



HERITAGE NEW ZEALAND
POUHERE TAONGA



GUIDANCE FOR PREPARING HERITAGE RISK MANAGEMENT PLANS

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COVER IMAGE: Historic jetty at Scarborough Beach, Timaru, at risk of destruction through cumulative effects of storm action.

PHOTO CREDIT: B Rouse, Heritage New Zealand Pouhere Taonga, 26 December 2013.

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ABBREVIATIONS

CDEM	– Civil Defence Emergency Management
CRT	– Critical Response Team
ERP	– Emergency Response Plan
GNS	– GNS Science Te Pū Ao
HNZPT	– Heritage New Zealand Pouhere Taonga
HNZPT Act	– Heritage New Zealand Pouhere Taonga Act 2014
ICOMOS	–International Council on Monuments and Sites
ICOMOS NZ	– ICOMOS New Zealand/Te Mana ō Nga Pouwhenua ō Te Ao
NDRS	– National Disaster Resilience Strategy
NEMA	– National Emergency Management Agency
NHL	– National Historic Landmark
NIWA	– National Institute of Water and Atmospheric Science Taihoro Nukurangi
PPE	– personal protective equipment
RH	– relative humidity
SRP	– Salvage Response Plan
TA	– territorial authority

EXECUTIVE SUMMARY

This guidance aims to assist owners and managers of cultural heritage places to prepare risk management plans to aid the conservation and protection of the place. Risks considered include disasters and emergency events, both natural and human-induced, as well as cumulative or gradual onset processes.

The outcome of risk management planning for heritage places is an action plan that can be used to prioritise, plan and resource actions to treat or manage the risk over the short, medium and long term. This will be based on an understanding of the physical and operational context of the place, its heritage values, historical events, local knowledge and hazard information from regional Civil Defence Emergency Management (CDEM) Group plans. This information is used to systematically analyse all of the risks associated with the hazards to which the place may be exposed.

The guidance sets out the steps in the process leading to the preparation and implementation of action plans:

- Understanding risk (see step 1)
- Developing a framework for managing risk, including establishing organisational commitment, roles and responsibilities and assessing the operating environment (see step 2)
- Engaging with iwi, hapū and hapori Māori, stakeholders and communities, and building relationships throughout the development and implementation of the plan (see step 3)
- Developing a risk management policy and establishing risk criteria (see step 4)
- Understanding the heritage values and physical context of the place (see step 5)
- Evaluating risks specific to the place and producing hazard summaries (see step 6)
- Treating or managing the risk at the 4 Rs – **reduction, readiness, response and recovery** – stages (see step 7)
- Implementing, monitoring and reviewing risk management plans (see step 8).

The guidance is based on international best practice, such as AS/NZS ISO 31000:2009 *Risk management – Principles and guidelines*, and aligns with the strategies and guidance issued by New Zealand agencies responsible for civil defence and emergency management and disaster resilience. It follows an internationally recognised methodology for risk management planning based on the 4Rs and supports the collaboration of owners and specialists.

The guidance will assist the preparation of risk management plans for any place of cultural heritage significance in Aotearoa New Zealand, including places proposed for National Historic Landmarks/Ngā Manawhenua o Aotearoa me ōna Kōrero Tūturu (NHL) recognition. It recognises the partnership status of tangata whenua and the Crown through the Treaty of Waitangi/Te Tiriti o Waitangi.

A full glossary and links to key reference documents and other risk management guidance is provided.

INTRODUCTION

PURPOSE OF THIS GUIDANCE

To assist in the preparation of risk management plans for any place of cultural heritage significance in Aotearoa New Zealand, or held to be taonga by Māori, including places recommended as NHLs by Heritage New Zealand Pouhere Taonga (HNZPT). It recognises the partnership status of tangata whenua and the Crown through the Treaty of Waitangi/Te Tiriti o Waitangi (the Treaty).

METHODOLOGY

The guidance is based on the international standard AS/NZS ISO 31000:2009 *Risk management – Principles and guidelines*, and New Zealand CDEM guidance. The guidance follows an internationally recognised methodology for risk management planning based on **reduction, readiness, response and recovery** (the 4 Rs).

WHO PREPARES A RISK MANAGEMENT PLAN?

Organisations, owners/managers of significant places and heritage risk management specialists prepare plans with input from kaitiaki or custodian communities, CDEM Groups, councils and community leaders. Owners can provide an understanding of the place and develop a framework for integrating risk management practices into their day-to-day management practices. Specialists can advise on exposure and vulnerability to hazards, their likelihood of occurrence, and potential impacts on heritage assets and values.

ROLE OF HNZPT IN CDEM AND OTHER LEGISLATION

HNZPT has obligations in the event of a national or local emergency, or a national or local transition period (under the Civil Defence Emergency Management Act 2002), to provide advice on heritage matters under the Heritage New Zealand Pouhere Taonga Act 2014 (HNZPT Act).¹ There are also specific provisions for HNZPT to manage emergency archaeological authorities in an area or district over which a state of emergency is declared.² Impacts to heritage values are included in hazards and risks to be managed at the national level in the National CDEM Plan Order 2015. In managing buildings during reduction and readiness, HNZPT may advise territorial authorities (TAs) and owners of buildings 'about risks to, and the conservation of, heritage features and values.'³ HNZPT can assist with advice on:

- initial risk management planning
- understanding significance
- identifying kaitiaki and custodian communities
- identifying iwi, hapū and hāpori Māori, and stakeholders
- engagement processes
- implementing reduction and readiness risk management processes
- monitoring and review
- response and recovery following an event.

Most emergency events in Aotearoa New Zealand are local and will be managed by emergency services and local government authorities. Sixteen regional CDEM Groups are responsible for coordinating a response to such events.⁴

The Building Act 2004 was amended in 2019 to provide a new system and powers for managing buildings after an emergency. These powers can be activated by a person authorised by the regional CDEM Group, by designating an area for building emergency management. Once an area has been designated, all building emergency management functions are managed under the Building Act.⁵

1 HNZPT Act s13 (g).

2 HNZPT Act s60 and s61.

3 National Civil Defence Emergency Management Plan Order 2015, s79 (7).

4 www.civildefence.govt.nz/cdem-sector/cdem-groups/

5 www.building.govt.nz/managing-buildings/managing-buildings-in-an-emergency/

STEP 1: UNDERSTANDING RISK MANAGEMENT PLANNING

WHAT IS RISK?

Disaster risk is the chance that a hazard could impact your place in a significant way in a specific period of time. Potential hazards may include events, such as storms or earthquakes, but also social and economic sources of risk, such as unlawful activity or economic viability. There is also the need to consider risk outside of 'disaster' events, such as a local emergency or where impacts are cumulative or gradual onset.

Risk is a function of three interlinked components: hazard, exposure and vulnerability:⁶

Hazard – a process, phenomenon or human activity that may cause loss of life, injury or other health impacts, property damage, social and economic disruption, environmental degradation, or impact cultural heritage values.⁷ Primary hazards may lead to secondary hazards.

Exposure – refers to what is exposed to a hazard. It may include people, infrastructure, buildings, cultural heritage values, the economy and other assets.⁸

Vulnerability – is the set of conditions determined by physical, social, economic and environmental factors or processes that increase the susceptibility of a historic place to the impact of a hazard.⁹

These three components are related to a fourth component, **capacity**, which refers to your strengths, attributes and resources available to treat or manage the risks associated with the combination of hazard, exposure and vulnerability.¹⁰

WHAT IS RISK MANAGEMENT?

Risk management is a systematic process to identify, assess, manage and prepare for any risk from hazards that could potentially impact your place, including the prevention of new risk. It puts in place planning measures to assist in decision making, to either treat or manage the consequences of that risk with an emphasis on investment in risk reduction and readiness.

A risk management plan should be integrated with your other management plans, such as property management plans, and measures that prevent new, and reduce existing, exposure and vulnerability to disaster from other forms of risk, including to life, safety and public health and safety issues.¹¹

THE DISASTER MANAGEMENT CYCLE

The disaster management cycle in Figure 1 outlines the 4 Rs stages of disaster risk management, and demonstrates the interrelatedness of risk management processes before, during and after a disaster event.

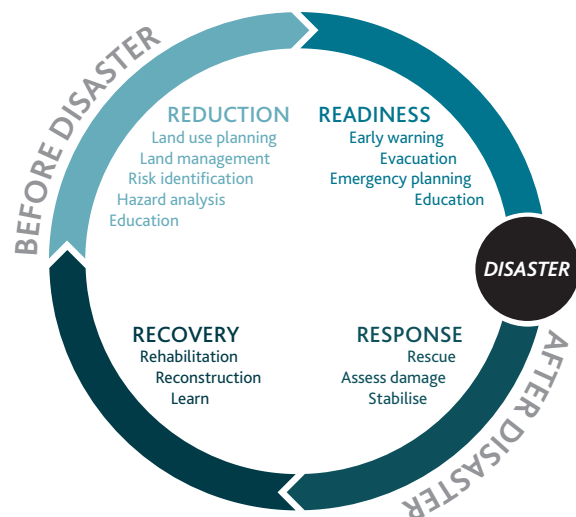


Figure 1: The disaster management cycle¹²

The disaster management cycle assumes a disaster event, but is also relevant for local emergencies or cumulative events. For cumulative or gradual onset events the focus will be on the reduction and readiness stages. For example, weathering is a natural process and the deterioration of heritage fabric can eventually lead to failure and loss, so having a maintenance programme in place is a way of managing this risk.

RISK MANAGEMENT PLANNING PROCESS

The planning process has two stages:

- the owner developing a framework for risk management and communication (see steps 1–4)
- the process for owners and heritage specialists to use in preparing the plan (see steps 5–8).

⁶ NDRS, p. 13.

⁷ Based on NDRS, p. 6.

⁸ Based on NDRS, p. 13.

⁹ Based on NDRS, p. 13.

