



Transport  
Roads & Maritime  
Services

# WHS risk management

An overview of the WHS risk management process under the OneRMS safety management system (OneRMS SMS).



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# Introduction

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Work health and safety (WHS) risk management is a key element of the OneRMS SMS. It applies an analytical, evidence-based approach to risk management to ensure there is a clear and consistent understanding of the agency's risk profile and controls.

## Purpose

This framework provides the foundation for the identification, elimination and mitigation of WHS risks within our operations. It describes the use of risk profiling and risk analysis tools and establishes a structure for the escalation, monitoring and governance of WHS risks across the agency.

### This framework works in conjunction with:

- [Safety assurance framework](#), which ensures that safety risk information is used to prevent risks becoming occurrences
- [Consultation, cooperation and coordination framework](#), which ensures WHS consultation, cooperation and coordination drives better practice WHS risk management.

## Scope and context

This framework applies to WHS risks. WHS risks have potential consequences in terms of loss of life, injury or negative effect on health. Under the [Work Health and Safety Act 2011](#) (WHS Act) and [Work Health and Safety Regulation 2017](#) (WHS Regulation) all safety risks must be:

- Eliminated so far as is reasonably practicable (SFAIRP), or
- Minimised so far as is reasonably practicable, if it is not reasonably practicable to eliminate them.

This framework applies to all functions and activities of Roads and Maritime Services (Roads and Maritime).

## System requirements

Requirements under this framework can be found in Appendix A. For all system requirements see the [OneRMS SMS manual](#).

# Risk management

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The successful management of risk is achieved by a number of inter-connected management processes within Roads and Maritime (Figure 1).



*Figure 1. Risk management components*

This framework describes each of these components and how they act to manage WHS risks arising from our activities – including business-as-usual operations, projects and programs, organisational changes and changes to assets and networks.

# 1. Apply risk management standards

## 1.1 Roads and Maritime (enterprise-level) risk management requirements

Roads and Maritime's [Risk management policy](#), [Risk management framework](#) and [Risk management procedure](#) provide direction and instruction on the management of enterprise-wide risks. These risk processes consider all aspects of our operations, including strategic and financial risks, as well as identifying high-level WHS risks.

The WHS Branch is responsible for ensuring that WHS risk management practices are consistent with these documents, relevant WHS laws and other Acts as applicable.

In this context, this framework supports the [Risk management framework](#) by providing instruction on identifying and managing safety risks to ensure they are:

- Eliminated so far as is reasonably practicable, or
- Minimised so far as is reasonably practicable, if it is not reasonably practicable to eliminate them.

Figure 2 shows the relationship between enterprise risk management and WHS risk management:

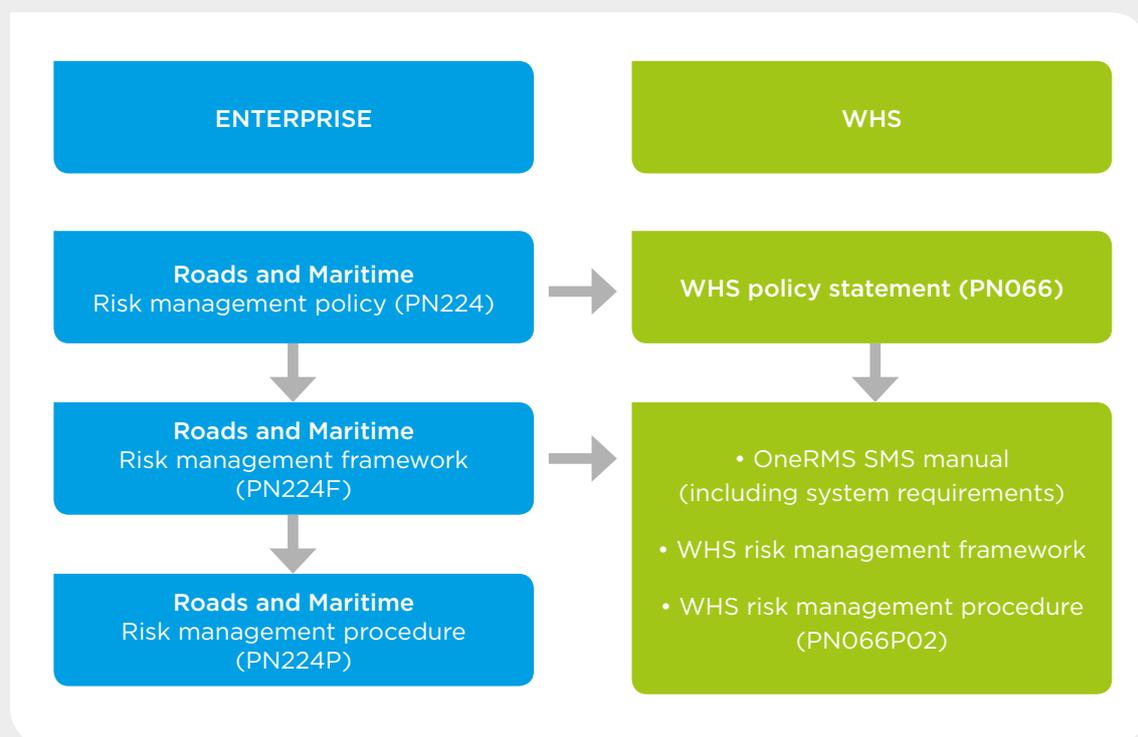


Figure 2. Risk management

## 1.2 OneRMS SMS requirements

The [OneRMS SMS manual](#) outlines the system requirements for WHS risk management and how the system requirements are to be applied to work controlled by Roads and Maritime and to work controlled by industry partners.

