

Risk Management

Construction Procurement Guidelines

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MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT HĪKINA WHAKATUTUKI

Construction Procurement Guidelines

The purpose of the Construction Procurement Guidelines is to provide government agencies with guidance on the government's standards of good practice for the development of their construction procurement strategy. The Guidelines are intended to support government agencies to improve the quality and consistency of their construction procurement practices.

The Guidelines consist of a suite of sections, each covering a subject matter area. They are considered to be live documents which we may update and add to, from time to time, to ensure they remain current and relevant. You can download the latest version of each section, along with any accompanying tools and templates, from <u>www.procurement.govt.nz</u>.

To provide feedback on the Guidelines, email procurement@mbie.govt.nz.

Major infrastructure project guidance

Major infrastructure projects by their very nature are large scale and complex – they have bespoke issues, risks and challenges that may require more sophisticated project planning, management, procurement and governance approaches. The New Zealand Infrastructure Commission - Te Waihanga, publishes major infrastructure guidance for projects with a total cost of ownership of greater than \$50m.

For more information about major infrastructure project guidance and the support provided by the Infrastructure Commission, see <u>www.infracom.govt.nz</u> or contact the Infrastructure Commission at <u>info@infracom.govt.nz</u>.

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Risk management

Overview

Good risk management processes, applied throughout the lifecycle of a project, are critical for successful delivery. MBIE promotes good risk management practice, as it is essential for delivering public value.

This guide summarises the key principles of good risk management practice in construction projects and describes the practical steps that can be taken through the project lifecycle.

Your agency should make sure that any consultants appointed incorporate these good practice guidelines as part of their scope of services.



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Agencies must document how the risk management practices outlined in the guidelines will be implemented in their procurement strategy/plan.

Some important risk definitions used in this guide

Risk is the consequence of uncertainty on the objectives of the project. A risk can either manifest as a threat (negative impact) or an opportunity (positive impact).

An **opportunity** is an event with an identifiable cause and a probability of occurrence that leads to a positive outcome.

A **threat** is an event with an identifiable cause and a probability of occurrence that leads to a negative outcome.

Risk management is the coordinated activity undertaken by the procuring agency to direct and control risks to achieve good public value.







Risk management: the who, why and what

Culture of good risk management

Good risk management requires commitment, ownership and understanding of the process from senior management, and an active risk management system that is proactively reviewed throughout the project in a constructive "no-blame" environment.

Attitudes to risk will have a significant effect on the success of the project. An objective of "not failing" will have a very low tolerance for risks of any kind. Conversely, an objective of "succeeding" will encourage participants to be more innovative, take more calculated risks where appropriate and make more effort to monitor and manage the recognised risks.

Who is best placed to manage risk?

From project inception, it is the procuring agency that owns and manages all project risks. As the project develops through the phases, some of these risks may be transferred to others better equipped to manage them (such as designers, contactors and cost consultants).

Thinking ahead to reduce risk

Good risk management is thinking about the potential likelihood and impact of project risks, so that suitable mitigation measures can be put in place, to reduce these as low as reasonably practicable (ALARP).

Aa	As low as reasonably practicable (ALARP) The ALARP principle is a useful concept for effective management of risks. In theory, if there was infinite time, effort and money available for a project, it would be possible to reduce all risks to zero on a project.
	The ALARP principle recognises this is not practical and accepts that there is a level of risk that is acceptable, providing it's within overall tolerance limits set for the project, and has been managed to be as low as reasonably practicable.
	For a risk to be considered as ALARP, it must be possible to demonstrate that the cost or time and effort involved in taking measures to reduce the risk any more, would be grossly disproportionate to the benefit that would be gained.
	This is essentially a cost–benefit analysis: ALARP is balancing risk reduction with the cost of achievement.

The ALARP principle applies even for those risks that ultimately may be transferred to others considered best placed to manage them. This improves the chances that all risk owners are able to effectively manage the risks for which they are responsible to deliver a successful project.





Consequences of not thinking ahead

A project with a risk of highly variable ground conditions is to be tendered to the market. A soil investigation report carried out at the site several years ago was to be provided as part of the tender documents. This report was prepared when the building was to be located in another part of the site, so the position of boreholes and trial pits were not in the same location as the building footprint in the latest proposals.

The design consultant had recommended to the client that the project might benefit from more detailed site investigation to help determine suitable methods of construction for the foundations.

The client didn't consider it necessary to spend more time, money and effort carrying out further investigation as this risk was to be transferred to the contractor.

