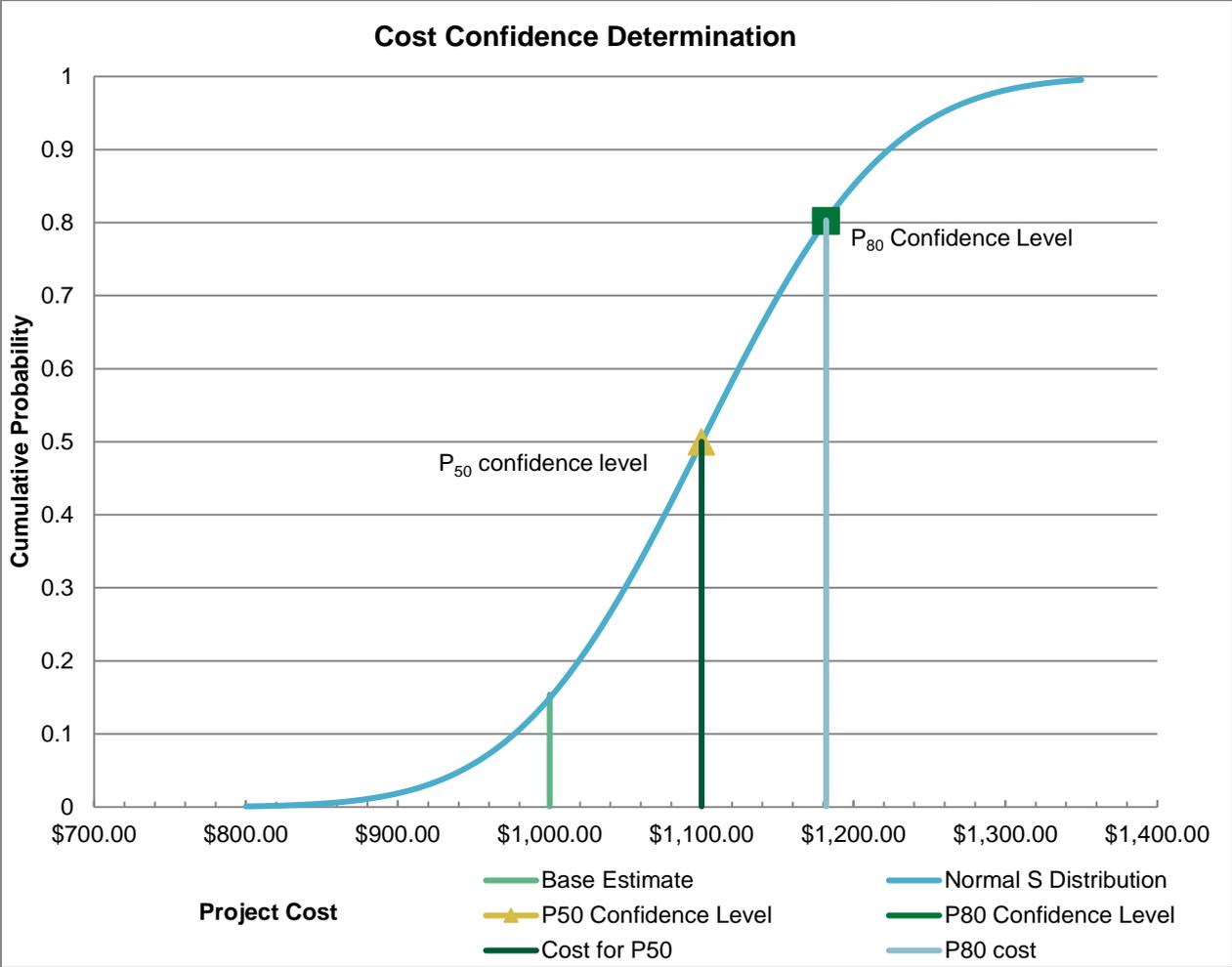
As the project matures from First Stage approval, risks are retired, refined and realised. This results in modifications to the Quantity Surveyor assessment of the probable cost to accommodate those realised and refined risks, whilst also improving the clarity of the residual risks. This combines to provide a far more accurate assessment of the probable cost of the project. As such, second stage approval requires a confidence of P_{80} , to allow the Government to fund the project and be fully aware of the residual risk for which they may become liable.

Finally, from a macro perspective, consistent application of this requirement allows the Government to statistically model their construction project risk across the entire General Government Sector (GGS) to measure and manage the potential liabilities. If all projects are considered with a cost confidence of P_{80} prior to approval and funded for that amount, statistically speaking, contingencies can be pooled across the GGS, managed and more adequately controlled. This is necessary for whole of government efficiency - as one project in every five will exceed the cost estimate whilst the others will come in at, or under, their approved budget, offsetting the over-runs.

