

INVESTMENT LIFECYCLE GUIDELINES

Options analysis

Overview

Strategic
assessment

Options
analysis

Business
case

Project
tendering

Solution
implementation

Post-
implementation
review

Supplementary
guidance

Investment Lifecycle Guidelines

Options analysis

'Which option will provide the best solution?'

Version 1.0

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Overview
Strategic Assessment
Options Analysis
Business Case
Project Tendering
Solution Implementation
Post-implementation Review

More information at: www.lifecycleguidance.dtf.vic.gov.au

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Abbreviations

DPC	Department of Premier and Cabinet
DTF	Department of Treasury and Finance
EPA	Environment Protection Authority
ERC	Expenditure Review Committee
ICT	information and communications technology
ILM	investment logic map
IT	information technology
KPI	key performance indicator
MYS	multi-year strategy
NPV	net present value
PPM	project profile model
SEPP	State Environment Protection Policy
TEI	total estimated investment

Executive summary

The first three phases of the project lifecycle – the strategic assessment, options analysis and business case – build the case for deciding to proceed with an investment. Progress through these phases is not automatic. It should be made on the basis of considered decisions.

This guideline focuses on the options analysis phase.

Options should not be limited to asset solutions. Relationship building is an important element of any project. In the preliminary phases of a project it can be critical to canvass relevant stakeholders to identify options and constraints. This allows you to identify the best options to explore. This extends both to your own department and beyond - to other departments and central agencies, as well as external stakeholders.

Policy or legislative changes may shape the direction, scope or urgency of the proposal or provide a viable solution.

The Department of Premier and Cabinet (DPC) coordinates strategic, cross-agency infrastructure investment in consultation with relevant departments and public bodies. It also coordinates Commonwealth and local government involvement and assists in making sure that appropriate priority is given to all components of a cross-agency proposal.

The options analysis phase identifies various options for project scope, solutions and delivery. It allows them to be assessed against underlying drivers and high-level criteria to arrive at a short-list of viable options. These short-listed options will be analysed in detail in the business case, should decision-makers accept both that there is a continued need and that the likely solutions are appropriate.

Failure to undertake an options analysis could lead to unnecessarily expensive or complex solutions (and business cases) or solutions that do not adequately address the business need.

1 Context

Think outside the frame. Test the possibilities!

1.1 Investment Lifecycle Guidelines – background

The Investment Lifecycle Guidelines series (the guidelines) are designed to be applied to Victorian Government investments so they provide the maximum benefit for the State's individuals, communities and businesses.

They are mandatory for major¹ investments, but can be used for any investment, whatever its type, complexity or cost.

Every investment needs to address a basic set of questions consistently and robustly. The guidelines provide practical assistance to shape investment proposals, inform decisions about them, monitor their delivery and track the benefits they achieve. They also refer to tools best suited to help at each phase of the investment lifecycle.

The guidelines have seven parts – an Overview and one document for each of the six phases in the process. Their titles and the questions they address are:

1. **Strategic Assessment** (What are the business needs and the likely solution?)
2. **Options Analysis** (Which option will provide the best solution?)
3. **Business Case** (Is there a compelling case for investing?)
4. **Project Tendering** (What is the preferred delivery option?)
5. **Solution Implementation** (Is the investment proceeding as planned?)
6. **Post-implementation Review** (What benefits were delivered and what were the investment lessons?)

Supplementary guidance includes *Procurement Strategy* and *Risk Management*.

1.2 Purpose of the guidelines series

The guidelines provide standards for activities carried out at various phases of an investment. The Overview explains the whole context of the series and relevant processes. Supplementary guidance material has 'how to' details about processes and methods (available at www.lifecycleguidance.dtf.vic.gov.au).

This guideline addresses the options analysis, the second phase of the project lifecycle. In this phase, investors identify a short-list of viable potential options. These are then analysed in detail in the business case—should decision-makers accept that there is a continued need for the proposed service and/or infrastructure and the likely solutions are appropriate. The guideline also refers to related processes and guidance material. A resource directory is provided for web-links.

¹ To meet current government requirements, *major* has a total estimated investment (TEI) > \$5 million.

2 Options analysis

Key principles

Options should include identifying all potential methods to meet the demands for service delivery, including non-asset solutions, using or adapting existing resources, demand management strategies and, where relevant, the *Partnerships Victoria* framework.

All assessments are to use informed decision-making to:

- achieve value for money in meeting investment objectives
- evaluate all feasible alternatives
- consider lifecycle costs and benefits, including related operating costs and benefits
- manage or transfer risks associated with each phase of the lifecycle
- test the validity of the options and their sensitivity to changes in key assumptions.

2.1 Purpose

Options analysis supports efficient planning and decision-making. Its purpose is to evaluate all feasible solutions (both asset and non-asset) and short-list options for further evaluation. This short-listing allows for both early decisions on public policy issues and the channelling of resources into proposals that are likely to be successful.

The options analysis should provide:

- a clear rationale for a preferred option or short-list of options for further evaluation
- identified project and third-party risks, and the extent of uncertainty regarding risk, and strategies for managing and mitigating risks
- an initial assessment of options supporting the feasibility of a proposal at minimal cost
- information or knowledge gaps to be determined and addressed before a business case is developed
- recommendations for a decision on whether it is appropriate to progress a proposal to the (full) business case phase.

2.2 Benefits

The options analysis phase of the investment lifecycle provides departments and agencies with a high-level analysis of the widest range of service delivery options before they invest in detailed and more costly (full) business case development. Benefits include:

- allocation of resources to proposals that are most likely to be successful
- an opportunity to identify and quantify critical asset investment issues early in the project lifecycle
- a sound basis for strategic decisions to meet service delivery objectives cost-effectively

- identification of the appropriate depth of business case analysis and the level of supporting studies required
- an objective ranking of a wide range of options using similar criteria
- an identified process to manage risks.

The Melbourne Airport Transit Link project case study in Appendix B (Case Study 1) illustrates the benefits of the options analysis phase.

2.3 When should an options analysis be undertaken?

The options analysis process occurs after the strategic assessment has been considered and a decision made to progress the investment proposal. The nature and specific characteristics of a proposal determine the depth of the options analysis.