¹⁰ Based on NDRS, p. 13.

¹¹ UNISDR, Chart of the Sendai Framework.

¹² Vanessa Tanner, Manager Archaeology, HNZPT.

The risk management process is shown in Figure 2. In the process set out below, Steps 1 to 3 relate to establishing the context, Steps 4 to 6 to risk assessment, and Steps 7 and 8 to risk treatment and implementation.

Step 1: Understanding risk management planning

Step 2: Develop a framework for managing risk

Step 3: Communication and collaboration

Step 4: Developing your risk management policy

Step 5: Understanding heritage values and physical context

Step 6: Understanding your risk

Step 7: Treating and managing your risk

Step 8: Monitoring and review

All of these steps will require communication and engagement, and monitoring and review processes to be in place.

FLEXIBILITY

Due to the uncertainty around any risk occurring, a degree of flexibility and additional capacity should be built into your risk management planning so you can adapt to changing situations. Uncertainty can also come from not having correct data when assessing risks. This can lead to making wrong decisions, with possible cost implications or increased exposure to risk, e.g. around prioritisation or the effectiveness of prevention or mitigation measures.

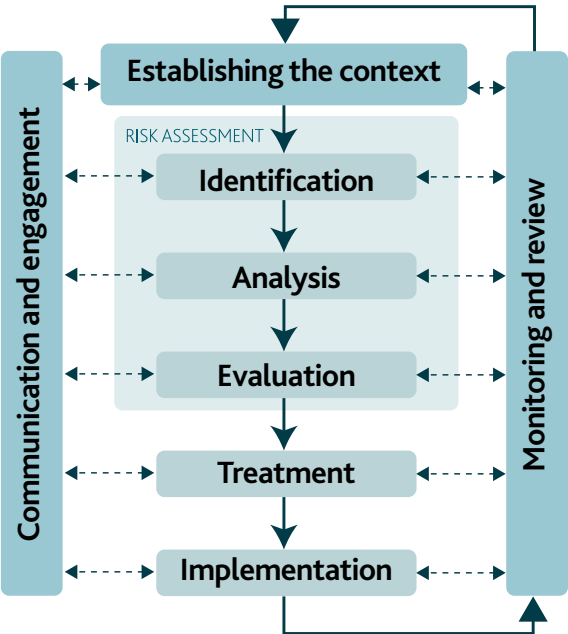


Figure 2: Risk management process (based on AS/NZS ISO 31000:2009)

STEP 2: DEVELOP AN ORGANISATIONAL FRAMEWORK FOR MANAGING RISK

ESTABLISHING YOUR REQUIREMENTS

Developing a framework for managing risk will ensure your risk management plan is aligned with your organisational requirements and capability, decision-making processes and management systems.

PROJECT BRIEF

A project brief will outline the purpose, scope and objectives of the plan.

The scope will determine what is included and the work undertaken to achieve the objectives of the plan, e.g. extent of the area, significant elements, and level of detail required. Your objectives will inform the direction for the plan, its content and overall intent to ensure it meets requirements.

The brief will set out expectations as to standards, the skills and specialist input required, the review process, cost and timing of delivery. This is important when engaging specialists to prepare the plan, applying for funding, engaging with stakeholders or seeking approval, e.g. from HNZPT for an NHL proposal.

Where a community is involved, early engagement with key representatives and workshops to identify values and address community needs will help to establish joint objectives.

INVOLVE YOUR GOVERNANCE OR MANAGEMENT TEAM AND STAFF

You need governance and management team support to approve the risk management plan and implement risk management policies and processes across your organisation. Boards will need to set the mandate and lead the organisational response, allocate and prioritise resources, and support an ongoing commitment to risk management.

Collective management and staff ownership of the risk management plan will ensure objectives are understood and the plan is implemented. All staff need to be familiar with the plan, their individual roles and emergency procedures.

YOUR OPERATING ENVIRONMENT (ORGANISATIONAL CONTEXT)

To prepare your risk management framework you will need to understand the external and internal operating environment of your organisation.¹³ This will include:

- stakeholders and regulatory, social, cultural and economic environments

- your risk management knowledge, capacity and capability
- opportunities and constraints, strengths and weaknesses
- your risk management planning currently in place (include CDEM Group plans and TA emergency planning)
- your future development plans and those of any kaitiaki or custodian communities.

SET UP A RISK MANAGEMENT WORKING GROUP

Establish a risk management working group for your place. Identify the role of the group and who should be on it.

This group will need to be mandated by your organisation, have good institutional knowledge, an understanding of risk management processes, include a range of expertise, and understand risk as it relates to hazards that potentially affect your place. The working group will need to establish relationships with external and internal stakeholders, e.g. CDEM agencies, local authorities, iwi, hapū, hāpori Māori, community leaders, staff, funders and contractors. It will also need to engage specialists to assist in the preparation of the plan.

ESTABLISH ROLES AND RESPONSIBILITIES

You will need to identify roles and responsibilities in preparing the plan and in implementing, monitoring and reviewing it. This will involve, at various stages, your Board, management, staff and specialist advice.

The people responsible for implementing the plan in an emergency event will form your Critical Response Team (CRT).

It is also necessary to identify agencies or groups outside your organisation who can be of assistance in an emergency event. In most situations, an emergency event and response will essentially be 'local', particularly in the early stages, and be managed within your organisation possibly with the assistance of emergency services. In an event of greater magnitude emergency, response and management may involve CDEM Groups, TAs, emergency services and local communities.¹⁴

¹³ Standards New Zealand, *Risk management – Principles and guidelines*, AS/NZS ISO 31000:2009 (Sydney and Wellington: Standards Australia and Standards New Zealand, 2009), p. 10.

¹⁴ Johnnides, C., EAP DRM Knowledge Notes 52950: Disaster Risk Management in East Asia and the Pacific, *Disaster Preparedness for Cultural Heritage*, World Bank, 2010.

STEP 3: COMMUNICATION AND ENGAGEMENT

COMMUNICATION AND ENGAGEMENT

Communication and engagement should take place early and through all stages of risk management planning. Key aspects of engagement include:

- engage with tangata whenua early and ask for assistance to identify any kaitiaki communities
- be open to community views and their expertise, particularly of any kaitiaki or custodian communities
- identify communities' values and priorities for recovery, and any existing or likely strategies they may employ in the face of risk
- provide an opportunity for feedback and review of the risk management plan and co-design where expected
- support relationships with HNZPT, communities, CDEM Groups, TAs, emergency services and other agencies with risk management roles.

There are stakeholder analysis tools and methods available to support the engagement process,¹⁵ which will need to be adapted for your particular situation.

IDENTIFY ENGAGEMENT PARTNERSHIPS

Owners and specialists should identify and engage with kaitiaki and custodian communities associated with the place early on. These groups will be able to provide mātauranga, traditional Māori knowledge, or local knowledge about existing resilience strategies and the appropriateness of any new risk management practices proposed for ongoing sustainable development. Other groups to engage with include emergency services, CDEM Groups, councils and community leaders.

Identify which iwi, hapū, hapori Māori, other stakeholders and communities you will need to engage with during the preparation and implementation of the plan. Iwi, hapū and hapori Māori have partnership status through the Treaty and the heritage place may have a particular group recognised as kaitiaki. Stakeholders will usually have a direct interest in the place. Communities may have an association with the place and feel some responsibility towards its care. A community with a particularly strong association to a place – caring for a place that is a part of their life and identity – can be considered to be a custodian community.

To understand the level of interest and decision-making roles prepare a 'stakeholder map' – a visual depiction of key stakeholders and communities who may influence your planning, identifying relationships, opportunities or associations that need to be strengthened. This map will identify people directly or indirectly influenced by your planning. For example, CDEM agencies will generally have no influence unless CDEM powers are invoked, at which time they will become a key player. Funders, donors and the media can also have an influence.

In identifying these groups you should consider how influential they will be in your implementation of the 4 Rs. Their level of influence will determine how you engage. For example, you may need to call on community leaders to assist with your response to an emergency event. Iwi, hapū and hapori Māori may have a direct association with your place and need to be involved. Also consider stakeholders internal to your organisation, such as staff, volunteers and contractors you work with.

Consider engagement using a simulation tool, such as the *Disaster Imagination Exercise*, a community-centred risk assessment where community members identify values (these may be different from what heritage 'experts' consider to be valuable), vulnerabilities and resilience strategies, and discuss appropriate emergency responses. During the exercise these are mapped onto aerial photographs of a place and the wider area, e.g. places of cultural value, access routes, evacuation areas and buffer zones, to provide a visually interactive means of assessing risk.¹⁶

Include the key points from your engagement with iwi, hapū and hapori Māori, stakeholders, kaitiaki and custodian communities, and issues and opportunities arising from this, to inform the plan. Engagement should continue once the plan has been implemented and when it is reviewed.

DEVELOP A COMMUNICATION AND ENGAGEMENT PLAN

A communication and engagement plan will:

- identify the strength and type of interest an iwi, hapū or hapori Māori, stakeholder or community has in your place
- assist in deciding the appropriate level of engagement, e.g. inform, consult, involve, collaborate or empower¹⁷
- provide opportunities for iwi, hapū or hapori Māori to contribute
- assist with allocating time and resourcing
- identify other stakeholders not previously considered.

¹⁵ Ministry for the Environment Manatū Mō Te Taiao, *Coastal Hazards and Climate Change: Guidance for Local Government*, 2017, section 3; Te Arawhiti Office of Māori Crown Relations, *Guidelines for Engagement with Māori*, 2018.

¹⁶ See UNESCO, *Managing Disaster Risks for World Heritage*, 2010, p. 27.

¹⁷ International Association of Public Participation (IAP2) Spectrum, www.iap2.org/page/pillars

You will need to communicate your emergency planning to staff, visitors, emergency services, neighbours and your community in the event of an emergency, e.g. through staff training, appropriate signage and your CRT. This communication will be ongoing through the duration of an event. At various times you may need to communicate with stakeholders, funders, insurers, volunteers or HNZPT to advocate for the protection and conservation of your place.