### 1.3 Risk management process

This framework adopts the risk management process described in [ISO 31000 Risk management](#):

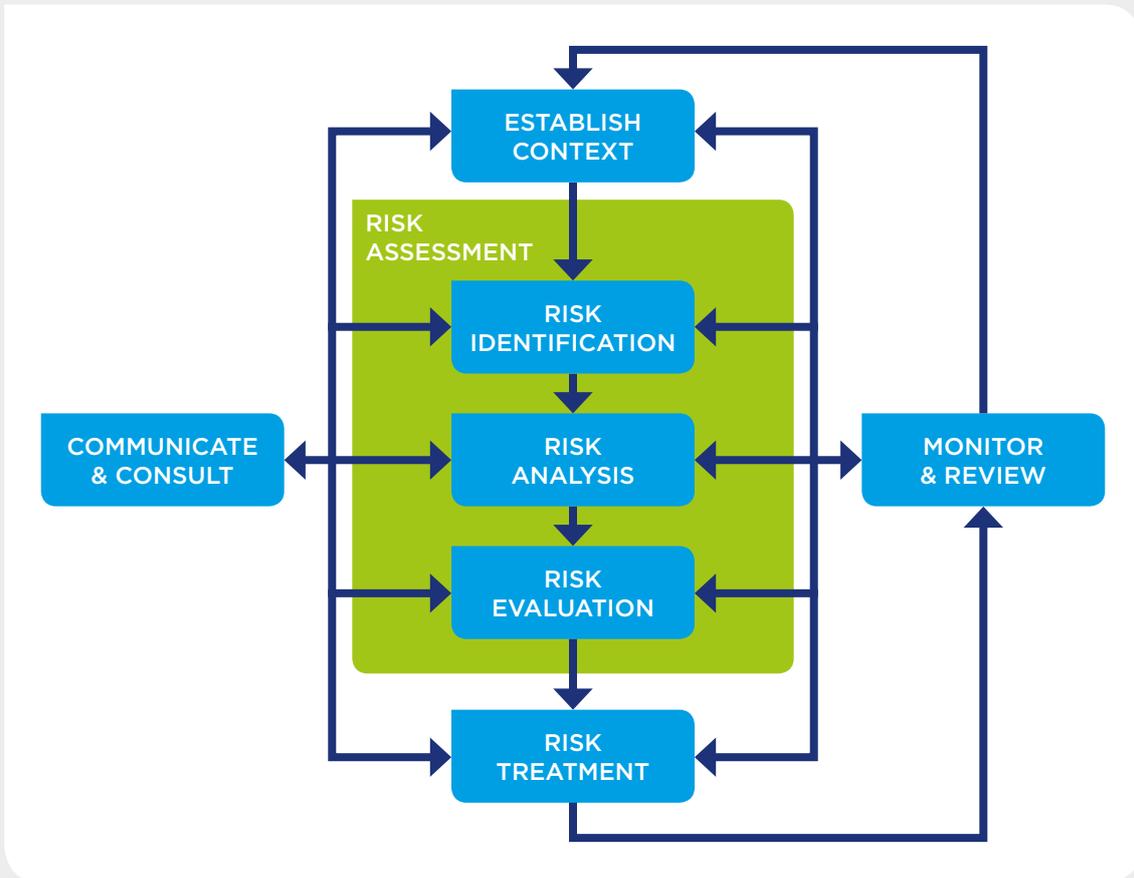


Figure 3. Risk management process

From time-to-time, other risk management methodologies may also be applied, such as EN 50126/8/9 for safety assurance.

### 1.4 Legislation

This framework addresses the requirements of:

- The [WHS Act](#)
- The [WHS Regulation](#), in particular Chapter 3, Part 3.1 (Managing risks to work health and safety)
- Other safety-related legislation as it applies, from time-to-time, to our operations and activities eg Heavy Vehicle National Law 2013, [Mining Act 1992](#) and Rail Safety National Law 2012.

### 1.5 Industry standards

We consider industry practices and apply Australian Standards and Codes of Practice requirements in the preparation of procedures to manage WHS risks—see section 2.

## 2. Develop procedures, tools and guidance

We develop and maintain procedures, tools and guidance for identifying, assessing, controlling (treating) and monitoring risks:

- The procedure *WHS risk management* sets out how to assess and manage WHS risks within Roads and Maritime
- The procedure *Safety change (risk management)*<sup>1</sup> sets out how to assess and manage WHS risks arising from organisational changes and modifications to assets.