The tender documents specified that claims for extra cost as a result of inadequate information provided by the client at tender stage wouldn't be accepted. Tender responses were required to be returned within three weeks.

Three responses were received from the market as follows:

- Bidder A declined to bid because it had a full order book and had lost money on a previous project that didn't allow sufficient tender time to properly assess and price the risk of ground conditions.
- > Bidder B submitted a bid but priced its method of construction somewhere in between "best and worst" case scenarios based on the information provided, in the hope that its bid wouldn't be too low or too high.
- Bidder C was keen to win the contract as its order book was low and cash flow was likely to become a problem for its business if it didn't get a contract soon. It priced a low-cost method of construction based on an optimistic assessment of the soil report and some discussions with a local sub-contractor who had worked on a nearby project recently.

Bidder C was awarded the contract as it had the lowest price and there was not much to separate between the quality of its submission and that of Bidder B.

Bidder C's gamble on the ground conditions being favourable to its method of construction doesn't work. It takes twice as long to construct the foundations than planned, and costs for extra labour and materials are incurred beyond those allowed for in the tender. After completing the foundations, the contractor is behind schedule and financial losses on the project become a real risk. Site staff morale is low as they try to cope with the conflicting pressures from head office of trying to accelerate the programme to avoid penalties for delay, while minimising any more losses to the project.

Any goodwill that was built up in the beginning of the project is quickly lost as co-operation of site staff with the client team is limited to the minimum requirements of the contract.



Sub-contractors are under pressure to keep costs down and the quality of construction output suffers with more risk of defects becoming a potential issue in the longer-term.

Site meetings become increasingly difficult as everyone uses strict contractual positions to protect their own interests, making for a very stressful and unpleasant environment.

This scenario doesn't represent good public value.

Although the above example is perhaps extreme in terms of the consequences, it illustrates a point:

Good risk management practice requires consideration of the risk of inadequate site information and its impact on the project, and the measures that could be put in place to reduce this in line with the ALARP principle:

- additionally, detailed site investigation could have been done, in line with the design consultant's advice to improve the tender information provided
- extra time could have been allowed for in the tender period, to enable tenderers more time to explore the extent of this risk better, eg through their own investigation and assessment
- a formal risk review process within the tender period could have been introduced so that the client and bidding contractors could discuss this risk and its pricing better, to ensure the potential impacts on the project were better understood and addressed (see <u>Market Engagement</u> guide)
- greater focus on evaluating the bidders' methodology and pricing for the construction of foundations, (and how they would manage any changes during construction) may have revealed Bidder B to be in a better position to manage this risk, despite having a higher price initially
- an appropriate contingency could have been allowed for in the project budget, and provision made in the contract for compensating the contractor for unforeseen ground conditions.

While procuring agencies have a key role to play in good risk management, so does industry, in using similar good practice principles. Contractors that take uncalculated approaches to risk management are less likely to deliver value for procuring agencies or their company shareholders.

While risks need to be considered specifically at the project level, the selected delivery model will influence the broader allocation of risk (eg design and/or construction risk) between a procuring agency and the private sector. This will need to be taken into account when considering an appropriate delivery model for the project.

For more information on delivery models, see Developing your Construction Procurement Strategy.



Engaging with others on risk

Engagement with others can be highly beneficial to good risk management and can help develop new ways of dealing with old problems. Talking to other procuring agencies about their approach to managing risks on similar projects can provide valuable insights.

Engaging the supply market (consultants and contractors) at an early stage in a project, eg through tender briefings, can also be useful, particularly where the project is large-scale or complex. Some risks may require collaboration between the contractor and the design team for solutions that achieve optimum value. Delivery models that enable this, for example <u>early contractor involvement</u> (ECI) arrangements, may be more appropriate, especially where the risks are significant.

Discussing the initial thinking of a project in terms of its characteristics, possible delivery models, tender process, and timeframes, with a range of industry participants, can help to inform a balanced approach to risk management for a project.

The procuring agency should also consider how the tender process will make sure that the supply market fully understands the proposed risk allocation to avoid ambiguity and potential disputes.