Consider how you will communicate with the media. You may need to appoint a media spokesperson and develop a media communications plan. The media can assist following an event to inform stakeholders and communities about the importance of saving a place or in an appeal to raise funds for a restoration project. However, the media can also create new risks if not well managed, e.g. around organisational reputation or in relating accurate information.

ENGAGING WITH TANGATA WHENUA

Iwi, hapū and hapori Māori may care for, identify, or associate with the heritage place in question with a te ao Māori (Māori world view) perspective. Engagement is essential. It should be managed on a case-by-case basis, with flexibility as needed. Iwi, hapū and hapori Māori may help you to identify any kaitiaki communities for the place in question (e.g. one of their own hapū or marae). Kaitiaki can help to identify which iwi/hapū entities have an interest, including other iwi or hapū with historical associations. The following principles will assist with the engagement process:

- preferred level of engagement – at the very start of risk management planning, identify who the parties are and the timing and level of engagement that they expect, from a high degree (e.g. early input to co-design the risk management plan) to a lower one (e.g. simple consultation on the draft plan)
- supply sufficient information to the party in question and provide an opportunity to exchange information in order to seek their views or participation
- whakawhitiwhiti kōrero – allow sufficient time to engage, and for internal discussions to be completed and reported back
- tikanga Māori – be prepared for iwi representatives to choose an appropriate venue and framework of communication for any meeting, such as a business meeting in the office or a mihi whakatau on the marae.

RISK MANAGEMENT AND TANGATA WHENUA

If iwi, hapū, hapori Māori or a kaitiaki community has indicated an association with the heritage place, engage with them in designing the risk management plan according to a mutually agreed process.

Iwi, hapū and hapori Māori, in particular kaitiaki communities, are likely to have existing methods of dealing with risk,

whether traditional or modern. These include the use of traditional materials and construction techniques and rituals, land management systems and understanding the environment. These need to be integrated, where appropriate, into the design of the risk management plan, which should be compatible with existing risk management strategies and systems at a local level.

The participation of kaitiaki communities in risk management planning and its delivery can be desirable in and of itself, as a vehicle for their rangatiratanga around their taonga, and to draw on their knowledge and expertise to ensure the best possible result. It can also help to maintain or increase the strength of their association to their heritage, as well as build their expertise and strengthen their future custodianship of the place.

Any risk management of a place with kaitiaki communities needs to recognise that the strengthening of association and participation of these communities in kaitiakitanga is a positive long-term outcome for the future survival of the heritage in question: the kaitiaki preserve the taonga, which in turn can sustain their identity and wellbeing. The wellbeing and sustainable development of kaitiaki communities, including economic development, is important in managing Māori heritage.

RELATIONSHIP BUILDING

Relationship building is key to risk management and good practice in caring for a place. Often external support will be needed to manage hazards and risks. Hazards may impact neighbouring properties, or they could be vulnerable to risks generated within your place. Working collaboratively, risks could be prevented or mitigated. Potential relationships may include:

- neighbouring owners, property managers, kaitiaki or custodian communities
- iwi, hapū and hapori Māori
- CDEM agencies, TAs, emergency services
- HNZPT, tradespeople, consultants, e.g. engineers and conservation professionals
- community groups, heritage and cultural associations
- commercial operators
- external funders or sponsors.

Your site may be useful in an emergency response, e.g. as a gathering place or for storage. This may provide opportunities to seek funding or to develop your relationship with CDEM agencies and your community.

STEP 4: DEVELOPING YOUR RISK MANAGEMENT POLICY AND RISK CRITERIA

WHAT IS A RISK MANAGEMENT POLICY?

A risk management policy will outline your strategic objectives and support for risk management planning. The policy will assist in raising risk awareness of how risk management can be integrated into your operating environment and organisational culture, including your strategy, operations, resourcing, funding and future planning.

DEVELOPING A POLICY

The policy should include:

- your organisation's goals and objectives in managing risk
- expected risk management outcomes and timelines
- your organisational commitment to risk management
- accountabilities, roles and responsibilities of your organisation in managing risk
- resourcing to be made available to manage risk, including for staff training
- how risk management will be measured and reported.¹⁸

Update your policy as risks and values change and your ability to manage risk develops and adapts.

RISK CRITERIA

Establish risk criteria to evaluate the significance of the risk to your place and to inform your decision making. This should reflect your organisation's values, objectives and resources and the level of risk identified. The criteria may reflect statutory requirements, your tolerance to risk, the views of stakeholders, the community or prioritised values. The risk criteria should be consistent with your risk management policy and will need to be continually reviewed. Criteria may include:

- how you will measure risk
- how likelihood will be determined
- how the level of risk will be determined
- what level of risk will be acceptable or tolerable.¹⁹

LEGISLATION AND STATUTORY PROVISIONS

There are a number of legal and statutory provisions that will influence your risk management policy. HNZPT recommends seeking specialist legal advice about any legislation or statutory provisions relating to risk management planning for your organisation. These include:

- Civil Defence Emergency Management Act 2002
- Resource Management Act 1991
- Building Act 2004
- district and regional plans, including regional coastal plans
- Heritage New Zealand Pouhere Taonga Act 2014
- Claims Settlement Acts under the Treaty of Waitangi/Te Tiriti o Waitangi
- Reserves Act 1977
- Conservation Act 1987
- Protected Objects Act 1975
- Fire and Emergency Act 2017
- Health and Safety at Work Act 2015.

The relevant legislation may need to be considered before, during or after an emergency event. For example, district and regional plans under the Resource Management Act (RMA) have rules setting out resource consent requirements when undertaking work to historic heritage. There may be a heritage covenant over a place or it may have reserve status under the Reserves Act, e.g. it may be an archaeological site protected by the provisions of the HNZPT Act, which will have implications for any change and how the place can be managed. Legislation can affect your ability to implement response and recovery actions following a disaster as was the case following the Canterbury earthquakes (2010 to 2012).

¹⁸ AS/NZS ISO 31000:2009, p. 10

¹⁹ AS/NZS ISO 31000:2009, p. 17.

STEP 5: UNDERSTANDING YOUR PLACE AND PHYSICAL CONTEXT

UNDERSTANDING HERITAGE VALUES

You will need to identify and understand what is important about your place, to whom, and why. This will highlight significant values and features of your place, inform your response under each of the 4Rs, and assist with prioritisation and allocation of resources.

The risk management plan should address the full extent of your place and risks to all of the attributes of your site. This includes buildings, structures, archaeology, memorials, significant trees, landscape features and modifications, natural features, sacred landscapes, views to and from the place, collections, as well as meanings, cultural associations, and customary knowledge and activities that make the place significant.

For places included on the New Zealand Heritage List/Rāangi Kōrero and for NHLs, this information may already be available through the HNZPT significance statement prepared for the listing. If a conservation plan has been prepared, this will include a detailed history section and heritage inventory assessing values. If your place is scheduled in the District Plan, your local council may be able to provide assistance.

Intangible heritage values, e.g. traditions, identity and knowledge, that contribute to the values of a place, can also be at risk and will need to be identified and understood. Where intangible values are important, custodian communities should be engaged to fully understand and appreciate what is of value.

Māori heritage places have their own intrinsic worth, mauri and wairua that are indelibly tied to tangata whenua and their tūpuna, kōrero, mātauranga and tikanga and other expressions of their living culture. To understand these places it is necessary to engage with tangata whenua and reflect their statements in the plan.

Other features of a place may not be considered to be of heritage value, but will be essential to ensure long-term viability and survival. For example, commercial assets, such as a café, may be important in providing a revenue stream and will need to be considered in your risk management planning.

Identifying values important to the community can help build resilience and will aid recovery. Also, this presents an opportunity to engage with your community about heritage matters, e.g. what is important and why, community wellbeing, building resilience, and the role of heritage in sustainable development.

PHYSICAL CONTEXT

To provide effective risk management across the 4Rs, it is essential that you understand the site and the wider risk context of your place, which includes neighbouring properties and the wider geographical area. This context will be understood through engagement with neighbours, kaitiaki and custodian communities, and from information held by TAs and CDEM Groups.

Include a site plan (from council web mapping or Google Maps) with the site boundaries, and for an NHL, the Landmark extent. Identify buildings, structures, natural features, recorded archaeological sites, significant trees and emergency services information, such as entry and egress points and fire hydrant locations. HNZPT will be able to assist with NHL information.

The formal boundaries and the wider context of a place that will influence risk management considerations will often be different. Wider location plans can be used to indicate the source of other potential risk, e.g. proximity to the coast or rivers, wildfire hazards or landslips, as well as land use, population locations, development and infrastructure. Show access routes to the site, including alternative routes, and any specific emergency access or escape routes. CDEM Group and TA regional hazard plans showing earthquake fault lines, tsunami and flood inundation zones or groundwater flow paths in storm events can be included in the appendix of the plan.

Buffer zones are areas immediately adjoining your place that may have an impact on the protection of its values and consequently influence your risk management planning. These zones may be managed or influenced to a degree and can either assist with protection (e.g. by providing a flood catchment area) or present an external threat (e.g. a forest susceptible to wildfire). For some zones, there will be little ability for you to influence how they may impact your place. Map key elements within the buffer zones that could present a risk, or opportunity, to your place.

Inspect the site with your risk management team to understand any requirements or features that are specific to the place. It will be important to understand the place from the owners' perspective and also that of iwi, hapū and hāpori Māori, stakeholders and communities identified in the engagement process.

CONDITION

Physical condition is important to risk management since a well-maintained place will be more resilient to any impacts from hazards. A condition assessment will provide base-line data, including a photographic record, to assist with work planning, allocation of resources and to monitor change. Budget for regular maintenance of your place.