The options analysis process allows exploration of a wider range of options at a higher level than would be appropriate in the business case. This is an opportunity to consider ideas from stakeholders and provide a reasoned response for the management of their expectations.

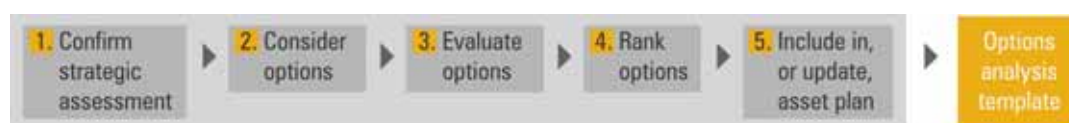
Where there are several similar proposals, it may be appropriate to undertake an options analysis at a consolidated program level rather than analysing individual proposals.

In many cases, iteratively developing the analysis may prove cost-effective and save resources. The initial options analysis may have indicative information only. However, this skeletal information may indicate whether it is feasible to invest further in the future.

3 Steps – options analysis

The options analysis builds on the strategic assessment and is not intended to form a final view on a preferred option. As noted, its purpose is to short-list and rank options for further detailed assessment in the business case. However, for some larger, more complex proposals the options analysis may evaluate short-listed options in more detail, with the business case focusing on the preferred option. Key elements of the options analysis are outlined in Figure 3.1.

Figure 3.1: Options analysis – key elements



3.1 Confirm strategic assessment

The first step in the options analysis is to re-visit the findings of the strategic assessment to check that these are still valid. In particular, revisiting the parameters of the investment logic map (ILM) will help to focus on a broad range of options to address the underlying drivers. The diversity of options may mean additional investment concept briefs need to be developed. There is more information about the ILM and investment concept briefs in the Overview and Strategic Assessment documents in this series.

3.2 Identify options

The department or agency needs to consider all realistic options for meeting the service need. This can involve a number of dimensions—physical or non-physical, scale and scope, timing, location, staging and procurement options, and a ‘do nothing’ option. (Case Study 2 in Appendix B explores a process chain for considering options for a proposal.)

Some, though not all, the options to consider are listed here:

Physical and non-physical options

- *Existing asset options:* Consider whether existing assets held by the department or another government body can be used. This may involve rehabilitating, renewing, enhancing, replacing, adapting, or reconfiguring assets.
- *Non-asset options:* Service needs may be met without creating additional assets, for example by reconfiguring the means of service delivery, developing policy changes or initiatives to manage demand more effectively, changing service delivery requirements or making better use of existing assets.
- *Additional asset-based options:* Investment may be made in additional or enhanced assets to deliver on a new output, or additional service lines in an existing output.

Scale and scope options

- *Scale:* Consider whether it is more efficient to construct a large facility now which will meet expanding need well into the future or to build a facility with flexibility to allow expansion to meet anticipated growth (or contraction where service demand may fall)

with further capital investment in the future (through built-in preparation such as footings or access areas, for example).

- *Scope:* This is an area that frequently changes during the project. The scope of the project put to investors and decision-makers should be clear, but the options analysis phase provides an opportunity to explore where the boundaries of a project might be. Options might have some aspects which could be included in or left out of the scope, for example.
- *Integration:* Options might include addressing the needs of multiple agencies, integrating these into a joint approach. For example, where multiple agencies service a similar client base, co-location of services can improve efficiency and case management outcomes.

Timing options

- *Windows of opportunity:* Some investment proposals, for example, development of a particular housing area, may require action to meet a specific window of opportunity. For example, the Commonwealth Games Village was required to be ready for use by competitors arriving for the Games in 2006, but the development of this or another site for housing would not have this same time pressure.
- *Immediate or delayed timing of the investment may be an option:* a major new facility may be needed to meet future demand, but existing facilities may be able to cope for a few more years. The cost or saving from delaying the project could be significant, given market factors at the time.

Location options

- *Consider a range of locations:* Service requirements may dictate location, but where there is no predetermined location, a range of options can be examined. These may allow consolidation and interagency co-location.
- Disposal of existing assets where required should be included in the analysis when considering new locations or 'joined-up' government opportunities.

Staging options

- Can the project be broken into smaller components or stages, or is it more economical to build in one step?
- Should first stage include preliminary works for subsequent stages?

Procurement options

- The department or agency may have a standard procurement approach for particular projects, for example using a pre-qualified panel of providers. If so, the options analysis may simply test the appropriateness of this method in the proposal circumstance. However, different procurement options are suited to different project characteristics and it is appropriate to consider different methods.
- The *Procurement Strategy* supplementary guidance addresses a range of methods, including: lump-sum or fixed-price contracts, design and construct, construction management, public-private partnerships and alliancing.
- A blend of methodologies might be used, for example a lump sum contract might be used to undertake an early works package to provide for faster delivery on time critical projects with the subsequent main project being delivered perhaps through a public private partnership arrangement.

Figure 3.2 indicates the strengths of particular procurement methods.

Figure 3.2: Procurement methods – comparison of strengths

Contract type	Cost certainty	Fast delivery	Design control	Deal with complexity	Risk transfer	Administrative burden	Reduce claims
Lump sum	★★★★★	★	★★★★★	★★★★	★★★	★★★★★	★★★
Design & construct	★★★	★★★★	★★	★★	★★★★	★★★	★★★
Document & construct	★★★★	★★	★★★★	★★	★★★★	★★★★	★★★
Construction management	★	★★★★★★	★★★★★★	★★★★★★	★	★	★★★★★★
Share of savings	★★★★	★★★★	★★	★★	★★★★	★	★★★
PPP	★★★★★	★★★★★	★★★★	★★	★★★★★★	★	★★★★
Alliancing	★★★	★★★★★	★★★	★★★★★★	★★	★	★★★★★★

Note: More diamonds indicates better value against the specified criteria

Where new, renewed or enhanced infrastructure is involved and the project value exceeds \$50 million, the *Partnerships Victoria* mechanism should be considered as a possible means of delivery. (Where appropriate, you should fully examine the potential for *Partnerships Victoria* delivery at the business case phase.)