Potential stages of engagement with the supply market on risk before contract

PRE-TENDER

Consider the proposed delivery models and form of contract in the context of the project and the proposed risk allocation

Early engagement with the market can be useful (in the form of bidder briefings) to discuss initial thinking to further inform proposed risk allocation

Discuss lessons learned from similar projects with other procuring agencies

TENDER

Include a risk allocation table in tender documents setting out the agency's proposed risk allocation

Hold risk allocation meetings with bidders to make sure that they understand the proposed risk allocation

Consider feedback from risk allocation meetings and whether any further amendments are required to be made to the risk allocation table

Re-issue risk allocation table to bidders if amended following bidder feedback

Review bidder responses to risk allocation including cost and management approach to assess value for money

NEGOTIATE

Discuss any further clarifications and amendments on the risk allocation table with the preferred bidder

Agree on the final risk allocation table with the preferred tenderer and include this in the contract documentation

You should take probity advice, as required, to make sure pre-contract discussion with suppliers complies with the Government Procurement Rules.

For more information, see Market Engagement



Roles and responsibilities relating to risk

Risk management at a project governance level involves:

- a **project governance board**, who should receive regular reports on the status of significant risks, and make decisions on recommended risk mitigation measures from the SRO
- a **senior responsible officer** (SRO), who should make sure that the risks are adequately considered in the project preparation and management
- a **project director and manager/s**, who should continuously manage and monitor the risks, and report regularly on them.



Responsibility for overall risk management rests with the SRO

The SRO should have responsibility for overall risk management. They should oversee the preparation of the risk management plan with the support of the project director and managers, independent client advisers, subject matter experts and the remainder of the project team, and monitor its implementation.

They should review the risk management plan and individual risk mitigation measures throughout the life of the project and at each major decision point.





Before any financial commitment is made, the project governance board should understand and approve the degree of risk to which the project exposes the procuring agency. The project governance board should be satisfied that the SRO has put in place appropriate risk management plans, risk mitigation measures and contingencies as set out in the investment business case.

The investment business case should include details of proposed risk transfer to the private sector as part of the commercial case, and this should indicate the assessed cost of transfer and how this links back to the economic and financial cases.

From that point on, reporting to the project governance board should be on a by exception basis to show that the level of exposure remains acceptable.

Reporting should also show that, before approval, the budget implications of any proposed major changes to the project have been identified and adequate provisions made or sought.



Risk management process

Risk management is the process of identifying, assessing, quantifying and mitigating risks (either opportunities or threats) throughout the life of a project.



Risk management should be proactive, not reactive. Risks should be managed at the earliest opportunity within the project lifecycle.

Risk management practice involves several stages:

- identifying risks
- assessing the likelihood and impact of risks
- quantifying risks
- mitigating risks
- monitoring and reviewing risks.

Risk management is a continuous process

RISK REGISTER AND MITIGATION PLANS



Risk management provides an understanding of risks, their triggers, consequences and likelihoods. This provides input to decisions about:

- whether an activity should be undertaken
- how to maximise opportunities
- whether risks need to be treated addressed
- choosing between options with different risks
- prioritising risk mitigation measures



- considering the potential impacts of risk transfer and whether this is an effective risk management approach
- considering the costs of risk transfer and whether this is good public value
- the most appropriate selection of risk mitigation measures that will bring adverse risks to a tolerable level.

It's important to make sure that all members of the project team and project stakeholders have the opportunity to engage in a discussion that will promote good risk management.

Risk management plan

Before starting any risk management activities, a risk management plan must be approved by the project governance board through the SRO (supported by the project director and managers). The risk management plan will outline, among other things, the criteria for risk management including:

- the nature and types of impacts to be included and how they will be measured
- the way in which likelihoods are to be stated
- how a level of risk will be determined
- the criteria by which it will be decided when a risk requires mitigation
- the criteria for deciding when a risk is acceptable and/or tolerable
- the tolerance levels for reporting risk to different levels of project governance
- whether and how combinations of risks will be considered.

Identify risks



The purpose of identifying risks is to explore what might happen or what situations might exist that could influence the achievement of the objectives of the project or organisational outcomes.

Possible approaches for identifying risks include:

- checklists
- judgments based on experience and records
- brainstorming/workshops
- scenario analysis
- fault-tree analysis
- decision-tree analysis.

The approach used depends on the type of activities under review, types of risks likely, and/or the preferred approach of the project manager in consultation with the SRO.

Team-based brainstorming (facilitated workshops) is a common approach used to identify a range of potential project risks. It is good practice to include relevant subject matter experts and project stakeholders in these workshops to incorporate the widest possible range of experience and views.



Risk workshops

Risk workshops are a useful way to bring together different subject matter experts in a group setting to brainstorm a wide range of possible ideas for risks. Considering risks in groups and dividing these into specific subject area categories allows for focused sessions with relevant subject matter experts and project stakeholders.