STEP 6: UNDERSTANDING YOUR RISK

RISK ASSESSMENT

Risk assessment is the overarching process of **identifying**, **analysing** and **evaluating** the hazards that could impact a place and understanding the level of risk and potential impacts from them. This is a critical part of your risk management planning and will help you to make effective risk management decisions.

Due to factors such as location, topography, construction, use and cultural heritage values, each place will have its own specific risks that will need to be managed. By developing a clear understanding of hazards and the risk they pose, and your objectives and priorities, the appropriate level of resourcing can be applied to managing that risk across the 4Rs.

Work with your heritage risk management specialist to complete this step. You will need to consider what impacts the assessed risk may have for your organisation or place, and evaluate its likelihood, consequences and your organisation's capacity and capability to respond to an emergency event.

RISK IDENTIFICATION

Risk identification is the process of researching, identifying and describing specific hazards that may impact your place and risks that come from these. This will involve:

- reviewing regional council and TA risk management plans, CDEM Group plans, environmental reports and hazard maps, e.g. National Institute of Water and Atmospheric Research (NIWA) flood mapping, GNS Science risk modelling
- consulting international literature on heritage disaster risk management
- researching historical events, e.g. frequency, effects on the region, how they directly impacted your place and its values
- engaging with iwi, hapū and hāpori Māori, stakeholders and your communities, e.g. local knowledge
- developing a comprehensive list of hazards that may impact your place, including how they will impact and potential consequences.

You will need to research technical data on earthquake and tsunami risk zones, flood plains, inundation and land stability information. Iwi, hapū and hāpori Māori, stakeholders and your community will have local knowledge, e.g. the history of events that have previously impacted kaitiaki and custodian communities and how they have responded and adapted.

It is important to identify all potential risks in the assessment process, including future risks. These may include volcanic

eruption, landslide or debris flows, or contamination, biological agents, chemical spill or risk for users of a place. Consider future impacts, e.g. from pollution, and include risks such as loss of traditional knowledge, damage to archaeological sites, insufficient environmental controls, pests, weathering, relocation and social change. For example, a place may have never flooded, but risk identification is about determining if there is a probability of future flooding occurring.

Consider the direct and indirect impacts of the hazard, primary and secondary hazards, cascading and cumulative effects, but also recognise impacts beyond your site. For example, a heavy rain event could cause a slip on the site, or roof leaks result in extensive damage to a significant artefact. Flooding can cause damage from debris, or by undermining foundations compromising the structural integrity of a place, and contaminated water can be an issue. Water ingress can lead to dampness, mould, deterioration of heritage fabric and risk to human health. Climate change effects can be considered as a threat multiplier since these can increase vulnerability and exacerbate other stresses. Also investigate cause and effect relationships, e.g. hard drive failure leading to loss of archived data.

You will need to consider the potential for the creation of 'new' risks. For example, development in an area that may disturb groundwater flows or be subject to climate change impacts, such as sea-level rise. Also plan to build in resilience when undertaking new work programmes.

RISK ANALYSIS

Risk analysis is about developing a detailed understanding of the causes, characteristics (e.g. what impacts to expect, likelihood and what influences risk), and your level of exposure and vulnerability. The risk to a place will change over time so it needs to be considered over the long term.²⁰

Depending on your objectives, available data and resources, risk analysis can be carried out using qualitative or quantitative assessment methods, or a combination of both. Qualitative methods use broader non-numerical descriptions to specify consequences and their likelihood, e.g. from insignificant to catastrophic, or from extremely unlikely to almost certain. Quantitative methods involve analysis of numerical data by assigning a scoring system to set risk criteria to provide a relative value, e.g. the probability of an event occurring, or the degree of loss of heritage fabric.²¹ Quantitative methods typically require additional input, but provide a more detailed assessment of impacts and prioritisation. You will need to:

20 MCDem, *Director's Guidelines for Civil Defence Emergency Management Groups* [DGL 09/18], p. 19.

21 See *Risk Management at Heritage Sites: A Case Study of the Petra World Heritage Site* as an example where both qualitative and quantitative (ICCROM-CCI-ICN ABC method) risk analysis is used.

- undertake an overview of identified hazards – extent, duration, magnitude, frequency and probability
- assess exposure – people, buildings, archaeology, the natural environment, other assets
- identify vulnerabilities – your location, setting, building construction materials and condition, taonga, collections, relationships and business management processes
- assess likelihood, sensitivities to risk and potential consequences – the chance of an event occurring, degree to which heritage values may be affected, impact on your management objectives.²²

Start with an overview of regional risk, then work through hazards directly affecting your place, and then (at a detailed level) risk to the values, heritage fabric and elements of your place.

This information will be used to analyse the risk of likelihood and consequences based on the interaction between the hazard, your exposure and vulnerabilities. When considering consequences, also think about wider impacts, such as on human, economic, natural and built values. Your capacity to manage a risk – for funding, knowledge and time – should also be considered.

As well as impacts from storm events, climate change will result in gradual onset and cascading impacts, e.g. from increasing temperatures and sea-level rise. The risks associated with this are not specifically event-based, so it is the longer-term consequences of these impacts that need to be understood rather than likelihood.

Consider organisational risks that are not the result of an emergency event, e.g. from operational policy, financial management, resourcing or managing information, as these can have a consequence for the long-term viability and survival of a place.

Part of your analysis may include testing the cost of risk treatment or management against the benefits of this to your organisation, i.e. cost-benefit analysis. This is challenging, partly because it is difficult to assign costs to heritage values and the benefits derived from them. Even so, a high-level cost-benefit analysis can be helpful in guiding your decision making, prioritisation and resourcing. This can be as simple as assigning cost as '\$' for low cost to '\$\$\$' for high cost. Start with identifying options to prevent or mitigate a risk, then set out the estimated costs and benefits of each one, and then prioritise options for net benefits to your organisation. Remember to include human, economic, natural and built values when undertaking this analysis.²³

RISK EVALUATION MATRIX

The risk posed by each identified hazard from the hazard summaries can then be evaluated using a **Risk Evaluation Matrix**. The matrix is used to map the likelihood and consequences for each hazard and assign risk ratings to highlight levels of risk and identify the greatest risks to the place. Figure 3 shows an example of a Risk Evaluation Matrix.

The terms used to describe likelihood in the matrix mean:²⁴

- A. Almost certain or cumulative** – is expected to occur in most circumstances
- B. Likely** – will probably occur in most circumstances
- C. Possible** – might occur at some time
- D. Unlikely** – could occur at some time
- E. Extremely unlikely** – may occur only in exceptional circumstances.

The terms used to describe consequences in the matrix mean:²⁵

- 1: Insignificant** – no injuries, little or no damage, low financial loss, insignificant impact on cultural heritage values
- 2: Minor** – first aid treatment required, minor building damage, medium financial loss, minor adverse impact on cultural heritage values
- 3: Moderate** – medical treatment required, moderate building and infrastructure damage, high financial loss, moderate adverse impact on cultural heritage values
- 4: Major** – extensive injuries, high level of building and infrastructural damage, major financial loss, major adverse impact on cultural heritage values
- 5: Catastrophic** – deaths, most buildings extensively damaged and major infrastructural failure, huge financial loss, irretrievable loss of cultural heritage values.

The risk evaluation key – very low to extreme in the example Figure 3 – will change depending on your environment. For example, it may be that a 'possible' risk with a 'catastrophic' consequence presents an extreme risk to your place or organisation, e.g. hotworks (the use of heat or an open flame such as soldering, brazing or drilling metals) is a possible risk that can present a catastrophic consequence and requires strict management. A hazard with a high likelihood does not necessarily present a high risk, e.g. a seismically strengthened building in a high-risk seismic zone. You will also need to consider flow-on effects. For example, you may have to plan for your place being cordoned off and access being restricted for a period of time. This will put the place at risk from deterioration or vandalism.

²² MCDEM, *Director's Guidelines for Civil Defence Emergency Management Groups* [DGL 09/18], p. 19.

²³ Bogaards, R., *Cost Benefit Analysis and Heritage Regulation*, 2007; see *Risk Management at Heritage Sites: A Case Study of the Petra World Heritage Site* as an example where cost-benefit analysis is used in the identification of mitigation strategies.

²⁴ MCDEM, *Director's Guidelines for Civil Defence Emergency Management Groups* [DGL 09/18], p. 68.

²⁵ Adapted from MCDEM, *Director's Guidelines for Civil Defence Emergency Management Groups* [DGL 09/18], p. 69 to include cultural heritage values.