3.2.1 Sources of options

Effective knowledge management is a good source of options. A review should be undertaken at the end of selected projects and within five years of project completion. The results of reviews should be documented, fed back into the options analysis and business case process for future projects and, preferably, made available to other departments.

This is part of a continuous improvement process and should include measuring costs (procurement and recurrent), revenues and benefits realisation. The benefits of this approach include:

- gathering ‘real’ information on which to base future infrastructure investment decisions
- improved risk management
- less risk of past mistakes being repeated
- transfer of knowledge within State Government agencies before personnel leave
- improved outcomes from the options analysis and business case activities.

A database of project information should be established to:

- record and manage the progress, scope, budget and timeline of final outcomes, including reasons for variation
- assist the department or agency to learn from the experience, for the benefit of future projects.

3.3 Evaluate options

The next step is to evaluate the most viable options to meet the identified service need. This evaluation should identify the advantages and disadvantages of each option and examine critically the risks and benefits to government of each of them.

The options analysis should be consistent with best practice infrastructure investment guidance (e.g. as set out in the Investment Evaluation Policy and Guidelines, in this guidance material, or where available, specific detailed departmental guidance).

The key issues to be addressed in each option are outlined in the options analysis template in Appendix A.

The options analysis should be based on quantifiable data. The extent and detail of the data depends on the nature of the proposal and the level of objective data available.

Datasets typically used in options analysis include:

- present demand and cost projections
- whole-of-life cost estimates (concept, development concept or preliminary design estimates)
- service delivery models and performance requirements
- benchmarks
- technical information, e.g. locality plans, topographical and geological data
- permits, consents or approvals
- site characteristics and constraints
- any revenue expectations
- suitability, performance or condition of any relevant existing infrastructure.

In many instances, preliminary studies will be required to support an options analysis. These studies may include:

- financial and economic analyses (e.g. preliminary cost-benefit assessment or cost-effectiveness assessment)
- market research and community consultation
- planning, environmental and engineering studies.

Any robust benchmarks to support an options analysis should also be referenced.

The options analysis should be supported by a recommendation as to which options or which preferred option should be pursued further in the full business case phase. It should also confirm the continuing alignment of the proposal with government and departmental strategic objectives and priorities.

The risk analysis, in particular, will assist in determining the level of development of the full business case. (Refer to Appendix C, Project cost estimation.) The analysis should identify the extent of uncertainty regarding risk.

If an options analysis is undertaken to short-list options for further evaluation, the economic and financial analyses undertaken during the options analysis phase will need to be further developed during the full business case phase.

Before undertaking supporting studies, the required project outcomes and objectives must be clearly defined (i.e. through revisiting the strategic assessment), agreed within the department and central agencies, and explicitly outlined in the study briefs.

3.4 Rank options

Departments may apply their own methodology for ranking proposals. A possible approach for determining proposal priority is outlined below. Appendix D has a project example.

Ranking methodology – a possible approach

1. Develop agreed weightings for selection criteria (e.g. tightness of strategic alignment) and risk impacts, including those that occur if the project is not undertaken (e.g. non-compliance with regulatory requirements). Identify the extent of certainty regarding risk.
2. Score the proposal's level of contribution towards each selection criterion, with an assessment of the level of risk.
3. Calculate the proposal's benefits and risks. In this context, a triple-bottom-line framework (economic, social and environmental) may be an appropriate tool.

(Melbourne Water has developed a useful methodology for assessing the triple-bottom-line impacts of their projects and has agreed to make this available; see the supplementary guidance at www.lifecycleguidance.dtf.vic.gov.au)

Also Chapter 8 of the Investment Evaluation Policy and Guidelines provides one detailed approach to integration of economic, social and environmental factors, consistent with DTF requirements.

4. Prioritise proposals based on the relationship between benefits, risks and overall lifecycle costs.

A 'reality check' should be carried out on the prioritised listing of proposals to ensure that:

- critical or unique proposals have not been underrated in the ranking process
- consistent assumptions and processes have been applied
- the prioritised listing has the right feel, based on intuition.

All relevant documentation regarding these proposals should be filed for future reference. It should include evidence of alignment with the department/agency's service strategy and fit with asset strategy.

3.5 Include in asset management plan and multi-year strategy

Options analyses should be developed iteratively. Once you the initiatives are ranked and a preferred option selected, it is to be reported or updated in the departmental asset management plan.

All proposals are to be reported in the department's multi-year strategy (MYS) as early as possible. This should be at the strategic assessment phase. However, there will be instances when a proposal or sub-proposal is under the MYS entry threshold, or a proposal sits within a program that is recognised on the MYS, but the proposal itself may not be specifically identified on the MYS. In such instances, it may not be until options analysis is completed that such proposals are recognised for the first time on the MYS. In these situations, early discussion with central agencies will help with consistent and robust MYS treatment.

The development status of an investment proposal business case should directly correlate with its status in the departmental MYS. Projects in the three to five-year range of the MYS would be expected to have an options analysis completed before moving into the nought to two-year range.

Further development of the options analysis into a business case will be undertaken when:

- the implementation program highlighted in the options analysis indicates that the business case should start
- government (including the minister) indicates that the initiative is a priority.

The options analysis determines if more detailed information is to be submitted and if additional feasibility studies are warranted. These are to be developed before preparing the full business case.

3.6 Options analysis outcome

The key deliverable of this phase is the completed options analysis template, including ranking the options available to meet service delivery requirements.

4 Next phase – business case

4.1 Purpose

Further development of the proposal to the business case stage provides advice to decision-makers to determine whether the project has sufficient merit to proceed. It is a substantiated argument for the preferred option and its delivery. It provides a rigorous examination of the options, costs and risks. Once approved, it becomes the core governance document against which the project will be managed and measured.

The purpose of the full business case is to provide key decision-makers with information to assess and demonstrate how the preferred option best meets the service need. There should be sufficient information for decision-makers to:

- determine the preferred option
- endorse the preferred option
- agree on the levels and sources of proposal funding.