These procedures apply to all our operations and activities and throughout all phases of a change, project or program lifecycle.

Our procedures address identified significant WHS risks. These should be applied by workers and must be established as a minimum requirement for industry partners varying out work involving significant WHS risks on behalf of Roads and Maritime.

## 3. Profile safety risk

We identify and manage WHS risks arising from activities including business-as-usual operations, projects and programs, organisational changes, changes to assets and networks, throughout all lifecycle phases, and assign responsibilities and accountabilities.

We consult across the agency and with industry partners to understand our safety risk profile at enterprise level and within divisions and projects.

Our WHS risk information is contained within a hierarchy of risk registers. Industry information and the Agency risk register provide input into the Agency Safety Risk Register (ASRR). Divisional Safety Risk Profiles (DSRP) are derived from the ASRR. This relationship is shown in Figure 4.

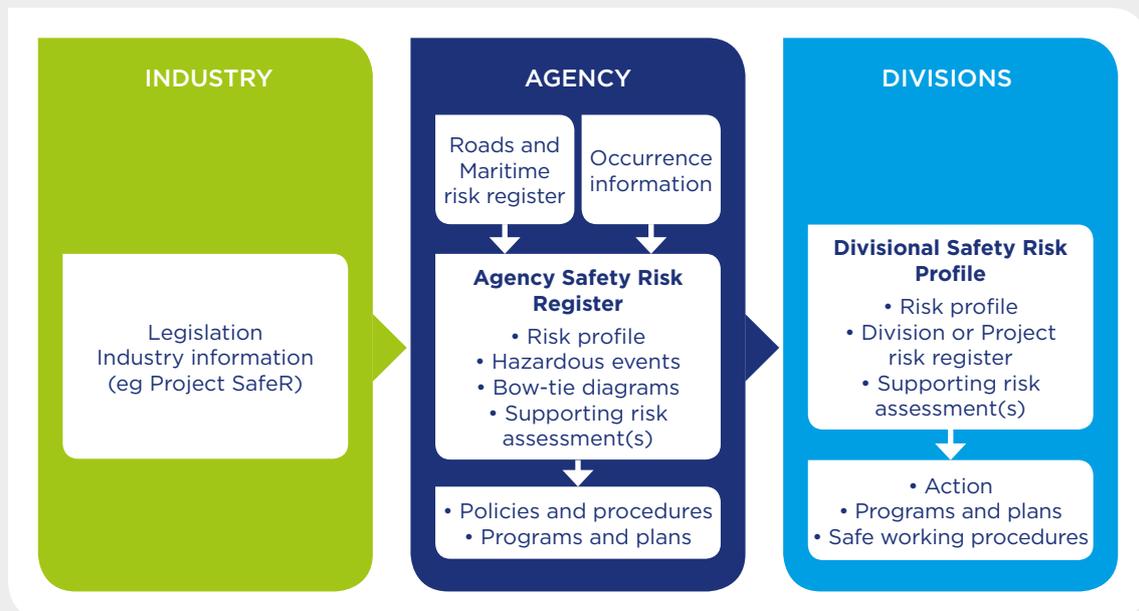


Figure 4. Hierarchy of risk registers

The information contained within these risks registers form the basis of WHS plans, programs and procedures.

<sup>1</sup> Will go out for consultation in early 2017

### 3.1 Agency safety risk register (ASRR)

The ASRR contains WHS risk information for Roads and Maritime and includes known WHS risks within the agency.

This ASRR is the primary means of recording and monitoring safety risks. It provides the Executive with visibility of reasonably foreseeable hazards, controls and risks based on robust risk assessment. It is a live document that has the potential to change due to the dynamic nature of external and internal influences.

The ASRR consists of the following information:

- Agency safety risk profile, identifying likelihood and consequence and risk rating for each hazardous event and assessed at agency level for Roads and Maritime workers, supply chain and members of the public
- Hazardous events, describing the consequences of each type of hazardous events
- Bow-tie diagram for hazardous events, identifying:
  - Contributing factors
  - Hazardous event consequences
  - Risk controls, control effectiveness and control owners
- Supporting risk assessments that may be prepared from time-to-time, e.g. (organisation-level) change risk assessment.

The risk criteria outlined in the procedure [WHS risk management](#) is used when preparing and updating the ASRR.

### 3.2 Divisional safety risk profiles

Each division has a Divisional Safety Risk Profile (DSRP). These are derived from the ASRR and supporting risk assessments that have been developed within the context of the divisional objectives and core functions.

DSRPs provide visibility of divisional WHS risks. It contains details of known agency hazardous events with a focus on level of divisional exposure and risk assessments for Roads and Maritime workers, supply chain and members of the public. DSRPs consist of the following information:

- Risk profile
- Risk register (divisional or project, including hazard logs or health safety in design (HSID) registers)
- Supporting risk assessments.

The risk criteria outlined in the procedure [WHS risk management](#) is used when preparing and updating the DSRP and project risk registers, including hazard logs or HSID registers.