		CONSEQUENCE				
		1 INSIGNIFICANT	2 MINOR	3 MODERATE	4 MAJOR	5 CATASTROPHIC
LIKELIHOOD	A: ALMOST CERTAIN OR CUMULATIVE	Medium	High	Very High	Extreme	Extreme
	B: LIKELY	Low	Medium	High	Very High	Extreme
	C: POSSIBLE	Low	Medium	Medium	High	Very High
	D: UNLIKELY	Very Low	Low	Medium	High	Very High
	E: EXTREMELY UNLIKELY	Very Low	Very Low	Low	Medium	High

Figure 3: Risk Evaluation Matrix

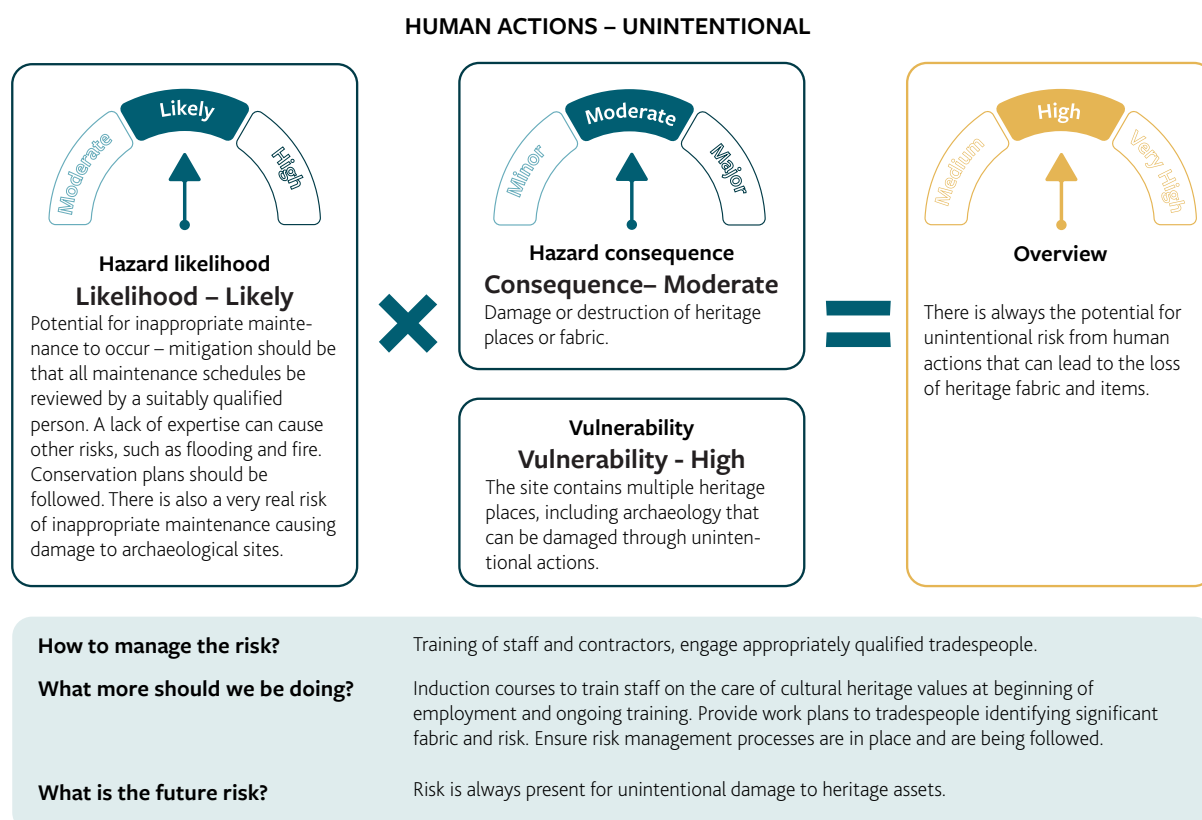


Figure 4: Hazard summary for human actions – unintentional

One of the aims of risk management is, through risk treatment or management, to shift risk from the right side of the Risk Evaluation Matrix to the left side, i.e. to lower the risk. For example, to shift a particular risk from being 'very high' to 'high' risk or even prevent it where possible.

The RiskScape modelling tool developed by NIWA and GNS Science provides a framework to estimate impacts and losses to assets from natural hazards: www.riskscape.org.nz

Your heritage risk management specialist will be able to undertake this process with you.

HAZARD SUMMARIES

The risk **identification** and **analysis** information can be collated into a hazard summary document. The hazard summaries are important since they help you to critically analyse each hazard identified as potentially impacting your place to understand the risk it poses. They will briefly outline hazards that may impact your place, their possible effects and how to manage that risk. Hazard summaries typically include:

- Hazard overview
- Hazard likelihood
- Exposure and vulnerability
- Hazard consequence
- Impact on heritage values
- How to manage that specific risk
- What more could be done
- What is the future risk?

Append the hazard summaries to your risk management plan. They provide a record of your risk management assessment undertaken at that time and will be useful for your monitoring and review processes.

Figure 4 shows an example of a hazard summary.

RISK EVALUATION

Risk evaluation will help you decide which risks need to be treated, and which will need to be managed, how they might be prioritised or where further in-depth assessment is required. This is done by testing the identified risk against your risk criteria. Understanding the risk that a hazard poses will inform your decision making around levels of acceptable risk. The impact a hazard may have will also inform your approach to risk management and your level of risk tolerance.²⁶

HAZARDSCAPE

The evaluation of the risk assessment data from the hazard summaries can be presented as a **hazardscape**. The hazardscape will highlight the key hazards that may impact your place and rank these from the highest to lowest risk. This evaluation will assist with risk prioritisation, cost-benefit analysis, and the implementation of prevention and mitigation strategies. The prioritised risks can then be linked to work action plans and to set timeframes and budgets for this work to be undertaken.

Figure 5 is an example of a hazardscape for a small wooden building in Northland. The hazardscape shows that the highest level of risk is associated with climate change and associated events of intense storms and flooding. Fire and intentional damage also have a very high-risk profile. Not all hazards are physical. The risk of loss of traditional knowledge is rated high, as are pandemic and financial issues, such as poor financial or management systems being in place. At the other end of the scale, although earthquake and tsunami present a low level of risk, they would still need to be considered in risk management planning due to their potential for catastrophic consequences.

By carrying out this assessment you will gain an understanding of each hazard and its potential risk to your place and organisation. This will include:

- what resources are required to implement risk management planning, e.g. administrative, financial (external and internal funding), time, staff training, specialist input
- your organisational capacity and capability to prepare for and respond to each hazard
- risk prioritisation and cost-benefit analysis
- how you can improve processes to reduce these risks
- CDEM agencies and processes in place in your area and how this will influence your preparation and response.

HAZARD	LIKELIHOOD	CONSEQUENCE	RISK
Climatic change	A	4	E
Storm	A	4	E
Flood	A	3	VH
Fire (accidental and arson)	C	5	VH
Weathering	A	3	VH
Human actions: Intentional damage	C	5	VH
Human actions: Unintentional damage	B	3	H
Pandemic	C	4	H
Loss of traditional knowledge	C	4	H
Insufficient environmental controls	C	4	H
Financial	B	3	H
Tsunami distant	B	3	H
Tsunami local	E	4	M
Earthquake	E	2	VL

Key

Likelihood – A (Almost certain or cumulative), B (Likely), C (Possible), D (Unlikely), E (Extremely unlikely)

Consequence – 1 (Insignificant), 2 (Minor), 3 (Moderate), 4 (Major), 5 (Catastrophic)

Risk – VL (Very Low), L (Low), M (Medium), H (High), VH (Very High), E (Extreme)

Figure 5: Example of a hazardscape diagram²⁷

²⁶ MCDEM, *Director's Guidelines for Civil Defence Emergency Management Groups* [DGL 09/18], p. 17.

²⁷ This example is for a place in Northland located in a low seismic risk area.

STEP 7: TREATING AND MANAGING YOUR RISK

THE 4 RS – REDUCTION, READINESS, RESPONSE, RECOVERY

Now you can consider your assessed risk under each of the 4 Rs.

The 4 Rs are the key areas of action recognised in risk management planning:

Reduction – identifying and analysing risks to life, property and cultural heritage values from hazards, taking steps to eliminate those risks if practicable, and, if not, reducing the magnitude of their impact and the likelihood of their occurrence to an acceptable level

Readiness – developing operational systems and capabilities before an emergency happens, including self-help and response programmes

Response – actions taken immediately before, during or directly after an emergency to save lives and protect property and cultural heritage values

Recovery – the coordinated efforts and processes used to bring about the immediate, medium-term and long-term holistic regeneration and enhancement of a significant place following an emergency.²⁸

RISK TREATMENT AND EMERGENCY MANAGEMENT

Having assessed and prioritised the hazards potentially impacting your place (Step 6), you can test prevention and mitigation strategies to either treat or manage those risks under each of the **4 Rs**. You will also be able to test the costs and benefits of these strategies.²⁹

While some degree of risk can be treated to reduce impacts, some risk will need to be managed. A further component of risk, residual risk, is the risk that is too difficult to treat, it would be a rare occurrence or there is no benefit to treatment, e.g. costs outweigh benefits, or treatment would result in unacceptable loss of heritage values. You will need to continue to evaluate the nature and extent of residual risk as this may, in time, require treatment or management.³⁰

This approach allows options to be considered that best meet your risk management objectives, priorities and available resources. Note that there may be cost implications if decisions

are not carefully made based on a thorough understanding of the issues and priorities identified from your risk assessment work. You will also need to consider any other implications, e.g. maladaptation, or on the financial return generating parts of your business.

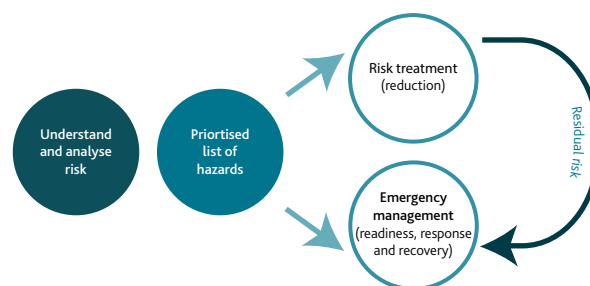


Figure 6: Relationship between risk treatment and emergency management³¹

As shown in Figure 6, the relationship between risk treatment and emergency management is directly related to the 4 Rs methodology of risk management planning where risk treatment applies to **reduction** and risk management applies to **readiness, response and recovery**.

A degree of flexibility is required when undertaking this planning. Risk management plans need to be realistic, relevant to your place and available resources, and allow for change and reassessment³² as your risk management processes are implemented.

Where your place has a conservation plan your risk management planning should be implemented, as far as possible, with reference to the conservation plan.³³

ACTION PLANS

Developing action plans is an important part of your risk management planning. The action plans will help you to prioritise what needs to be done to treat or manage your assessed risk over the short, medium and long term, and this information can then be fed into your wider work programme. Action plans typically set out your objective, the action to meet that objective, who will be involved, how the actions will be implemented, priority, and an indicative cost and timeframe for implementation.