4.2 Developmental business case

Agencies without the capital resources needed to produce a detailed business case for the Expenditure Review Committee (ERC) can use a developmental business case to seek interim funding. This outlines their proposal's critical components. Successful bids receive additional funding to develop a full business case for the proposal. A template for preparing a developmental business case is included in Appendix E of the Business case guideline.

4.3 Scope of a business case

A rigorous assessment of the options, costs and risks is an integral part of any proposal. The full business case builds on the strategic assessment and options analysis phases by developing a comprehensive document analysing each of the short-listed options. The business case requires more detailed work than the earlier two phases, to tighten and refine assumptions and the information provided.

It is generally appropriate for two or three options to be considered in the business case. In low-value, low-risk cases, however, it should be common practice to review the strategic assessment and options analysis work undertaken earlier and focus on the preferred option in the business case. The analysis will be more in-depth for larger or more complex or risky proposals, particularly if private financing is involved.

The level of detail in the business case will vary depending on the size, risk and complexity of the proposal. Appendix D in the business case guidelines refers to a strategic business case, which requires a less detailed approach. Some of the issues included in the template will not be relevant to all proposals. However, the completed business case should reflect that each of the issues identified has been considered.

4.4 When to undertake a business case

A full business case should be prepared prior to seeking funding for any proposal with a total estimated investment (TEI) of more than \$5 million, or one which materially affects the delivery of services. The business case is required to accompany the budget submission seeking funding through ERC or approval by Minister (as shareholder) for statutory authorities. However, the development of a business case should happen whether or not a proposal requires formal government (or ministerial) approval or specific funding in the budget process.

The business case produces a rationale for a proposal, based on the service needs and an assessment of the likely costs and potential for success.

Departments and agencies are responsible for determining the level of analysis required, based on the proposal's size, complexity and risk. This will dictate how many of the elements of a business case are addressed and the depth of analysis of each element.

Resource directory

Further information may be obtained from the following publications/websites. Please advise the Department of Treasury and Finance if your agency, or other agencies, have additional information that should be included in this listing.

Resource name	Access details
Investment Management Standard	
Problem Definition (Investment Logic Map)	www.dtf.vic.gov.au/investmentmanagement investmentmanagement@dtf.vic.gov.au
Solution Definition (Investment Concept Brief)	
Benefit Definition (Benefit Management Plan)	
Business Case	
Investment Reviews	
Benefit Report	
Gateway Review Process	
Project Profile Model	www.gatewayreview.dtf.vic.gov.au gateway.helpdesk@dtf.vic.gov.au
Program Reviews	
Gate 1 Review: Strategic Assessment	
Gate 2 Review: Business Case	
Gate 3 Review: Readiness for Market	
Gate 4 Review: Tender Decision	
Gate 5 Review: Readiness for Service	
Gate 6 Review: Benefits Evaluation	
Investment Lifecycle Guidance	
Overview	www.lifecycleguidance.dtf.vic.gov.au
Strategic Assessment	
Options Analysis	
Business Case	
Project Tendering	
Solution Implementation	
Post-implementation Review	
Supplementary Guidance	
Investment Evaluation Policy and Guidelines	www.lifecycleguidance.dtf.vic.gov.au
Project Alliancing Practitioners' Guide	
Procurement Strategy Supplementary Guideline	
Melbourne Water Triple Bottom Line	
Asset Investment Reporting	www.dtf.vic.gov.au/assetinvestmentreporting
Asset Management Policy	www.dtf.vic.gov.au/assetmanagementpolicy
Multi Year Strategy	www.dtf.vic.gov.au/multiyearstrategy
Partnerships Victoria Guidance	www.partnerships.vic.gov.au
Other Guidance	
Building Commission Guidance	www.buildingcommission.com.au
Capital Development Guidelines	www.dhs.vic.gov.au/capdev.htm
Construction Supplier Register	www.doi.vic.gov.au
Environmental Sustainability Framework	www.dse.vic.gov.au
Health Privacy Principles	www.health.vic.gov.au/hsc/
Human Rights Charter	www.justice.vic.gov.au
Information Privacy Act	www.privacy.vic.gov.au
Multimedia Victoria	www.mmv.vic.gov.au/policies
Standards Australia	www.standards.org.au
Tender Documentation	www.tenders.vic.gov.au
Whole of Government Contracts	www.vgpb.vic.gov.au

Glossary

Asset management framework: A Victorian Government initiative to allow the Expenditure Review Committee to exercise greater strategic control over the asset base, with a tighter focus on adapting the asset base to better support output delivery. The framework has a series of linked strategies (service strategy, asset strategy and multi-year strategy) that guide investment planning in departments and agencies.

Appraisal: The process of defining objectives, examining options and weighing up the costs, benefits, risks and uncertainties of those options before a decision is made.

Asset option: An asset option is a means of satisfying service needs by investing in existing assets or creating new assets.

Asset strategy: Sets the direction and communicates up-front the assumptions and decisions about levels of service and who provides them; is the means by which an entity proposes to manage its assets over all phases of their lifecycle to meet service delivery needs most cost-effectively.

Assets: Service potential or future economic benefits controlled by an entity (e.g. a department) as a result of past transactions or other past events. Assets may be physical (e.g. plant, equipment or buildings) or non-physical (e.g. financial investments). Assets may also be current (having a store of service potential which is consumed in one year or less) or non-current (having a store of service potential that is consumed over a period of more than one year).

Base case: The base case is a realistic option that involves the minimum expenditure to sustain existing standards of service delivery or to achieve previously agreed service standards. Therefore, the base case does not always mean 'do nothing'; rather it is the minimum essential expenditure option (e.g. carrying out obligatory works to meet safety and health regulations).

Benefit: The value that the investment will provide to the organisation or its customers. Benefits are normally a positive consequence of responding to the identified driver. Each claimed benefit must be supported by key performance indicators that demonstrate the investment's specific contribution to the identified benefit.

Benefit management plan: A short document that defines the pre-requisites for delivering each expected benefit, how the delivery of each benefit will be measured, and who will be responsible for measuring and realising each benefit.

Benefit reports: Regular reporting of the delivery of benefits, which are tracked and reported consistently with the benefit management plan.