### 3.3 Supporting risk assessments

Change, project or program managers may carry out additional risk assessments to inform themselves of specific types of risk and identify the necessary controls including:

- Site and facility risk assessments or risk registers
- First aid risk assessments
- Hazardous manual task risk assessments
- Hazardous chemical risk assessments
- Noise, hazardous substances and health (exposure) monitoring.

The procedure [WHS risk management](#) outlines the specific application of risk management tools to the preparation of supporting risk assessments.

## 4. Analyse significant WHS risks

We carry out a range of risk analysis activities to better understand and manage our WHS risks including:

- Risk modelling
- Hazard log or HSiD management throughout the asset lifecycle.

### 4.1 Risk modelling

We carry out bow-tie analysis to model the contributing factors and consequences of our hazardous events. Bow-tie diagrams form part of the ASRR—see section 3.

Bow-tie diagrams offer a graphical representation of a risk, with contributing factors shown on the left and consequences to the right. The contributing factors and consequences are linked in the middle by the hazardous event being analysed, generating the bow-tie shape (Figure 5). Benefits of bow-tie analysis include:

- A concise visual representation of risk
- Easy identification of critical controls and control effectiveness
- Ability to quickly identify areas requiring additional monitoring and assurance.

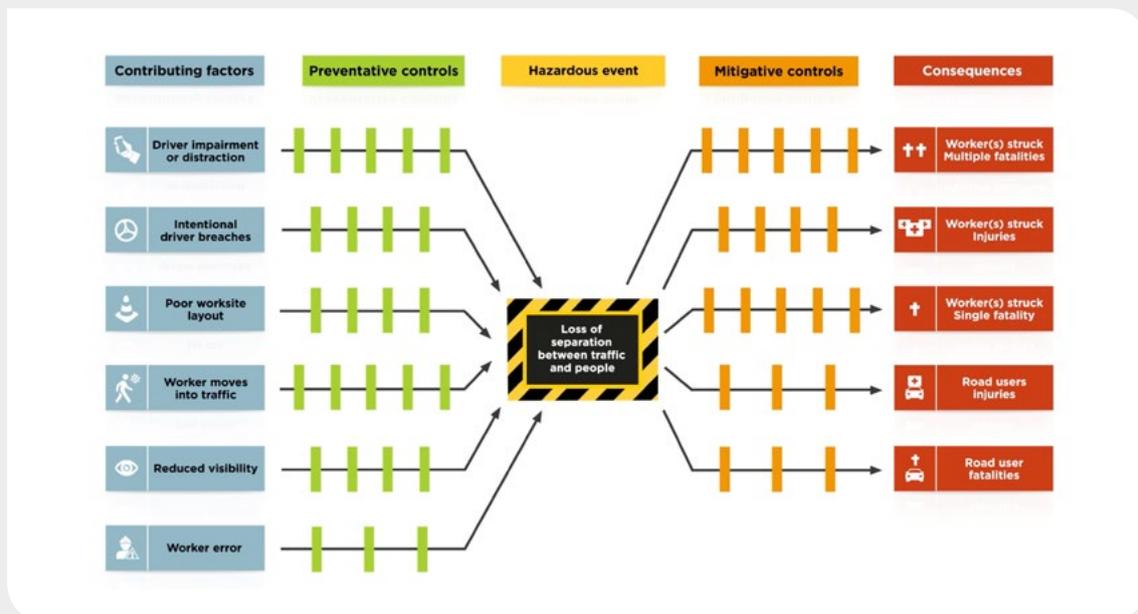


Figure 5. Example of a bow-tie diagram

From time-to-time, we may also use other risk models to understand specific risks e.g. [FMEA/FMECA](#), [HAZOP](#), [Fault Tree Analysis](#), [quantitative risk modelling](#).

## 4.2 Asset lifecycle

As part of its commitment to managing risk, we identify and manage WHS risks throughout all phases of the asset lifecycle (Table 1).

**Table 1: Asset lifecycle phases**

Group	Lifecycle phase	Title
<b>Design</b>	Phase 1	Initiation
	Phase 2	Strategic design
	Phase 3	Concept design
	Phase 4	Detailed design
<b>Delivery</b>	Phase 5	Implementation, construction, manufacture, installation
	Phase 6	Commissioning and hand over
	Phase 7	Operation and maintenance
	Phase 8	Modification
<b>Disposal</b>	Phase 9	Disposal

The nature of risk management activities that are carried out during the asset lifecycle changes for the different lifecycle phases. However common to all phases is the preparation or review and update of the risk register associated with the asset. This risk register is handed over between the relevant parties between one phase and the next.

The nature of the information in the asset risk register also varies between lifecycle phases. For example, in Phase 2, risks will consider high-level risks such as route planning, subsequent phases will consider asset design risks, construction risks and risks associated with safe operation and (eventual) disposal of the asset. In addition, risk modelling and supporting risk assessments may be carried out to understand and manage specific types of asset-related risk e.g. Safety Integrity Level (SIL) Analysis for software associated with assets, Reliability, Availability and Maintainability (RAM) analysis for infrastructure assets, human factors interface studies to consider the risks to operators and possible sources of operator error.

Table 2 demonstrates the alignment of risk management activities shown in Figure 3.