The CDEM Group planning guidelines provide a useful format for developing action plans.³⁴ Under each of the 4 Rs, it is

28 Based on Department of the Prime Minister and Cabinet (DPMC), *The Guide to the National Civil Defence Emergency Management Plan 2015*, 2015, Appendix 2, p. 2.

29 CCI/ICCROM, *The ABC Method: a risk management approach to the preservation of cultural heritage*, 2017, p. 142.

30 AS/NZS ISO 31000:2009, p. 20.

31 MCDem, *Director's Guidelines for Civil Defence Emergency Management Groups* [DGL 09/18], p. 21.

32 Refer *Dynamic Adaptive Pathways Planning (DAPP)*.

33 ICOMOS, *New Zealand Charter*, 2010, p. 8.

34 MCDem, *CDEM Group Planning: Director's Guidelines for Civil Defence Emergency Management Groups* [DGL 09/18], 2018, section 4.1.3.

helpful to consider the organisational and physical context of your place under each of the following:

- **overview** – your organisation's current risk management context
- **principles** – overarching statements on the risk management processes your organisation intends to adopt
- **issues and priorities** – identify the gaps, weaknesses, or new or ongoing issues to be addressed
- **objectives** – the outcomes (within a timeframe and available resources) to be achieved from the risk management actions (these address the issues and priorities)
- **actions** – the work to achieve the objectives (these may change over time and can be included in work planning processes).³⁵

This information can be set out briefly in your plan and is used to develop an action plan. For example, the issues and priorities identified will guide your objectives, which can then be directly included in your action plan and actions formulated to address these. Figure 7 shows an example of an excerpt from an action plan for the reduction stage of the 4Rs.

Depending on your priorities, resources and capacity, and the complexity of your place, the 4Rs can be addressed either in a combined action plan or as individual action plans. What is important is that the actions address the specific risk to your place, i.e. they are able to be implemented and are achievable. The appropriate action may be that you require further investigation to develop your prevention or mitigation measures, e.g. by testing feasibility, viability, prerequisites or other impacts.

Putting in place prevention and mitigation measures will involve coordination with management and staff and may involve external agencies and specialists in relevant fields.³⁶

REDUCTION

Reduction is the process of identifying and analysing risks to life and cultural heritage from hazards, preventing those risks where practicable, or reducing the magnitude of their impacts and likelihood of occurrence to an acceptable level.

From the risk assessment process you will have a good understanding of the risks to your place, your priorities for risk management, and can now look at implementing risk prevention or mitigation strategies to treat them. These strategies should not result in the loss of heritage values, or should at least minimise any harm and not produce new risks.

There is the need to strike a balance between the costs and benefits of reducing risk and the likelihood and consequences of potential events. Risk reduction actions should directly address risks, priorities and issues determined in the risk assessment process (Step 6) and your objectives for your place. Also

consider that by lessening the impact of risk through reduction, the rate of recovery will be quickened. Reduction planning may include:

- mandating risk management processes within your organisation, e.g. budgeting for risk management
- seeking advice from local CDEM Groups, TAs, emergency services, HNZPT
- developing disaster risk reduction initiatives with your community
- cyclical maintenance planning, e.g. regular clearing of gutters and down pipes, painting, tree maintenance, regular visual inspections
- preventative measures, e.g. installing a water tank, fire and security monitoring, pest control, seismic strengthening
- seeking funding for conservation work or for the preparation of a risk management plan
- managing impacts from visitors, e.g. controlling access to an archaeological site
- having fit-for-purpose insurance in place that recognises heritage values.

Risk reduction looks at all of the risks relevant to your place and considers how they could be treated. Risk treatment can take the following forms:

- **Reduce or modify the hazard**, e.g. improve drainage to remove storm water, having a dangerous goods store, wetland regeneration to reduce exposure to the effects of coastal inundation
- **Modify behaviour**, e.g. risk management training for staff, active rather than passive risk management, proactively gather and record mātauranga (knowledge)
- **Reduce or modify vulnerability**, e.g. adaptation for climate change, seismic strengthening, installing fire protection, collection inventory, recording and archiving
- **Risk transfer**, e.g. through insurance
- **Accept risk** and plan for response and recovery.³⁷

It may not be practicable or cost-effective to treat a specific risk, e.g. diverting a water course or providing optimal conditions to display a fragile artefact. If the likelihood of an event is very low, and the consequences are minor (and therefore the risk negligible) and the treatment costs high, then accepting the risk may be the best option. Another option is transferring the risk through insurance. Review your insurance arrangements and how these cover impacts from likely hazards and to heritage values.

It is important to raise risk awareness and put in place processes to manage risk at an organisational level. Simple processes can be the most effective forms of risk reduction,

³⁵ MCDEM, *CDEM Group Planning: Director's Guidelines for Civil Defence Emergency Management Groups* [DGL 09/18], 2018 p. 25.

³⁶ UNESCO, *Managing Disaster Risks for World Heritage*, 2010, p. 32.

³⁷ MCDEM, *CDEM Group Planning: Director's Guidelines for Civil Defence Emergency Management Groups* [DGL 09/18], 2018, p. 20.

OBJECTIVE	ACTION	WHO	HOW	PRIORITY	COST	YEAR
1. Consider and implement risk reduction processes in everyday management processes. Outline existing arrangements and additional requirements.	Include risk management in key strategies, policy, plans, staff training and management systems. Include risk management outcomes in annual reporting.	Board, management	Review and update existing strategies, policy, plans, staff training and management systems Incorporate risk management into day-to-day operations	High	\$	Ongoing
2. Support the understanding, preparation, prioritisation and implementation of risk reduction processes across the wide range of heritage fabric and features of the site.	Develop and implement risk reduction processes for buildings, structures, collections and natural and heritage landscapes.	Board, management, staff Specialist conservation advice & input HNZPT Iwi, hapū, hapori Māori	Risk management plan Develop relationships with TA, CDEM, iwi, hapū, hapori Māori, community Staff training	High	\$\$	1
3. Reduce the risk to buildings and structures by keeping them in sound condition.	Develop and implement a cyclical maintenance plan for the heritage buildings and structures. Undertake repairs in a timely manner	Management, staff Specialists, skilled tradespeople	Cyclical maintenance plan, condition monitoring Conservation plan	High	\$\$	Ongoing

Figure 7: Excerpt from an action plan for reducing risks

e.g. installing warning signage or smoke alarms and keeping contact lists up to date. A cost-effective risk reduction response may be to provide training for volunteers to safely evacuate a collection or to avoid storing valuable items in a basement that could be flooded.

Some prevention or mitigation measures will be the result of wider disaster risk management at a central or local government level and be linked to urban or regional planning. An example of this would be flood prevention through stop bank construction, the eradication of pest species in a natural environment, or relocation of roading infrastructure. This could present a risk to the heritage values of your place, so you may need to be involved in any consultation processes.

READINESS

Readiness is the preparation required to be able to respond efficiently and effectively in an emergency event.

Readiness planning will include:

- developing and implementing organisational processes to manage risk, e.g. resourcing risk management, training, setting up a CRT
- developing relationships with local CDEM Groups, emergency services, HNZPT, adjoining property owners, iwi, hapū and community leaders, e.g. joint training exercises, share understanding of heritage values
- planning for business continuity and financial resilience, e.g. if your place is closed for an extended period of time having contingency funding available

- planning evacuation routes, designated safe zones, emergency access for vehicles, fire hydrants, security and site safety provisions, helicopter landing at remote sites
- having related plans in place, e.g. emergency response plan (ERP), salvage response plan (SRP), communications plan
- ensuring personal protective equipment (PPE) is available for staff as required, e.g. high-vis, face masks, hard hats and boots
- having access to disaster response equipment, e.g. an emergency toolkit, shoring equipment, tarpaulins, generators
- monitoring, evaluating and reviewing your risk management processes.

Set up your CRT to include members with a wide range of skills, expertise and understanding of the operation, processes, assets and activities of your organisation. This will include in leadership, facilities management, health and safety, conservation, communication and trained first aiders.

Your risk management plan will need to be held in a safe place where it is readily accessible in hard copy and digital format. It will need to be available on-site, and off-site at locations that are unlikely to be affected by the same emergency event. An emergency toolkit, which could be a waterproof plastic storage bin, should contain your ERP, safety equipment and a selection of tools.

If you have a significant collection of artefacts you will also need a SRP, which will be used to manage moveable cultural heritage in an emergency event. It will identify items of

significance, their location (include maps), priorities and special conditions for salvage, and identify trained people to undertake this work. Salvage will need to include safe packing, transport and temporary storage provisions being available.

Designing emergency scenarios is a useful way to determine any gaps or deficiencies in your readiness planning. Test planned responses against these scenarios (from historical data and research, e.g. CDEM predictions on likely hazard occurrences) based on type of event (or events), time, place, weather, visitors on-site, as these all play a part in how an event will unfold. Take into account secondary hazards and cumulative effects. Scenarios should also be tested for human-induced emergencies.

EMERGENCY RESPONSE PLAN

Your ERP will outline the steps to take in an emergency to protect significant items and minimise damage. It will need to be readily available, easy to follow in an emergency situation and contain information specific to your place.

The information in your ERP will vary depending on the type of place, e.g. large or small, if you have staff or collections, the likely emergencies you may face, or the location and accessibility of your place. If you have a large or highly significant collection a separate SRP may be required. Your ERP will need to be reviewed and updated on a regular basis and risk management training should include testing your ERP.³⁸ An ERP will:

- identify your CRT and their roles and responsibilities
- include criteria to classify emergencies and the appropriate response
- outline evacuation procedures
- outline initial tasks of the CRT, e.g. salvage procedures, security, assessment
- include an emergency contacts list, including for specialist advice
- include site and building plans showing access routes, services shut off, potential site hazards, e.g. location of your dangerous goods store
- may include plans showing the location and prioritisation of objects to be salvaged and how they should be treated
- identify the location of emergency equipment, safe storage and safe access routes
- notes on record-keeping and reporting about the emergency.