Business case: A document that forms the basis of advice for executive decision-making for an asset investment. It is a documented proposal to meet a clearly established service requirement. It considers alternative solutions, and identifies assumptions, benefits, costs and risks. The development of the business case is based on the logic in the investment logic map.

Capital expenditure: Expenditure involved in creating or upgrading assets.

Change: The things that must be done by the business if the benefits are to be delivered. The changes provide detail of how the strategic intervention defined in the objective will actually happen.

Cost: An expense incurred in the production of outputs.

Cost-benefit analysis: Cost-benefit analysis is a technique that can express in a comparable (monetary) way the net effect of the costs and benefits associated with an investment proposal.

Demand management: A management technique used to identify and control demand for services.

Depreciation: The allocation of the cost of an asset over the years of its useful life.

Disposal: The process in which an asset is disposed of or decommissioned – resulting in removal from an entity's balance sheet.

Dis-benefit: A negative impact that might occur as a direct consequence of implementing a particular solution.

Driver: The reason that action needs to be considered at this time. Drivers are normally couched in negative terms such as 'Climate change is demanding new ways of living in Australia'. A driver should capture the essence of what is broken and the consequences.

Economic cost (or opportunity cost): The value of the most valuable of alternative uses.

Enabling asset: Any physical asset that must be built or purchased for the identified changes to occur. This may be, for example, a hospital, a pipeline or an IT system.

Evaluation: The process of defining objectives, examining options and weighing up the costs and benefits before a decision is made to proceed.

Financial analysis: An investment evaluation technique that is confined to the cash-flow implications of alternative options and is undertaken from the perspective of the individual department or agency or government as a whole.

Gateway Review Process: A review of a procurement project or a program of works/activities carried out at critical points of a project/program's development by a team of experienced people, independent of the project team. These critical points are known as Gateways or Gates. There are six gateways during the lifecycle of a project and reoccurring program reviews for programs of works/activities.

Growing Victoria Together: A ten-year Government vision that articulates what is important to Victorians and the priorities that the Victorian Government has set to build a better society.

ICT-dependent: Information and communications technology (ICT)-dependent projects meet any of the following conditions: The ICT component of the project is critical to the overall success of the investment; or \$5 million or more of the total estimated investment (TEI) is assigned to the ICT component; or 50 per cent or more of the TEI is assigned to the ICT component. Examples of ICT components include hardware purchases, software development and IT project management costs (i.e. anything that is covered by the whole-of-Victorian Government ICT classification).

Impact: The cost, benefit or risk (either financial or socio-economic) rising from an investment option.

Investment: The expenditure of funds intended to result in medium to long-term service, or financial benefits rising from the development or use of infrastructure or assets by either the public or private sectors. A single investment proposal may contain a number of related investment expenditures addressing the same service need.

Investment concept brief: A two-page document that shows the logic underpinning an investment and identifies the likely costs, risks, dependencies and deliverables of the proposed solution. It summarises the merits of an investment and allows decision-makers to prioritise competing investments before proceeding to the business case.

Investment logic map: A simple single-page depiction of the logic that underpins an investment. It provides the core focus for an investment and is modified to reflect any changes to the investment logic throughout its lifecycle.

Investment Management Standard: A best-practice approach applied over the life of an investment that aims to reduce the risk of investment failure, provide greater value-for-money and drive better outcomes. It has been designed to enable the *investor* to shape and control investments throughout their lifecycle.

Investment reviews: Formal scheduled periodic reviews that aim to confirm that the logic for an investment remains valid.

Investor: The person who has an identified business problem (or opportunity), will be responsible for making (or advocating) a decision to investment, and who will be responsible for delivering the expected benefits. This person is often referred to as the 'senior responsible owner'.

Lifecycle cost: Lifecycle cost is the total cost of an item or system over its full life. It includes the cost of development, production, ownership (operation, maintenance, support), and disposal, if applicable.

Key performance indicator (KPI): A measure that has been selected to demonstrate that a benefit expected from an investment has been delivered. The KPI must be directly attributable to the investment.

Multi-year strategy: An agreed listing of asset and non-asset initiatives intended to be implemented in the medium term (generally, the next 5-10 years).

New asset option: Acquisition, transfer or commissioning of an existing asset, or creation of a new asset.

Non-asset option: Under this option, service capacity is met without creating additional assets. This could be done through reconfiguration of the way the services are provided (contracting out, increased use of existing or private assets, or reduction of demand through selective targeting).

Objective: The high-level action (or strategic intervention) that is proposed as the response to the identified driver. This intervention must be framed within the context of the organisation's purpose.

Optimism bias: The demonstrated systematic tendency by appraisers to be over-optimistic about key project parameters, including capital costs, operating costs, works duration and benefits delivery.

Options analysis: A process in which a range of options (both asset and non-asset) are evaluated. The most cost-effective options are then selected for more detailed evaluation through a business case.

Outcome(s): In the Government's output/outcome framework, outcomes equate to benefits.

Partnerships Victoria: The Victorian framework for a whole-of-government approach to the provision of public infrastructure and related ancillary services through public-private partnerships. The policy focuses on whole-of-life costing and full consideration of project risks and optimal risk allocation between the public and private sectors. There is a clear approach to value for money assessment and the public interest is protected by a formal public interest test and the retention of "core" public services. *Partnerships Victoria* is most useful for major and complex capital projects with opportunities for innovation and risk transfer.

Project alliancing: A form of procurement where the State or another government entity collaborates with one or more service providers to share the risks and responsibilities in delivering the capital phase of a project. It seeks to provide better value for money and improved project outcomes through a more integrated approach between the public and private sectors in the delivery of infrastructure. Project alliancing should generally only be considered in the delivery of complex and high-risk infrastructure projects, where risks are unpredictable and best managed collectively.

Project lifecycle: The stages of an asset lifecycle between the identification of the need and the delivery and handover of an initiative.

Proposal: An idea for a policy, program or project that is under development and appraisal.

Residual value: The net value applied to the asset at the end of the investment lifecycle or evaluation period; this may result in either a positive or a negative value.

Resources: Labour, materials and other inputs used to produce outputs.

Revenue: Inflows or other enhancements, or savings in outflows, of service potential or future economic benefits in the form of increases in assets or reductions in liabilities of the entity (other than those relating to contributions by owners) that result in an increase in equity during the reporting period.