**Table 2: Risk management and asset lifecycle comparison**

		Establish context	Risk assessment	Risk treatment	Monitor and review	Communicate and consult
<b>DESIGN</b>	Phase 1	Establish context	Conduct risk assessment (increasing detail in each phase)	Plan risk controls	Ensure safe SFAIRP	Communicate and consult with relevant stakeholders throughout lifecycle
	Phase 2					
	Phase 3					
<b>DELIVERY</b>	Phase 4	Verify and update risk assessment context, as required	Verify and update risk assessment, as required	Apply risk controls	Monitor risk controls	Communicate and consult with relevant stakeholders throughout lifecycle
	Phase 5					
	Phase 6					
	Phase 7					
<b>DISPOSAL</b>	Phase 8	Verify and update risk assessment context, as required	Verify and update risk assessment, as required	Apply risk controls	Monitor risk controls	Communicate and consult with relevant stakeholders throughout lifecycle
	Phase 9					

## 5. Allocate resources

We allocate resources for managing risk, through annual planning and budget allocation processes. These processes are informed by the relevant divisional or project risk register. Costs associated with infrastructure creation and maintenance are addressed by project budget under the infrastructure program.

### The allocation of resources is facilitated by:

- [WHS governance, accountabilities and responsibilities framework](#)
- Roads and Maritime financial delegations.

## 6. Allocate responsibilities

We apply a multi-level approach to allocating responsibilities for WHS risk management activities. Position descriptions include general accountabilities associated with managing risk and applying risk controls.

OneRMS SMS frameworks and procedures identify specific responsibilities for managing and monitoring risks, and owners are appointed for risk registers and risk controls identified in risk registers and bow-tie diagrams.

Individual safety performance is considered during performance reviews and safe behaviours are reinforced through supervision and safety culture programs.

## 7. Communicate risks

The [Consultation, cooperation and coordination framework](#) outlines how we obtain input from stakeholders and consult on WHS risks. We use various mechanisms to communicate with relevant parties about risks and associated Roads and Maritime assets and activities (Table 3).

**Table 3: Risk communication**

Risk communication	Target audiences
Industry forums	Industry partners, Transport agencies
Communication and publication of risk profiles, hazardous events and bow-tie diagrams	Roads and Maritime
Publication of risk control (procedures) and safety alerts	Roads and Maritime, Industry partners
Communication of hazards via contractual arrangements	Industry partners
Prescribed traffic controls devices (eg speed signs, warning signs) are displayed on fixed assets and mobile worksites <sup>1</sup>	Road users, Maritime operators
Identification of task or activity risks within safe work method statements and standard operating procedures	Roads and Maritime, Industry partners
Risk reporting <sup>2</sup>	Roads and Maritime Executive WHS Committee, Roads and Maritime Audit and Risk Committee, NSW Treasury <sup>2</sup>

<sup>1</sup> Risks associated with road usage and maritime operations are communicated by Transport for NSW.

<sup>2</sup> Refer to section 9.3.

## 8. Monitor and review

### 8.1 Monitor control effectiveness

The effectiveness of risk controls is determined when preparing risk registers and bow-tie diagrams, using the criteria outlined in the procedure [WHS risk management](#). The effectiveness of risk controls is on a number of levels:

- Owners of those controls identified in the ASRR monitor controls as part of their normal business schedule
- Change, project or program managers monitor the effectiveness of controls in accordance with the schedule identified within the relevant risk register or associated program or plan
- Works managers monitor the application and effectiveness of risk controls at worksites as part of works supervision
- Executive WHS Committee and divisional directors monitor risks and occurrences using regular assurance reports.

### 8.2 Maintain risk registers

Risk registers are 'live' documents, subject to change in response to internal and external influences. As such they must be continually monitored and periodically reviewed in their entirety.

The Executive WHS Committee reviews and approves the ASRR. The WHS Branch is responsible for the ongoing maintenance of the ASRR to ensure that the WHS risk information remains current. This occurs through period reviews (Table 4) and is updated in response to:

- A change of legal or regulatory environment
- User feedback
- Occurrence data and investigation findings
- Changes to Roads and Maritime operations, internal policy or process
- Roads and Maritime projects and programs
- Identification of a new hazardous event, contributing factor, consequence or control
- Changes to the control suite for a hazardous event
- The assessed risk of a hazardous event is over or underestimated
- Audit findings that identify control weaknesses or non-compliance
- Outcomes of research into best practice.