The roles and responsibilities of the people who will be first to respond in an emergency event will need to be outlined in your ERP. It is essential that your ERP links with your risk management planning.

EMERGENCY RESPONSE CARDS

Prepare Emergency Response Cards (laminated cards to act as grab sheets) to be held in your emergency toolkit. The grab

sheets will set out essential emergency information, e.g. on who to call, locations of emergency supplies, immediate safety, a response checklist, and the actions to be taken during and immediately after an emergency event, such as assessment and documentation. They can also include information on prioritised objects for salvage, their exact location, how they should be protected or handled, and where they should be evacuated to.

TRAINING AND DEVELOPING RELATIONSHIPS

Risk management training provides the opportunity to test plans, systems and procedures, and builds confidence to respond to an emergency event. Practice the use of emergency equipment, such as fire extinguishers, tarpaulins or ropes. Make arrangements for having trained people, familiar with the place but from outside the area, to assist in a response if needed. This may include people with specific skills, e.g. conservators or archaeologists. Also consider including volunteers in your emergency training.

Work with emergency services providers to test your planning and procedures, as well as emergency scenarios. Fire and Emergency New Zealand will manage their response accordingly if they are aware of the heritage significance of a place and are provided with keys and relevant information, such as floor plans and salvage priorities. Arrange a site familiarisation visit to discuss your place and emergency procedures with your local emergency services providers and council staff.

Develop relationships with people who can assist you leading up to or following an event. This could include the provision of heritage advice, professional services, tradespeople or access to equipment, such as sand bags, tarpaulins, security fences or emergency generators. For example, develop relationships with local tradespeople who can undertake emergency repair work.

A practical measure, particularly for remote places, is to fit a fire connection kit to your water tank. This can help safeguard your place by allowing the fire service to connect directly to your tank to provide an additional supply of water.

Consider the requirements of your staff to meet their own needs before, during and following emergency event. Other commitments may mean they will not be available to assist at your place.

EMERGENCY RESPONSE EQUIPMENT

The equipment and supplies you have on-site or available to you to support the immediate response to an emergency will need to:

- allow for an effective response to any emergency at your place
- be safely stored, accessible and not vulnerable to damage or loss during the emergency

³⁸ While not specifically for the management of heritage assets in an emergency, a workplace emergency plan for your place may be a requirement under Worksafe regulations, [worksafe.govt.nz/managing-health-and-safety/businesses/general-requirements-for-workplaces/emergency-plans/](https://www.worksafe.govt.nz/managing-health-and-safety/businesses/general-requirements-for-workplaces/emergency-plans/)

- be regularly inspected and well maintained
- be replenished, upgraded or supplemented to reflect the requirements of the most current ERP.

RESPONSE

The **response** stage is generally recognised as the 72 hour period post-event, but an effective response immediately before, during or following an emergency event depends on the processes you have in place in the reduction and readiness stages of the 4 Rs. Your response will typically involve coordination and cooperation with other parties, e.g. emergency services, CDEM agencies (in a civil defence emergency), kaitiaki and custodian communities, communities, neighbours and possibly volunteers.

Response planning will include:

- testing your planning to manage emergency situations from minor to major events
- having an active CRT to ensure roles, responsibilities and initial response tasks are clearly understood by members of the team and staff, e.g. visitor and staff welfare, isolation of hazards, securing the site
- establishing emergency communications both within and outside your organisation, e.g. to communicate with staff, CDEM agencies, TAs, emergency services, HNZPT and heritage specialists
- having a prioritised response in place, e.g. for endangered flora and fauna, buildings, structures, site features, moveable collection items, kaitiaki and custodian communities
- for undertaking damage assessments, e.g. condition post-event, emergency actions, recording.

First, you will need to implement your ERP. Having an ERP and SRP that are up to date, reflect current risks, and your capacity and capability to respond, is essential in this stage of emergency management.

Record-keeping is very important during the response stage to ensure material is not lost, misplaced or stolen and any damage is accurately recorded. Ensure all actions are recorded. This information will be useful for future conservation work and may be needed for insurance purposes. Documentation is also important for undertaking early needs assessment to understand your immediate and medium-term resourcing requirements and potentially for fundraising initiatives.

The ICOMOS New Zealand Charter for the Conservation of Places of Cultural Heritage Value provides guidance on cultural heritage conservation in Aotearoa New Zealand. The Charter outlines best practice processes that could be used to guide a conservation response following a disaster or emergency event. Any response should respect heritage values and must be planned accordingly.

A coordinated response will typically be required following a major emergency event, e.g. one with CDEM involvement.

This may include assistance from people and groups inside and outside the region. Some will be experienced CDEM providers while others may be volunteers. Plan for how these relationships will function. Ensure that advice on managing heritage values specific to the place is available and understood.

The National Emergency Management Agency (NEMA), CDEM Groups, various agencies and local authorities are mandated through legislation or expertise to manage or provide assistance in an emergency arising from specific hazards.³⁹ This assistance may include evacuation, cordoning off unsafe areas, requiring structural assessments or making safe structures and materials. This may present a risk of its own if you are unable to access your place or authorities are unaware of any specific heritage significance or values. Develop relationships with these agencies to ensure that you are able to work with them in the event of an emergency.

Issues that will need to be considered include damage or increased risk to heritage values from Urban Search and Rescue (USAR) responders accessing buildings and sites, theft or inappropriate assessment. You may have limited resources to respond to an emergency, e.g. available staff, specialist advice, or access to storage facilities and wrapping materials. Consider the deterioration of heritage fabric that may be inaccessible for a period, e.g. interiors exposed to the weather or collections where environment controls no longer operate.

The response stage is critically important as planning and work undertaken during this stage will potentially reduce impacts from the event, stop or lessen further damage or deterioration, and speed up the recovery process. It is also a time to consider your wider communications and contact with the media, stakeholders and community, and to contact your insurer for advice.

RECOVERY

The **recovery** stage following an emergency event is the time to implement your planning processes to achieve the immediate, medium-term and long-term recovery of the place. These processes will require a flexible approach, since every emergency event will unfold differently, to address immediate operational needs, assess exactly what 'recovered' will look like – and put in place plans to achieve this, and look for opportunities to prevent or mitigate risk from hazards in future. The recovery of some attributes unique to your place, e.g. expressions of living culture, may require special attention.

Recovery planning will include:

- providing effective planning, management and resourcing for the transition from response to recovery
- coordinating recovery functions with CDEM agencies, TAs, HNZPT, heritage specialists, stakeholders, kaitiaki and custodian communities

39 DPMC, *The Guide to the National Civil Defence Emergency Management Plan 2015*, 2015, section 3, p. 4.

- for physical, social, economic and environmental factors impacting your place
- consideration of development opportunities, including for conservation and reconstruction, resilience building and protection from future disasters
- internal and external communications
- evaluating the effectiveness of your risk management planning response.

Immediately following an event you will need to assess any impacts on your place. The type of event and a visual inspection will help determine what has been impacted and how, assess ongoing risk, what the priorities are, tasks to be undertaken and what skills you need to call on.

Medium-term recovery may involve stabilisation of elements to allow time for planning decisions, managing income streams, arranging long-term storage of collection items, involvement of heritage specialists and assessing opportunities for funding. Also consider opportunities for community involvement and how this can be managed. Communications will be important for this phase of recovery.

Long-term recovery could continue over many years. If damage is minor or readily repaired, it may be possible to return to 'business as usual' in a short timeframe. However, if damage is more extensive or a risk persists, your risk management planning may need to provide for a staged longer-term recovery. Long-term recovery may need to take account of CDEM Group and TA recovery planning for the region and that emergency legislation may be in place for an extended period.

Events such as political unrest, pandemic or animal disease outbreak will require a different risk management approach, which may include closing your place for an extended period of time. This can impact the viability of a place if it is run as a business or relies on entry fees or donations from visitors. Physical deterioration can result if a place is closed up and it may be more vulnerable to human-induced risk, such as from theft or arson. In this case, appropriate 'mothballing' measures will need to be put in place.⁴⁰

The recent Canterbury (2010 to 2012) and Kaikōura (2016) earthquakes have shown how complex and long term the recovery process can be. Learn from experience and build this into your future planning. Having a recovery vision in place will assist in directing your recovery efforts and outcomes by encouraging longer-term strategic planning and identifying opportunities.

DIGITAL TECHNOLOGIES

There are a number of innovative digital technologies to assist in the management of risk, particularly in recording and monitoring the condition of heritage places or significant collection items. These include digital photography, photogrammetry, 3D scanning, Heritage Building Information Modelling (HBIM) and the use of drones. These technologies are rapidly developing and provide an effective means of capturing important data.

This includes:

- recording of buildings, structures, archaeological sites, landscapes and collections
- using the web as a resource for agencies and community groups to share cultural heritage information
- mapping change over time of building fabric, archaeological sites and collection items
- environmental monitoring, such as moisture levels, relative humidity (RH), impacts from weathering
- monitoring of coastal erosion or the effectiveness of mitigation measures
- undertaking rapid assessments of damage following an event
- undertaking post-disaster needs assessment in the field.

40 Refer Historic England, *Vacant Historic Buildings: Guidelines on Managing Risks*, 2018, historicengland.org.uk/images-books/publications/vacanthistoricbuildings/

STEP 8: IMPLEMENTATION, MONITORING AND REVIEW

IMPLEMENTATION

The following arrangements will need to be in place to implement your risk management planning:

- organisational support for your risk management plan, performance monitoring and review
- assignment of roles and responsibilities, e.g. accountability for the risk management plan, updates, training
- relationships with CDEM agencies, emergency services, HNZPT, kaitiaki and custodian communities
- resourcing, e.g. funding, staffing and training, and time
- financial arrangements, e.g. risk management costs included in your annual budget
- the 'actions' to come out of the plan are included in your annual plans, management plans, Board and stakeholder reporting.