Remember that risks are considered in terms of both threats and opportunities!

Main categories of risk

- Agency
- > All-of-government
- Business continuity
- › Construction
- > Contract
- > Design
- > Environmental
- > Facilities management
- Financial (capex and opex)
- > Handover
- > Health and safety
- Insurance
- Legal
- Maintenance
- Operational
- Procurement
- › Programme
- Social
- Reputational

Sub-categories for construction related risks

- Archaeological
- Asbestos
- › Consents
- > Demolition
- > Existing structures
- > Fire services
- Ground conditions
- > Hazardous materials
- > Health and safety
- > Heritage
- > Public nuisance
- > Site contamination
- > Temporary works
- Traffic management
- Utilities

(These lists are not prescriptive)

Risks on similar projects and industries should be investigated during the risk identification process, to include the widest range of potential risks in the assessment.

Risk register

Details of all risks identified should be recorded in the risk register.

The status of key risks should be reported regularly to the SRO and project governance board. When a previously identified key risk occurs, the SRO will immediately understand the consequence and can make an informed decision on the way forward.

Regular recording of the progress of risks is essential, because their status can change rapidly. If an unforeseen risk occurs, it's essential to:

- immediately record it and report it to the SRO and/or project governance board (as appropriate)
- recalculate the overall project risks as soon as possible.



The new risk could potentially indicate a common mode of failure relevant to other risks.

The project team use the full detailed risk register as the tool for reviewing and monitoring risks on the project. However, consideration needs to be given as to how this information should be presented at senior level to make sure that there is effective management of risks. This should be addressed in the risk management plan approved by the project governance board. For example, a summary of medium-to-high risks could be reported to the project governance board meetings, with only the highest risks being presented to the investment decision maker. Lower level risks could then be dealt with at project team meetings.

It can be useful for an agency to have their risk register peer-reviewed by another agency, subject matter expert or project stakeholders, to gain confidence that significant risks have been identified and appropriate mitigation measures put in place.

Assess risks



Assess risks is the process of understanding the nature of a risk and determining the likelihood and consequence of risk.

Assessing risks is about developing an understanding of the likelihood and impact of the risks identified on the risk register. This analysis will support decisions about how risks should be treated to bring them to within acceptable limits for the project.

Any circumstances that could potentially change the likelihood and impact of a risk occurring should be recorded, as these will be important when considering potential mitigation measures later.

Firstly, risks are assessed and rated based on the likelihood and impact of them occurring given the current context of the project environment ie the **current** risk rating. Later, once each risk has been considered to determine their mitigation (see Risk Mitigation section below), a further assessment is undertaken to determine the **residual** risk rating based on the mitigation measure to be implemented.



Assessing the likelihood and impact of a risk occurring should follow the criteria outlined in the risk management plan; which may be similar to the following:

Impact

Descriptor	Broad definition
Substantial	Event(s) make it difficult, if not impossible, for a project to fully deliver on all its objectives, resulting in permanent delivery loss.
Major	Event(s) require significant project governance board and SRO involvement and decision-making. Event(s) may also require respective stakeholders to assist in stabilising delivery of the project to meet all its objectives. Event(s) shape the delivery of the project.
Medium	Event(s) don't destabilise the core delivery or strategic approach for the project to deliver all its objectives. Event(s) impact smaller number of workstreams and can be managed by the project manager.
Minor	Event(s) can be managed so that the project delivers all its objectives. The project manager manages within existing budgets, timeframes and design quality/results. Event(s) are isolated to one or a small number of workstreams.
Very low	Event(s) can be managed so that the project delivers all its objectives. Managed by the project manager within existing resources and as business as usual (BAU).

Likelihood

Descriptor	Probability rating	Broad definition of occurrence
Almost certain	Over 75%	Will undoubtedly happen/recur, possibly frequently. History of frequent occurrence. The event is expected to occur in most circumstances.
Likely	50% to 75%	Is likely to happen/recur. Can be viewed as a persisting event or circumstance. Likely the event will occur within a one-year timeframe.
Possible	25% to 50%	Might happen or recur occasionally. Possible to occur at least within a one to two-year period.
Unlikely	5% to 25%	Don't expect it to happen/recur, although it may do so. Unlikely to occur within a one to two-year period and, if it was to occur, would do so over a five to 10-year period.
Rare	5% or less	This is highly unlikely to happen/recur. Event may happen in exceptional circumstances. No or minimal history of occurrence.