**Table 4: Review of ASRR**

Activity	Regular review	Significant risk review workshop	Special review
<b>Purpose</b>	Regular monitoring of risk profile	Targeted review of hazardous events to consider risk management process, effectiveness and SFAIRP assessment	Targeted review of specific elements of the ASRR
<b>Frequency</b>	Annual	Quarterly	As required
<b>Inputs</b>	<ul style="list-style-type: none"> <li>• User feedback</li> <li>• Review of occurrence data</li> <li>• Recommendations from investigations</li> <li>• Occurrence data / assurance reports.</li> </ul>	<ul style="list-style-type: none"> <li>• User feedback</li> <li>• Review of occurrence data</li> <li>• Recommendations from investigations</li> <li>• Occurrence data / assurance reports</li> <li>• Relevant bow-tie diagram(s)</li> <li>• Supporting risk assessments</li> <li>• Industry information.</li> </ul>	<ul style="list-style-type: none"> <li>• User feedback</li> <li>• Review of occurrence data</li> <li>• Recommendations from investigations</li> <li>• Occurrence data / assurance reports</li> <li>• Relevant bow-tie diagram(s)</li> <li>• Supporting risk assessments</li> <li>• Industry information</li> <li>• Policy or legislative updates.</li> </ul>
<b>Method</b>	<ul style="list-style-type: none"> <li>• Review a sample of hazardous events, including contributing factors, consequences and controls and their effectiveness</li> <li>• Review of exposure levels for agency and divisions</li> <li>• Review a sample of risk assessments.</li> </ul>	<ul style="list-style-type: none"> <li>• Select hazardous events for review</li> <li>• Review effectiveness of controls</li> <li>• Review division exposure</li> <li>• Review of agency / divisional risk assessment</li> <li>• Develop action plans to reduce risks</li> <li>• Monitor and review action plans</li> <li>• Workshop format with impacted stakeholders.</li> </ul>	
<b>Outputs</b>	<ul style="list-style-type: none"> <li>• Validated or updated risk register (risk profiles, bow-ties, supporting risk registers and/or risk assessments)</li> <li>• Communication of any changes in risk profile and actions to be carried out.</li> </ul>		

## 9. Undertake governance

### 9.1 Risk recognition and escalation

When new risks are identified, these are added to the relevant risk register (risk recognition). New risks or risks with increased risk ratings will be communicated to the appropriate level of management within timeframes outlined in the procedure [WHS risk management](#).

Risks are considered by the appropriate governance body, based on the level of risk, as outlined in the [WHS governance, accountabilities and responsibilities framework](#). In this way, significant hazards and risks are escalated to the Chief Executive, in a timely manner.

### 9.2 Assurance activities

The [Safety assurance framework](#) outlines the assurance activities that are to be carried out by Roads and Maritime when managing risks.

The procedure *Safety change (risk management)*<sup>2</sup> outlines the assurance activities that are to be carried out by project managers when making changes to Roads and Maritime assets. Under this framework, significance changes to assets require:

- Risk assessments and risk management activities to be handed over at the end of each lifecycle phase
- Risks are justified SFAIRP
- An assurance report provided to a management approval body for acceptance of the change.

### 9.3 Risk reporting

The [Safety planning and performance reporting framework](#) outlines the requirements for reporting of risk profiles, new or changed risks and risk management activities.

The [Risk management framework](#) requires the Chief Executive to approve Roads and Maritime's annual risk attestation NSW Treasury and that individual directors and general managers provide internal attestation that the risks in their divisions are identified, documented and effectively mitigated and managed.

<sup>2</sup> Will go out for consultation in early 2017

# Roles and responsibilities

ROLE	RESPONSIBILITIES
Executive WHS Committee	<ul style="list-style-type: none"> <li>• Approve and review the Agency Safety Risk Register.</li> </ul>
Directors	<ul style="list-style-type: none"> <li>• Ensure that risk management occurs throughout all phases of the infrastructure or asset lifecycle, including during transition between phases</li> <li>• Ensure that new projects, programs or changes are assessed for the safety impact and managed accordingly</li> <li>• Generate and maintain risk registers at the appropriate level of management</li> <li>• Provide feedback on changes to Divisional Safety Risk Profiles to the WHS Branch</li> <li>• Other responsibilities as detailed in procedures.</li> </ul>
WHS Branch	<ul style="list-style-type: none"> <li>• Support divisions to implement this framework</li> <li>• Manage the Agency Safety Risk Register and Divisional Safety Risk Profiles</li> <li>• Develop safety risk models, as required.</li> </ul>
Change, Project or Program Manager	<ul style="list-style-type: none"> <li>• Identify, document, mitigate and manage safety risks through all lifecycle phases of the change, project or program.</li> </ul>

# Definitions

Term	Definition
<b>Bow-tie analysis</b>	Describes and analyses the pathways of a risk from causes to consequences <sup>3</sup> .
<b>Contributing factor</b>	An event, condition or factor that occurs in the lead up to the uncontrolled release of energy and results in the undesired hazardous event.
<b>Consequence</b>	Effect on health, injury or loss of life. Roads and Maritime uses the 'worst credible case' approach to safety risk assessment. This is defined as the plausible consequence that would cause the most harm.
<b>Context</b>	External and internal environment in which we work (that is, who, what, when, where, how and why of what we do). See ISO/CD2 45001 for internal and external context issues. Factors which define that environment, eg location, work operation, etc, as required to understand hazards.
<b>Control</b>	<p>A function planned to prevent or mitigate the risk from a hazardous event.</p> <p>Measure that is modifying risk.</p> <p>Controls include any process, policy, device, practice, or other actions which modify risk. Controls may not always exert the intended or assumed modifying effect.</p>
<b>Control Owner</b>	Person or group with the accountability and responsibility for the implementation of a control.
<b>Critical risk control</b>	A control which has a significant impact on the likelihood of a hazardous event occurring. The absence or failure of a critical control significantly raises the risk posed by the hazardous event. A number of factors are considered to assess criticality, these include the control's effectiveness, the control type, the number of hazardous events the control relates to, and if the control is the only effective control for the hazardous event.
<b>Event (see also hazardous event)</b>	<p>Occurrence or change of particular set of circumstances.</p> <p>An event can:</p> <ul style="list-style-type: none"> <li>• Be one or more occurrences, and can have several Contributing factors</li> <li>• Consist of something not happening</li> <li>• Sometimes be referred to as an 'incident' or 'accident'.</li> </ul> <p>An event without consequences can also be referred to as a near miss, incident, near hit or close call.</p>