You will need to review these arrangements as your capacity and capability to manage an emergency event and the risks to your place change.

MONITOR AND REVIEW

Monitoring and review of your risk management processes is an essential part of managing risk to your place and ensuring your plan is effective:

- note any change to the site (including cumulative change), lessons from events that have occurred, new risks, changes to cultural heritage values and priorities
- track risk awareness and management across your organisation to test the success of the plan
- put systems in place to monitor your risk management processes against the plan, e.g. regular reporting on risk.

Review of the plan should:

- consider if the objectives and actions of the plan have been implemented (or changed)
- monitor the success of the plan in meeting your objectives
- update your risk profile
- update action plans and propose new actions
- engage with communities to test identified values
- identify new work programmes
- include any lessons you have learnt from incidents
- evaluate if risk management processes are having minimal impact on heritage values
- consider whether the plan is still appropriate and relevant
- consider if the plan reflects developments in your capacity and capability.

Your risk management plan is a living document and it will need to be widely circulated and understood within your organisation. For example, you may decide to review the plan with your staff on a regular basis, in particular the ERP.

The plan should be checked regularly against the action points of your work action plan and reviewed yearly initially, then moved to a two and five-yearly review once your risk management processes are established.

As part of the NHL programme, HNZPT can provide ongoing assistance with your risk management planning.

GLOSSARY

4 Rs – the key areas of action recognised in risk management planning:

Reduction – identifying and analysing risks to life, property and cultural heritage values from hazards, taking steps to eliminate those risks if practicable, and, if not, reducing the magnitude of their impact and the likelihood of their occurrence to an acceptable level

Readiness – developing operational systems and capabilities before an emergency happens, including self-help and response programmes

Response – actions taken immediately before, during or directly after an emergency to save lives and protect property and cultural heritage values

Recovery – the coordinated efforts and processes, including conservation processes, used to bring about the immediate, medium-term and long-term holistic regeneration and enhancement of a significant place following an emergency.⁴¹

Adaptation – the process of adjustment to actual or expected climate and its effects. In human systems, adaptation seeks to moderate or avoid harm or exploit beneficial opportunities. In some natural systems, human intervention may facilitate adjustment to expected climate and its effects.⁴²

Capability – that an organisation is able to undertake functions, such as provide a service or fulfil a task. This implies that it has the required staff, equipment,

funding, systems and resources to do this.⁴³

Capacity – the combination of all the strengths, attributes and resources available within an organisation, community or society to manage and reduce disaster risks and strengthen resilience.⁴⁴

CDEM – Civil Defence Emergency Management. CDEM includes those agencies with responsibilities under the CDEM Act 2002, including local authorities, CDEM Groups, government departments, emergency services and lifeline utilities.⁴⁵

Community – a group of people who:

- live in a particular area or place ('geographic' or 'place-based' community)
- are similar in some way ('relational' or 'population-based' community), or
- have friendships, or a sense of having something in common ('community of interest').

People can belong to more than one community and communities can be any size. With increasing use of social media and digital technologies, communities can also be virtual.⁴⁶

Custodian community – a community, typically local, that has a long-term relationship of care and stewardship for a heritage place.

Consequence – outcome of an event affecting objectives.⁴⁷

Conservation – all of the processes of understanding and caring for a place so as to safeguard its cultural heritage value.⁴⁸

Cultural landscape – those landscapes, or networks of sites, which deserve special recognition or protection because of their heritage significance to communities, tangata whenua or the nation. They encompass the natural landforms modified by human action, the meanings given to places and the stories told about them.⁴⁹

Cultural resilience – the ability to anticipate and resist the effects of a disruptive event, to minimise adverse impacts on cultural heritage, values, places, institutions and practices, that are part of our identity as New Zealanders and our history, to respond effectively, to maintain or recover functionality and cultural values, and to adapt in a way that allows our heritage to thrive.⁵⁰

Disaster – a serious disruption of the functioning of a community or a society at any scale due to hazardous events interacting with conditions of exposure, vulnerability and capacity, leading to one or more of the following: human, material, social, cultural, economic and environmental losses and impacts.⁵¹

Disaster risk – the potential loss of life, injury, damage to or destruction of assets, including cultural assets (both tangible and intangible heritage), that could occur to/within a system, society or a community in a specific period

41 Based on DPMC, *The Guide to the National Civil Defence Emergency Management Plan 2015*, 2015, Appendix 2, p. 2.

42 IPCC, 2014: *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, 151 pp.

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44 UNISDR *Report of the Open-ended Intergovernmental Expert Working Group on Indicators and Terminology Relating to Disaster Risk Reduction*, 2017 [from NDRS p. 6].

45 DPMC, *The Guide to the National Civil Defence Emergency Management Plan 2015*, 2015, Appendix 2, p. 3.

46 NDRS, p. 6.

47 AS/NZS ISO 31000:2009, p. 5.

48 ICOMOS, *New Zealand Charter*, 2010, p. 9.

49 New Zealand Historic Places Trust, *Heritage Landscapes Think Tank, Report on Proceedings*, 2003, p. 4.

50 Based on NDRS 4.2.

51 UNISDR *Report of the Open-ended Intergovernmental Expert Working Group on Indicators and Terminology Relating to Disaster Risk Reduction*, 2017.

of time, determined as a function of hazard, exposure, vulnerability and capacity to respond.⁵²

Disaster risk management – the application of disaster risk reduction policies and strategies to prevent new disaster risk, reduce existing disaster risk and manage residual risk, contributing to the strengthening of resilience and reduction of disaster losses.⁵³

Emergency (1) – an unforeseen combination of circumstances, or the resulting state that calls for immediate action.⁵⁴

Emergency (2) – a situation that:

- is the result of any happening, whether natural or otherwise, including, without limitation, any explosion, earthquake, eruption, tsunami, land movement, flood, storm, tornado, cyclone, serious fire, leakage or spillage of any dangerous gas or substance, technological failure, infestation, plague, epidemic, failure or disruption to an emergency service or lifeline utility, or actual or imminent attack or warlike act; and
- causes or may cause loss of life or injury or illness or distress or in any way endangers the safety of the public or property in New Zealand or any part of New Zealand; and

- cannot be dealt with by emergency services or otherwise requires a significant and coordinated response.⁵⁵

Exposure – people, infrastructure, buildings, the economy, cultural values and other assets that are exposed to a hazard.⁵⁶

GNS – GNS Science Te Pū Ao, www.gns.cri.nz/Home/Our-Science/Natural-Hazards-and-Risks

Hazard – a process, phenomenon or human activity that has the potential to harm, cause loss of life, injury or other health impacts, property damage, impact cultural heritage values, social and economic disruption or environmental degradation.⁵⁷

Hazardscape – the net result of natural and man-made hazards and the risks they pose cumulatively across a given area.⁵⁸

Intangible – those human and cultural values that leave no physical trace, e.g. tears and blood normally do not leave archaeological evidence but they still happened.

Kaitiaki community – a Māori community, typically of the local iwi, hapū, marae or whānau, who have a traditional relationship of kaitiakitanga (traditional custodianship or guardianship) with the taonga (heritage place) in question.

Likelihood – chance of something happening.⁵⁹

Maladaptation – a physical alteration in order to mitigate a change or threat, which results in a detrimental outcome.⁶⁰

Mitigation – action taken before a disaster to lessen post-event damage to lives, property and cultural heritage values. In risk management many hazards, such as earthquakes, cannot be diminished, but the risk from them can be reduced or mitigated.⁶¹

National Historic Landmark/Ngā Manawhenua o Aotearoa me ōna Kōrero Tūturu (NHL) – a place of outstanding national heritage value.⁶²

NEMA – the National Emergency Management Agency, an autonomous departmental agency replacing the Ministry of Civil Defence and Emergency Management. NEMA provides leadership in reducing risk, being ready for, responding to and recovering from emergencies.⁶³

NIWA – National Institute of Water and Atmospheric Research, www.niwa.co.nz/natural-hazards

Prevention – measures taken to reduce the likelihood of losses. Ideally, these measures would seek to reduce losses to zero, but often this is not possible.⁶⁴

52 Based on NDRS p. 6, from *Words into Action: National Disaster Risk Assessment: Guidelines Governance System, Methodologies, and Use of Results*, 2017 Consultative version UNISDR.

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58 *Guide to the National CDEM Plan*, Appendix 2, p. 5.

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60 Fluck, H., and Wiggins, M., 'Climate Change, Heritage Policy and Practice in England: Risks and Opportunities, Historic England', *Archaeological Review from Cambridge* 32.2, (2017): 168.

61 Based on UNESCO, *Managing Disaster Risks for World Heritage*, 2010.

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63 National Emergency Management Agency, www.civildefence.govt.nz/about/about-nema/

64 UNESCO, *Managing Disaster Risks for World Heritage*, 2010.

Resilience – the ability to anticipate and resist the effects of a disruptive event, minimise adverse impacts, respond effectively, maintain or recover functionality, and adapt in a way that allows for learning and thriving.⁶⁵

Risk – the likelihood and consequences of a hazard.⁶⁶

Stakeholder – a person or organisation that can affect, be affected by, or perceive themselves to be affected by a decision or activity.⁶⁷

Tangible – those values that can be measured.

Territorial authority (TA) – city and district councils primarily responsible for managing the effects of activities on land.⁶⁸

Treaty partner – iwi or hapū who have rangatiratanga and are partners with the Crown by mutual acknowledgement about the whenua (lands) and taonga (heritage place) in question.

Vulnerability – the conditions determined by physical, social, economic and environmental factors or processes that increase the susceptibility of an individual, a community, asset or system to the impacts of hazards.⁶⁹

⁶⁵ NDRS, p. 18.

⁶⁶ CDEM Act 2002, s4.

⁶⁷ AS/NZS ISO 31000:2009, p. 4.

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