Defining P_{50} or P_{80} in the Government Context

First and most importantly P_{50} and P_{80} refers to a confidence level regarding the probability of the cost not being exceeded, and does not indicate a quantum of cost or proximity to the actual cost realised. That is, P_{80} is not a cost plus/minus 20% but instead it is a cost that will not be exceeded 80% of the time.

Risk profiles take the shape of the asymptotic 'S' curve shown below. The curve shown is for a fictional representative project with an arbitrary parametric cost estimate of \$1,000 and a simplified risk profile. This demonstrates the position of the P₅₀ and P₈₀ confidence level estimates and risk allowances (contingencies). Note that to reach P₁₀₀, all risks would be identified and allowed for at their estimated cost, leading to an impractically large contingency allowance (observe the asymptotic nature of the probability curve) or require an excessive time to deliver the project. Conversely, if the parametric estimate (in this example \$1000 with P15 confidence) was all that was allowed for, that is with no contingency allowance, then the cost will be exceeded in almost every circumstance. Clearly, prudent project management and informed investment decision requires a consistent confidence level applied to all projects. It is for this reason that the Government requires a P50 confidence level in the cost plan at First Stage Approval and requires a P80 confidence at Second Stage Approval.



Note that the red line indicates the 'base case' estimate, being the parametric cost with 'most likely' values for inherent risks (range risks). This value is not P₀ as a consequence of range risks which have the potential to result in a lower cost (though unlikely). Where this line intersects the S curve indicates the cost confidence associated with that estimate on the represented risk profile (in this case the parametric estimate is approximately P₁₅ – the other way to consider this confidence level is that the parametric estimate will be exceeded by some amount 85% of the time).

The S Curve is a cumulative probability curve arising from the normal distribution analysis of the risks identified.

Note that the graph above demonstrates the difference in risk allowance between a P₅₀ and a P₈₀ estimate. However, this is only at a moment in time – the refinement, realisation and retirement of risks through the due diligence investigations between first and second stage approvals will change both the base case and the standard deviation on the normalised distribution of risk, changing the placement of P₅₀/P₈₀ points on the cumulative probability curve.

In practice the progression from P₅₀ at First Stage Approval to P₈₀ at Second Stage Approval involves the refinement, retirement and realisation of many identified risks. This usually results in the base case estimate increasing and the contingency allowance decreasing commensurately. However, if the estimate was in fact P₅₀, this should be the case in only half of all projects, while the other half have budget estimates that decrease through maturity. The reality shows this not to be the case indicating probable optimism bias in the estimates or inadequate recognition/assessment of risks.

It is also critical to 'lock-in' the scope of the project at Second Stage Approval, as any further changes to the project scope and performance will also have flow on effects to the project cost and risk. Should the scope or performance change, the assumptions and estimates would affect the overall cost and risk profile for the project and would certainly alter the project from what was agreed by Government at Second Stage Approval.

Ascertaining your P50 or P80 confidence level cost

Deriving the appropriate cost confidence requires a cumulative assessment of the applicable risks. There are two different risk categories that form the risk profile: inherent (range) risk and contingent risk.

Range risk involves assessing the highest likely, lowest likely and most likely cost impact of an event that will occur (probability =100%). This may be a range of both quantity and rate separately, or combined.

Example - the bulk earthworks are assessed as 200,000m³ at \$25 per m³ with the quantity and rate combined range being -20%, 100%, +40%. The range of costs for this is:

- Lowest likely = (200,000 x \$25) -20% which equals \$5.0m x 0.8 = \$4.0m.
- Highest likely = (200,000 x \$25) +40% which equals \$5.0m x 1.4 = \$7.0m.
- Most Likely = (200,000 x \$25) -0% = \$5.0m.

The mean value is then considered the base estimate plus risk and so the risk allowance to include is the mean minus the most likely.

Contingent risk is an assessment of, and allowance for, unmeasured items. These may include items such as weather, geotechnical problems, political issues, design/owner requirements and other similar unknowns. These risks have a probability of less than 100% chance of occurring. As such, the risk needs to be allowed for in the contingency in a probabilistic manner. That is: cost (\$) x likelihood of occurrence (probability %).

To ascertain the appropriate risk allowance the risks and costs are viewed as a normalised cumulative cost probability as shown in the graph above.

Ascertaining the normalised cumulative cost probability curve is done by use of the Monte Carlo simulation method where all identified risks are simulated over a number of projects probabilistically to ascertain the normal distribution of risk costs. This can be completed using a random number generator in a spreadsheet application to determine the mean and standard deviations of costs derived from the simulation. This represents the application of the accumulated risks (both inherent and contingent).