<sup>3</sup> SA/SNZ HB 89:2013 Risk management – Guidelines on risk assessment techniques

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Term	Definition
<b>Failure mode and effects analysis (FMEA) / Failure mode, effects and criticality analysis (FMECA)</b>	<p>FMEA is a technique used to identify the ways in which components, systems, processes or procedures can fail to fulfil their objectives.</p> <p>FMECA extends an FMEA so that each fault mode identified is ranked according to its importance or criticality. This criticality analysis is usually qualitative or semi-quantitative but may be quantified using actual failure rates<sup>3</sup>.</p>
<b>Fault Tree Analysis (FTA)</b>	<p>A technique for identifying and analysing factors that can contribute to a specified undesired event (called the 'top event'). Causal factors are deductively identified, organized in a logical manner and represented pictorially in a tree diagram that depicts causal factors and their logical relationship to the top event<sup>3</sup>.</p>
<b>Hazard and Operability Study (HAZOP)</b>	<p>A structured and systematic examination of a planned or existing product, process, procedure or system. It is a technique to identify risks to people, equipment, environment and/or organizational objectives. The study team is also expected, where possible, to provide recommendations for treating the risk<sup>3</sup>.</p>
<b>Hazardous event</b>	<p>An undesired or unplanned event that results in a specified loss or damage.</p>
<b>Lifecycle phase</b>	<p>The lifecycle phases of a change, project or program.</p>
<b>Likelihood</b>	<p>A chance of something happening.</p> <p>Likelihood may be assessed either quantitatively (data-based, using numbers) or qualitatively (using descriptive terms).</p>
<b>Monitor</b>	<p>Regular checking, supervising, critically observing or determining the status in order to identify change from the performance level required or expected. Monitoring can be applied to a risk management process, risk or control.</p>
<b>Quantitative risk modelling</b>	<p>Data-driving risk assessment technique.</p>

<sup>3</sup> SA/SNZ HB 89:2013 Risk management – Guidelines on risk assessment techniques

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Term	Definition
<b>Reasonably practicable (SFAIRP)</b>	<p>Reasonably practicable means that which is, or was at a particular time, reasonably able to be done to ensure safety, taking into account and weighing up all relevant matters including:</p> <ul style="list-style-type: none"> <li>• The likelihood of the hazard concerned occurring</li> <li>• The degree of harm that might result from the hazard</li> <li>• What the person concerned knows, or ought reasonably to know, about the hazard and ways of eliminating or minimising the risk</li> <li>• The availability and suitability of ways to eliminate or minimise the risk</li> <li>• After assessing the extent of the risk and the available ways of eliminating or minimising the risk, the cost associated with available ways of eliminating or minimising the risk, including whether the cost is grossly disproportionate to the risk.</li> </ul> <p>See section 18 of the <a href="#">WHS Act</a>.</p>
<b>Review</b>	Activity carried out to determine the suitability, adequacy and effectiveness of the subject matter to achieve established objectives. Review can be applied to a risk management process, risk or control.
<b>Risk</b>	Effect of uncertainty on objectives.
<b>Risk analysis</b>	Process to comprehend the nature of risk and to determine the level of risk. Risk analysis provides the basis for risk evaluation and decisions about risk treatment. Risk analysis includes determining risk rating.
<b>Risk assessment</b>	Overall process of risk identification, risk analysis and risk evaluation.
<b>Risk criteria</b>	The standard against which risks are compared, to determine the appropriate level of likelihood and consequence of a risk.
<b>Risk evaluation</b>	<p>Process of comparing the results of risk assessment results against the with risk criteria. Risk evaluation</p> <ul style="list-style-type: none"> <li>• Determines whether a risk is safe SFAIRP</li> <li>• Assists in the decision about the type of risk treatment to be applied.</li> </ul>
<b>Risk identification</b>	Process of finding, recognising and describing risks. Risk identification involves the identification of contributing factors, events and their potential consequences. It can involve historical data, theoretical analysis, informed and expert opinions, and stakeholder needs.