Quantify risks

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Quantify risks is the process of comparing the results of risk analysis with the established risk criteria, to determine whether the risk and/or its magnitude are acceptable or tolerable.

Quantifying risks involves combining the likelihood and impact of risks to assess the overall level of threat or opportunity associated with each risk. These can then be compared against the tolerance levels defined within the risk management plan to identify risks that need to be brought back to acceptable limits.

The simplest framework for identifying risks for mitigation is at a single level which divides risks between those that need mitigation and those that don't. A heat map can be used for this purpose to provide a qualitative assessment.

Example qualitative risk matrix (heat maps) of likelihood and impact of threats

Almost certain	Moderate	High	High	Extreme	Extreme
	threat	threat	threat	threat	threat
Likely	Moderate	Moderate	High	Extreme	Extreme
	threat	threat	threat	threat	threat
Possible	Low	Moderate	High	High	Extreme
	threat	threat	threat	threat	threat
Unlikely	Low	Moderate	Moderate	High	High
	threat	threat	threat	threat	threat
Rare	Low	Low	Low	Moderate	High
	threat	threat	threat	threat	threat
	Very low	Minor	Medium	Major	Substantial

Threat risk matrix

IMPACT



LIKELIHOOD

Example qualitative risk matrix (heat maps) of likelihood and impact of opportunities

Almost certain	Moderate	High	High	Substantial	Substantial
	opportunity	opportunity	opportunity	opportunity	opportunity
Likely	Moderate	Moderate	High	Substantial	Substantial
	opportunity	opportunity	opportunity	opportunity	opportunity
Possible	Low	Moderate	High	High	Substantial
	opportunity	opportunity	opportunity	opportunity	opportunity
Unlikely	Low	Moderate	Moderate	High	High
	opportunity	opportunity	opportunity	opportunity	opportunity
Rare	Low	Low	Low	Moderate	High
	opportunity	opportunity	opportunity	opportunity	opportunity
	Very low	Minor	Medium	Major	Substantial

Opportunity risk matrix

IMPACT

Methods used in quantifying risks

Methods used in quantifying risks can be qualitative, semi-quantitative or quantitative. The choice of assessment method is largely determined by the scale and complexity of the project eg:

- Qualitative approaches are a simple approach typically used for projects of low value.
- Semi-quantitative approaches are the most commonly-used approach for construction projects, using standard formulas and spreadsheets to provide consistency in calculating risk levels.
- Quantitative methods tend to be used for projects of significant value, high-risk ones or those that require specialist expertise from the market.
 A Monte Carlo simulation is a common type of quantitative risk assessment.

For more information, see <u>Techniques to Quantify Risk and Uncertainty</u> which forms part of the Treasury's Better Business Cases (BBC) toolkit.



Risk mitigation



Risk mitigation is the process of influencing risks to be within the overall tolerance levels set for the project, and reducing these risks so that they are as low as reasonably practicable (ALARP).

Having completed quantification of risks, risk mitigation involves considering a range of options for changing the likelihood of occurrence, or impact of risks, or both, and identifying an appropriate approach to risk mitigation.

Risk mitigation is a cyclical process of deciding current risk levels are not tolerable, generating new risk mitigation(s) and assessing the effect of that mitigation, until a level of risk is reached that is within the tolerance levels specified for the project, and that risks are as low as practicable - the ALARP principle.

Agreement to progress risk mitigation measures lies with the SRO subject to any delegated controls identified within the risk management plan.

Risk mitigation involves the following steps:

- 1. Identify a range of possible risk mitigation measures
- 2. Assess the residual risk rating for each risk based on the proposed mitigation measures
- 3. Assess and select the most beneficial mitigation option(s) based on ALARP principle
- 4. Assign ownership for mitigation measures to risk owners
- 5. Prepare risk mitigation plans
- 6. Monitor and review mitigation measures on a regular basis.



Each identified risk is assigned a **risk owner**, who is the person or entity with the accountability and authority to manage a risk. This can be either internal or external to the organisation depending on the risk mitigation measure.



Range of possible risk mitigation measures				
Approach	Description			
Avoid	Change activity processes or objectives to avoid the threat risk.			
Pursue	Pursue the opportunity risk or enhance its probability of occurrence.			
Remove	Remove the source of threat risk.			
Change the likelihood	Take actions aimed at reducing the probability of the occurrence of the threat risk.			
Insure	Insure the risk in the market.			
Risk allocation appro	paches to mitigation:			
Retain the risk	Accept the impact of the threat risk (should it occur) through informed decisions.			
Share	Share the risk with another party, eg contractor.			
Transfer the risk	Pass the risk on to another party, eg design consultant or contractor.			