Risk: Risk is often characterised by reference to potential events, consequences, or a combination of these and how they can affect the achievement of objectives. Risk is often expressed in terms of a combination of the consequences of an event or a change in circumstances, and the associated likelihood of occurrence.

Risk versus uncertainty: Uncertainty is the extent of variability in the capacity to achieve the desired outcomes or the outcomes themselves. Risks lead to uncertainty.

Scenario analysis: Scenario analysis is a procedure for providing the decision-maker with some information about the effect of risks and uncertainties on an investment. In a scenario analysis, a set of critical parameters and assumptions that define a particular scenario are identified and varied to reflect a best-case and a worst-case scenario.

Service strategy: The strategy for the supply of appropriate services to the community, which is consistent with the entity's corporate goals. It is based on strategic analysis and review of how services are presently provided.

Social benefit: The estimated direct increase in the welfare of society from an economic action. It is the sum of the benefit to the agent performing the action, plus the benefit accruing to society as a result of the action.

Social cost: The estimated direct total cost to society of an economic activity. It is the sum of the opportunity costs of the resources used by the agent carrying out the activity, plus any additional costs imposed on society from the activity.

Strategic assessment: The phase of the project lifecycle during which a need is translated, where justified, into a proposal where outcomes, purpose, critical success factors and the level of strategic alignment are clearly defined.

Value management: Value management is a technique that seeks to achieve optimum value for money, using a systematic review process. The essence of value management is a methodical study of all parts of the product or system to ensure that essential functional requirements are achieved at the lowest total cost. Value management examines the functions required from a product, functions actually performed, and roles of the product's components in achieving the required level of performance. Creative alternatives which will provide the desired functions better or a lower cost can also be explored.

Weighting and scoring: A technique that assigns weights to criteria, and then scores options in terms of how well they perform against those weighted criteria. Weighted scores are summed, and then used to rank options.

Bibliography

Association for Project Management: *Directing Change: A Guide to Governance of Project Management*, www.apm.org.uk/gopm

Australian National Audit Office: *Public Sector Governance Volume 1 Best Practices Guide – Framework, Processes and Practices*, July 2003

Australian Stock Exchange Corporate Governance Council: *Corporate Governance Principles and Recommendations*, Second Edition, August 2007

Building Commission, *Process Guide - A guide to client control of construction projects*, Government of Victoria, www.buildingcommission.com.au

Department of Justice, *Charter of Human Rights and Responsibilities*, Government of Victoria, 2006

Department of Sustainability and Environment, *Our Environment Our Future – Victoria's Environmental Sustainability Framework*, Government of Victoria, 2005

Department of Treasury and Finance, *Government Asset Management Policy Statement*, Government of Victoria, 2000

Department of Treasury and Finance, *Investment Evaluation Policy and Guidelines*, Government of Victoria, 1996

Department of Treasury and Finance, *Partnerships Victoria Policy Framework*, Government of Victoria, 2000

Department of Treasury and Finance, *Partnerships Victoria Practitioners' Guide*, Government of Victoria, 2001

Department of Treasury and Finance, *Partnerships Victoria Public Sector Comparator Technical Note*, Government of Victoria, 2001

Department of Treasury and Finance, *Partnerships Victoria Risk Allocation and Contractual Issues*, Government of Victoria, 2001

Department of Treasury and Finance, *Project Alliancing Practitioners' Guide*, Government of Victoria, April 2006

Department of Treasury and Finance, *Public Sector Comparator Supplementary Technical Note*, Government of Victoria, 2003

Department of Treasury and Finance, *Partnerships Victoria, Updated Standard Commercial Principles*, April 2008

Department of Treasury and Finance, *Use of Discount Rates in the Partnerships Victoria Process*, Government of Victoria, 2003

Melbourne Water, *Triple Bottom Line Guidelines*, April 2007

Mott MacDonald, *Review of Large Public Procurement in the UK*, Report commissioned by HM Treasury, UK, 2000

Appendix A: Options analysis template

Options analysis template
<p>Executive summary</p> <ul style="list-style-type: none"> • Provide a summary of the findings of the options analysis. • Include sufficient information to allow key decision-makers to understand the issues and the rationale for the selected short-listed options. • Clarify the implications of the proposed initiative.
<p>Description of service requirements</p> <p>Insert detail from the strategic assessment, updated as appropriate.</p>
<p>Project function, objectives and critical success factors</p> <p>Insert detail from strategic assessment, updated as appropriate.</p>
<p>Alignment with strategic objectives</p> <p>Insert detail from strategic assessment, updated as appropriate.</p>
<p>Stakeholder identification</p> <p>Insert detail from strategic assessment, updated as appropriate.</p>
<p>Options analysis</p> <p>Consider the range of feasible possibilities.</p> <ul style="list-style-type: none"> • A qualitative description of the advantages and disadvantages may be used to assist in evaluating options. • For major project proposals, risk-adjusted estimates (of revenue, costs, duration and benefits) need to be applied to address project characteristics, level of knowledge and degree of confidence in the estimates. <p>In completing the template, the following options and evaluation must be considered:</p> <ol style="list-style-type: none"> 1. <i>Options would generally include:</i> <ul style="list-style-type: none"> • base case (do nothing) • minimal approach • non-asset solutions: for example, these may include: <ul style="list-style-type: none"> – demand management – service transformation – optimising existing operations or asset use – alternative maintenance strategies – re-investment in replacement/renewal, enhancement of existing infrastructure • investment in new assets. 2. <i>The evaluation of options would consider:</i> <ul style="list-style-type: none"> • rating of achievement of project objectives • rating of achievement of strategic objectives • capital cost (present value) (including confidence levels) • recurrent costs (including confidence levels)

Options analysis template

- potential revenues (including confidence levels)
- environmental benefits
- social benefits and where these benefits are distributed
- key assumptions and risks and the level of uncertainty that stems from these factors
- timing and servicing of project delivery
- risks, should the project not proceed.