*Continued following page*

Term	Definition
<b>Risk management</b>	Coordinated activities to direct and control an agency with regard to risk.
<b>Risk rating</b>	The level of risk determined by considering the likelihood and consequence of a risk.
<b>Risk register</b>	A tool containing all the risks identified for a project, along with a description of each risk and a documentation of information relevant to the ownership, assessment and response of each risk.
<b>Risk treatment</b>	<p>Process to modify risk. Risk treatment can involve:</p> <ul style="list-style-type: none"> <li>• Avoiding the risk by deciding not to start with the activity that gives rise to the risk,</li> <li>• Taking or increasing risk in order to pursue an opportunity,</li> <li>• Removing the risk source,</li> <li>• Changing the likelihood,</li> <li>• Changing the consequences, and</li> <li>• Retaining the risk by informed decision.</li> </ul> <p>Risk treatments that deal with negative consequences are sometimes referred to as risk mitigation, risk elimination, risk prevention and risk reduction. Risk treatment can create new risks or modify existing ones.</p>
<b>SFAIRP</b>	So far as is reasonable practicable —see <i>Reasonably practicable</i> .

# References

## Roads and Maritime references

Doc no	
PN224F	<a href="#">Risk management framework</a> (Audit and Risk Branch)
PN224	<a href="#">Risk management policy</a> (Audit and Risk Branch)
PN224P	<a href="#">Risk management procedure</a> (Audit and Risk Branch)
PN066P02	<a href="#">WHS risk management procedure</a>
TBA	Risk register template

## Transport references

Doc no	
20-ST-006	Transport for NSW <a href="#">Safety Change Management Standard</a>

## External references

Title	Source	Type
<a href="#">ISO 31000 Risk management</a>	International Organization for Standardization <a href="http://www.iso.org">www.iso.org</a>	ISO standard
<a href="#">ISO 31000:2009 Risk management - Principles and guidelines</a>	International Organization for Standardization <a href="http://www.iso.org">www.iso.org</a>	ISO standard
<a href="#">SA/SNZ HB 89:2013 Risk management - Guidelines on risk assessment techniques</a>	SAI Global <a href="http://www.saiglobal.com">www.saiglobal.com</a>	Standard

# Appendices

## A. OneRMS SMS requirements

WHS risk management		
<b>RM1</b>	<b>Identify reasonably foreseeable hazards (hazardous events)</b>	<p>Roads and Maritime identifies reasonably foreseeable hazards and hazardous events on the Agency Safety Risk Register and Divisional Safety Risk Profiles. These are a key source of information when preparing local risk registers.</p> <p><a href="#">WHS Act</a> (section 17); <a href="#">WHS Regulation</a> (clause 34)</p>
<b>RM2</b>	<b>Identify and manage WHS risks</b>	<p>Roads and Maritime identifies and manages WHS risks arising from activities – including business-as-usual operations, projects and programs, organisational changes, changes to assets and networks – throughout all lifecycle phases, and assigns responsibilities and accountabilities.</p> <p><a href="#">WHS Act</a> (section 17); <a href="#">WHS Regulation</a> (clauses 34, 35)</p>
<b>RM3</b>	<b>Identify hazards and risks that cover those to whom we owe a duty of care</b>	<p>Roads and Maritime implements and maintains a process that seeks to ensure risks are evaluated for their effect on workers and others to whom we owe a duty of care.</p>
<b>RM4</b>	<b>Demonstrate elimination before minimisation and the use of the hierarchy of controls</b>	<p>Roads and Maritime uses the hierarchy of controls in managing hazards and risks and eliminates risks to health and safety, so far as is reasonably practicable, and if it is not reasonably practicable to eliminate risks to health and safety, to minimise those risks so far as is reasonably practicable. See procedure <a href="#">WHS risk management</a>.</p> <p><a href="#">WHS Act</a> (section 17); <a href="#">WHS Regulation</a> (clause 36)</p>
<b>RM5</b>	<b>Implement appropriate control measures to manage WHS risks throughout the lifecycle</b>	<p>Roads and Maritime applies the WHS risk management process throughout all lifecycle phases of operations. Where different stakeholders are responsible for different phases, during transitions between phases there is a handover of WHS risk management information between the stakeholders. See procedure <a href="#">WHS risk management</a>.</p>
<b>RM6</b>	<b>Identify and manage actions (treatments)</b>	<p>Roads and Maritime implements and maintains a process to ensure that actions are identified and managed to minimise WHS risks through effective controls (eg implementing a risk control or conducting an assurance activity to ensure a control is in place). See procedure <a href="#">Safety action tracking</a>.</p> <p><a href="#">WHS Act</a> (section 17); <a href="#">WHS Regulation</a> (clause 35)</p>

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## WHS risk management

**RM7 Monitor and review governance and safety performance**

Roads and Maritime implements and maintains a system to monitor and review risks to ensure management processes are operating as intended.

See [Safety assurance framework](#).

[WHS Act](#) (section 17); [WHS Regulation](#) (clause 38)

# Document control

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## Change history

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1.0	22/03/17	First issue
2.0	01/09/17	Updated following WHS Regulation 2017 superseding WHS Regulation 2011. No other changes.

## Feedback

Contact WHS Branch with feedback on this document at [onermsms@rms.nsw.gov.au](mailto:onermsms@rms.nsw.gov.au)