Risk mitigation measures should be based on an understanding of how the risks arise. This includes the immediate causes of an event as well as the underlying circumstances that influence whether the proposed mitigation will be effective.

Unless otherwise agreed by the SRO, risk owners are accountable for developing effective mitigation plans. Risk owners can delegate responsibility (but not accountability) to their direct reports or service providers, in order to develop and/or implement the mitigation plan.

Once mitigation measure(s) have been selected, they should be consolidated into an action plan.

A plan may impact on multiple risks, so consideration needs to be given to combining and comparing actions. This can resolve potential conflicts and reduce duplication of effort.

Risk mitigation plans should include (and are not limited to):

- identification of responsibilities
- a timeline and priority order for implementing mitigation measures
- the cost(s) and resources required for the mitigation activities
- identification of appropriate monitoring and review activities.

Clients with significant portfolios/programmes of work can take a more strategic approach to risk management, by balancing out project risks at a portfolio or programme level. This can reduce risk transfer to the supply chain, removing the need to pay individual project risk premiums to realise longer-term value.

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Risk allocation



Agencies must use risk allocation tables to ensure transparency when communicating risk allocation between parties.

Risk allocation is one of the forms of risk mitigation available to an agency and can include:

- **Retain** the agency fully accepts the risk.
- **Shared** the agency shares the risk through contracts with others.
- Transfer the agency fully transfers the risk through contracts to others.

0888	Effective sharing or transfer of residual risk to achieve public value Agencies should use the following checklist to make sure that residual risks are shared or transferred in an effective manner to achieve public value:
	Identify and communicate the risks clearly, along with the parties they will be allocated to (eg agency, consultant and contractor) and on which basis (eg retained, shared or transferred).
	Review the risks to be allocated and ask yourself if they are being allocated to those best-placed to manage them.
	Understand the market in which you are operating, as this will have an impact on what is reasonable given market conditions.
	Make sure you have a clear understanding of the potential consequences of risk transfer, and their impact upon achieving the required project outcomes.
	Make sure that the proposed risk allocation will not become an excessive cost to the agency when considering the benefit that will accrue.
	Make sure you have undertaken any mitigating actions that are in your control before allocation, to reduce risk pricing by tenderers.
	Request clear tender information on risk pricing so that the cost implications of proposed risk allocation can be re-assessed and confirmed before award of contract.
	Engage with bidders in discussing the proposed risk allocation to determine if there are more effective ways of managing the risks.

Risk allocation must be communicated by using a risk allocation table. The structure of the table can vary based on its intended use, which can include:

- supporting market engagement
- communicating the preferred risk allocation
- communicating the reason for a change from a standard form contract's default position
- considering the cost and value of risks transferred
- negotiating the appropriate allocation.



The below risk allocation table template is intended for use with standard form contracts. It includes columns to show the default contract position alongside any amended position and the reason for the change.

Risk Allocation Table

The use of a risk allocation table promotes transparency and appropriate risk allocation, which can result in:

- improved trust and accountability
- increased efficiency
- better overall results
- better decision making
- enhanced safety
- an overall decrease in the risk profile of the entire project, achieving public value.

Responsibility for achieving project outcomes will always remain the responsibility of the agency, regardless of how risk is allocated. Risks identified as being critical to achieving project outcomes but requiring specialist input may be better retained by the agency or shared, rather than being transferred, to retain an agency's influence in managing and controlling the risk.

Ongoing monitoring

The risk management process is continuous, both the risk register and any risk mitigation plans should be treated as live documents requiring regular review throughout the project to:

- identify any new risks and develop appropriate mitigation measures
- determine any changes in project circumstances and their impact upon identified risks and any risk mitigation plans
- review the progress of risk mitigation plans to determine where changes are required to improve their effectiveness
- continue to obtain and include new information about identified risks, improving the basis on which they are being assessed (if risk information is out of date, the SRO could make poor decisions that could have otherwise been avoided)
- determine if the risk profile of a risk, project or programme is changing (positively or negatively)
- provide assurance on the quality of the information being presented.

A common output from ongoing monitoring in the risk management process is a risk report provided for governance, management or operational level activity and review.

Risk response feedback

To complete the cycle, feedback should be encouraged from those involved in the delivery of the project on how well risks were managed, and how this could be improved. This information can be used to improve risk management performance in future projects. It normally forms part of the post-project review.