Project delivery alternatives

For each of the proposal options, consider all appropriate project delivery approaches and short-list them. These may range from traditional procurement to design-construct or *Partnerships Victoria* delivery, depending on the nature of the investment proposal. Refer to Appendix E for detail on *Partnerships Victoria* project selection.

Preliminary risk assessment

For each option, a high-level analysis of potential risks is required—to estimate their likelihood and consequences and determine the risk level.

The highest-ranking risks should be listed in the options assessment, along with potential cost implications and indicative risk reduction strategies. The risk evaluation section of the business case template (Appendix C in the Business Case guideline document) has further guidance on the main risk areas.

Preferred option

Based on the options analysis and the preliminary risk assessment, provide a prioritised short-listing of options, and any clear preferred option for further analysis.

- Reasons for the preferred option or prioritised short-listing should be documented, including key assumptions used and detail of the ranking process and assessment criteria.
- The preferred timing and sequencing for the project should also be documented.

Actions to progress to the business case

Actions required to further progress the proposal should be listed. These may include:

- further iterations of the options analysis
- determining the impacts of deferring the project
- issues to be specifically addressed in the business case
- timeframe required to develop the full business case
- incorporation/upgrade of the proposal in the department's asset management plan and multi-year strategy
- further studies for addressing information gaps.

Supporting documents

Documentation specifically contributing to the options analysis (e.g. demographic studies) should be listed as supporting documentation.

Signoff

Each options analysis should be signed off by the author, reviewer and authorised delegate. If you need to submit a Project Profile Model (PPM) to update proposal risks, it must be signed off by your chief finance officer (or equivalent).

Appendix B: Case studies

Case study 1: Melbourne Airport Transit Link

The Melbourne Airport Transit Link business case detailed a number of options to achieve a transit link between central Melbourne and the Tullamarine Airport. Options in the business case ranged from heavy rail (express and limited express) to bus service transport. Benefit/cost analysis indicated the bus service was the preferred option, with its relatively low cost and high benefit/cost ratio compared to the proposed rail link.

Consideration was also given to existing services and projected patronage growth for the transport corridor. With airport passengers already having a number of alternatives for commuting to the airport, including bus services, taxis and private vehicles, there appeared little justification for a high-cost investment like the rail link.

Patronage studies indicated limited growth, consistent with estimates provided by the bus operator SkyBus. Low taxi fares, low airport car parking fees and car travel offering short journey times and door-to-door delivery convenience, would hinder increases in patronage, and reinforce the justification for a low-cost upgrade of the airport link.

The commercial viability of the rail option was also benchmarked against a similar operation in Sydney. Although Sydney Airport is the busiest in Australia, the operator of the airport rail line has experienced commercial difficulties, and it was considered unlikely that a similar rail option could operate at a low cost to government in Victoria.

Lessons learned

From an options and benefit/cost analysis, a bus service contract was considered a more feasible option, compared with the high asset investment cost of a rail link. The bus solution was also considered the most appropriate for achieving policy outcomes.

Case study 2: Option issues – our unit no longer works

This case study involves a service unit that is not identified for confidentiality reasons. The list is a process chain for exploring options where a unit is no longer able to meet the service need.

Step 1: Look at the current unit facilities (capacity, condition, location). (This will establish need as an input to the options criteria. It will also provide information relevant to timing options and the 'do nothing' option.)

Step 2: Engage with stakeholders (What does and doesn't work for them currently? Where should the unit be placed optimally? What is the service unit need in the future?) Consultation with stakeholders will inform scope criteria and options for location and issues for future flexibility.

Step 3: Establish the options and indicative costs to stay or to go.

Step 3a: Stay (do nothing, demolish, refurbish, remodel or new build).

Step 3b: Go (new build elsewhere; add infrastructure).

Step 4: Iterative process (Consider the secondary effects on other units and other stakeholders - private contractors and the community.)

Appendix C: Project cost estimation

Departments and agencies should have their own systems in place to provide high-level and time series information on project costs and duration. It is essential to have a database that supports a good understanding of the full lifecycle costs of the assets controlled. It assists in project estimating and providing a reality check on more detailed estimates. This is particularly needed during the options analysis and business case phases.

These estimates should be regularly updated, including at project completion, and should cover operating time series information as well as asset investment estimates. Actuals and estimates of renewals and their extent, timings and costs should be recognised for planning and costing purposes.

These costs may be reported in the form of performance indicators (e.g. capital costs per functional unit) but should accommodate any specific contributing factors or data sensitivities (e.g. size or location of a facility, greenfield/brownfield site) to take the context of costs into account. Indicators should be available in a form suitable for both central agency and departmental requirements.

Indicative risk-adjusted costings are expected to be developed for different phases of the project, depending on the project type. Table C1 provides broad guidance on cost accuracy that might be expected through the phases of project development.

Table C1: Cost accuracy guide

Project development stage	Estimate type	Stage performed	Anticipated range of accuracy
Strategic assessment - project identification	Order of magnitude estimates	Project identification Indicative cost only	-40% to +60%
	Concept estimates	Stage A Concept and options development	-30% to +50%
Options analysis - project development	Developed concept estimate	Stage B Option feasibility, development and evaluation, risk identification	-25% to +40%
	Preliminary design estimate	Stage C Concept design, costing of preferred option and preliminary financial packaging	-20% to +30%
Business case project development (ERC funding)	Detailed estimate	Costing of project for ERC approval and documentation preparation	-15% to +25%
Design, planning and approvals – project delivery	Tender estimate	Tender To assist with evaluation of tenders	-10% to +20%
	Tender price and contract	Negotiated contract price agreement	-5% to +10%

Where appropriate, external specialist expertise may be needed to assist departmental and agency staff with this ongoing exercise.

Costings used in the multi-year strategy are for planning purposes. Costings for the options analysis and business case phase are for investment evaluation. They test the overall suitability and viability of a proposal.

The asset class, the uniqueness of the project or facility, the level of building and construction activity and the buoyancy of the broader economy may influence the ability to reliably estimate the cost of a proposal.

Other factors that come into play include whether the proposal is to enter an active market or one that is less buoyant and whether the initiative proponent is skilled and experienced in the particular asset class or the form and nature of the intended procurement.

You should specifically explain departures from these project cost guidelines. To the extent possible, avoid broad contingencies. Rather, cost specific risks and include their expected values.

Appendix D: Project ranking example – water treatment plant

Table E1 provides an analysis of project objectives against various options. The base case should normally be the 'do nothing' approach, or a fall-back position that could be used to provide service needs at the current levels. However, the do nothing approach is not a viable alternative due to the failure to deliver on State Environment Protection Policy (SEPP) Environment Protection Authority (EPA) requirements, or to comply with the EPA licence conditions.

Table E1: Waste water treatment plant (WWTP) options

Objective/option	1	2	3	4	5
	Do nothing	Retain and upgrade HSTP to secondary standard; upgrade WWTP to tertiary standard	Close HSTP and upgrade WWTP to tertiary standard	Total reuse	Transfer HSTP flows to AWTP and upgrade WWTP to tertiary standard
Meets SEPP/EPA standards for effluent disposal	x	✓	✓	✓	✓
Consistently meets EPA requirements and licence conditions	x	✓	✓	✓	✓
Optimises the use of existing assets	x	✓	✓	✓	✓
Allows for future growth and system demand	x	✓	✓	✓/x	✓
Process system and technology able to improve performance if tighter performance standards imposed	x	✓	✓	x	✓
Allows the water authority to retain a competitive advantage in its charging regime	✓	✓	✓	✓	x
Achieves certainty in its tariff structure	✓	✓	✓	✓	✓
Attains a cost-effective risk profile	x	✓	✓	✓	x
Minimises lifecycle costs	x	✓	✓	x	x
Positioning for future outsourcing opportunities	✓	✓	✓	✓	✓/x

Notes: AWTP= aerobic wastewater treatment plants; HSTP = home sewage treatment plants

Options 2 and 3 are the only options that are capable of achieving all the authority's objectives. Option 3 could be used as the base case in the business case, due to its low cost and ability to meet all objectives. (This is in line with the Investment Evaluation Policy and Guidelines, Section 5.1.) Option 3 is a realistic option that could be used in delivering the future service needs of the authority. It is also the preferred investment proposal.

Note: The above analysis could be improved by incorporating weighting and scoring.

Appendix E: *Partnerships Victoria* assessment

Consider whether your project could be a potential public-private (*Partnerships Victoria*) project.

1. **Scale**

There may be significant potential for efficiency savings through a *Partnerships Victoria* approach for projects where the whole-of-life costs exceed net present value (NPV) (currently \$50 million)—allowing for costs of up-front design and construction, ongoing service delivery, operations, maintenance and refurbishment.

The investment and scale of the project should warrant the time and cost involved in transferring responsibility for delivering and operating the infrastructure to the private sector. (The threshold is stated each year in Budget Information Requests dealing with Expenditure Review Committee Stage 2 requirements.)

Questions to ask for those projects with a present whole-of-life value of between \$25 million and \$50 million:

- Is there a precedent – a transaction cost-saving model?
- Is there an opportunity to aggregate a number of related projects to create a cost-effective scale?

Where the project value is less than \$25 million, unless there is a successful precedent or an opportunity to create economies of scale, it is unlikely that the private and public parties will recover their project development costs in providing a value-for-money result.

2. **Measurable service outputs**

Outputs (key infrastructure performance criteria) should be practical, measurable and controllable by the agency operating the concession. Questions to ask regarding this are:

- Can government's service delivery requirements for using the infrastructure be clearly specified in output terms, with payments based on delivery of the outputs over time?
- Do the main users of the infrastructure receive the key benefits of the project? Are the benefits therefore related to the output specification?
- Can the project construct an abatement regime that provides an appropriate incentive for the operator to meet service standards?

3. **Risk transfer**

The questions to consider are:

- What are the main (top five) risks, including demand/benefits, cost to budgets, scope, timing and policy risks? Are these risks best managed by government or a private party?
- Can the project be structured to transfer significant risk to the private sector for optimal risk allocation? This is particularly related to service delivery through the term of the contract, but also applies to complex construction elements.

- Would it deliver value for money? The transfer of risks to the private sector should not be regarded as cost-free. It should only take place when the private sector is able to manage the risk more effectively than government. Risk transfer can also provide mechanisms for measurable service output payments (e.g. road tolls) or provide opportunities for innovation (e.g. additional uses for infrastructure to generate revenues or alternative design solutions that reduce risks or increase commercial opportunities).
- Can a better risk allocation (and value for money) be achieved through *Partnerships Victoria* than through contemporary design and construct, or design, construct, operate/maintain contracts?

4. Market appetite/asset use/business opportunity

The questions to consider regarding this area are:

- Can the project create a genuine business opportunity, one that is likely to attract sufficient private parties through an effective, competitive bidding process?
- Does the project offer a potential source of revenue to a private party? In some instances, private providers can be motivated to develop opportunities for revenue beyond government payment streams. This is used in part to reduce the cost of services to government. Some informal sounding out of market participants may assist in this assessment.

5. Innovation

Questions to consider are:

- Is there scope in the proposed delivery mechanisms for innovative solutions to the problem or for managing particular risks?
- Is the project large and complex enough to warrant inviting innovative solutions that could improve value for money?

6. Long-term contract

The questions to consider regarding long-term contracts are:

- Is government or the private sector better placed to take a long-term view of infrastructure and service requirements, i.e. up to 30 years or more?
- Is there potential for private providers to accept whole-of-life cycle costing risk? In some instances the timeframe may be shorter, for example, five to seven years for information, technology and communications projects.

Summary

Where a *Partnerships Victoria* arrangement is considered inappropriate for a project (though its value would warrant it), explain this by referring to the criteria above. Reasons may also include whether it affects government's legal obligations (such as existing franchise agreements, leases or statutory arrangements), thus preventing value-for-money benefits. However, the business case could consider the potential for delivery by existing private stakeholders such as rail or tram franchisees. (Include any efficiencies generated.)

Provide a summary outlining how the project addresses each of the key *Partnerships Victoria* criteria above and whether it is a suitable for *Partnerships Victoria* project. It must demonstrate potential under each of the key (first four) criteria for it to be considered a possible *Partnerships Victoria* project.