RPS – HAZ – Hazards and risks

Scope and background

This chapter is divided into two sections.

The HAZ-WC section deals with how activities involving *waste**, *hazardous substances**, and *contaminated land* will be addressed. In general, this chapter provides broad policy guidance for managing these activities. Where appropriate, specific policy relating to these activities is integrated into the resource-based chapters of this Plan.

The HAZ-NH section establishes an overall framework for *natural hazard** management under the RMA. It also sets out the division of responsibilities between the Regional Council and *Territorial Authorities** for *natural hazard** management under the RMA.

HAZ – WC – Waste and contamination

Waste**, *hazardous substances** and *contaminated land*
The Regional Council recognises the need to focus on the full life cycle of *waste** from generation to disposal, and that *waste** is a wasted resource. The Regional Council and the Region's *Territorial Authorities** have similar responsibilities for the control of adverse *effects** from the storage, transport, use and disposal of *hazardous substances**. These responsibilities need to be clarified to prevent overlaps, gaps and inconsistencies. The Regional Council also has responsiblities for identifying and monitoring *contaminated land** and *Territorial Authorities** are responsible for the "prevention or mitigation of any adverse *effects** of the development, *subdivision**, or use of *contaminated land**" (ss30(1)(ca) and 31(1)(b)(iia) RMA).

The New Zealand Waste Strategy (Ministry for the Environment, 2002) sets voluntary national targets for *waste** minimisation, organic *wastes**, special *wastes**, construction and demolition *wastes**, hazardous *wastes**, *contaminated land**, organochlorines, trade *wastes** and *waste** disposal.

Issues

HAZ-WC-I1: *Waste**, *hazardous substances** and *contaminated land**

The increasing production of *waste** and use of *hazardous substances** in the Region has resulted in:

1. wasted resources and an increasing need for appropriate disposal
2. potential for the unsafe use, storage, disposal and transportation of *hazardous substances**
3. potential for *land** becoming contaminated to the point it poses a risk to people and the *environment**.

Objectives

HAZ-WC-O1: *Waste**, *hazardous substances** and *contaminated land**

The Regional Council and *Territorial Authorities** must work together in a regionally consistent way to:

1. minimise the quantity of *waste** generated in the Region and ensure it is disposed of appropriately,

2. manage adverse *effects** from the use, storage, disposal and transportation of *hazardous substances**, and
3. manage adverse *effects** from *contaminated land**.

HAZ-WC-O1:Te para, ngā matū mōrearea, me ngā whenua tāhawahawa

Ka mahi tahi te Kaunihera ā-Rohe me ngā Mana Takiwā i runga i te tikanga rite huri noa i te rohe ki te:

1. *whakaiti i te rahi o te para ka puta mai huri noa i te Rohe, kia hua ai hoki ka tika te whakawātea*
2. *whakahaere i ngā pānga kino nā te whakamahi, te putu, te whakawātea, me te kawe i ngā matū mōrearea, me te*
3. *whakahaere i ngā pānga kino nō te whenua tāhawahawa.*

Policies

*Waste**

HAZ-WC-P1: *Waste** policy hierarchy

*Wastes**, including solid, liquid, gas and sludge *waste**, must be managed in accordance with the following hierarchy:

1. reducing the amount of *waste** produced
2. reusing *waste**
3. recycling *waste**
4. recovering resources from *waste**
5. appropriately disposing of residual *wastes**.

HAZ-WC-P2: Consent information requirements - *waste** policy hierarchy and *hazardous substances**

Where a proposal has the potential to give rise to significant adverse *effects** on the receiving *environment**, an assessment must be required, as part of the consent information requirements for all *discharges** to air, *land**, *water** and the *coastal marine area**, of:

1. reduction, reuse, recycle and recovery options for the *discharge** in accordance with RPS-HAZ-WC-P1, and any *hazardous substances** that may be present in the *discharge**, and alternatives to those *hazardous substances**.

HAZ-WC-P3: *Cleanfills**, *composting** and other *waste** reduction activities

*Waste** reduction activities will be encouraged, in particular by generally allowing *cleanfills** and *composting** activities.

HAZ-WC-P4: *Landfill** management

*Landfills** must generally be designed, constructed, managed, operated, remediated and monitored in line with appropriate guidelines and *national environmental standards*^. Taking into account the applicability of these guidelines and standards in relation to the type and scale of activity proposed, the following guidelines may be considered appropriate:

1. Centre for Advanced Engineering, Landfill Guidelines, April 2000

2. Ministry for the Environment, Module 1: Hazardous Waste Guidelines - Identification and Record Keeping, June 2002, ME637
3. Ministry for the Environment, Module 2: Hazardous Waste Guidelines. Landfill Waste Acceptance Criteria and Landfill Classification, May 2004, ME510
4. Ministry for the Environment, A Guide to the Management of Cleanfills, January 2002, ME418
5. Ministry for the Environment, A Guide to the Management of Closing and Closed Landfills in New Zealand, May 2001, ME390
6. Ministry for the Environment, Guide to Landfill Conditions, May 2001, ME389
7. Ministry for the Environment, Good Practice Guide for Assessing and Managing the Environmental Effects of Dust Emissions, September 2001
8. Landfill gas collection and destruction or reuse in accordance with the Resource Management (National Environmental Standards Relating to Certain Air Pollutants, Dioxins and Other Toxics) Regulations 2004.

*Hazardous substances**

HAZ-WC-P5: Responsibilities for the management of *hazardous substances**

In accordance with s62(1)(i) RMA, *local authority*^ responsibilities for the management of *hazardous substances** in the Region are as follows:

1. The Regional Council must be responsible for developing objectives, policies and methods to control the use of *land** for the purpose of preventing or mitigating the adverse *effects** of the disposal of *hazardous substances**
2. *Territorial Authorities** must be responsible for developing objectives, policies and methods to control the use of *land** for the purpose of preventing or mitigating the adverse *effects** of the storage, use or transportation of *hazardous substances**.

HAZ-WC-P6: Regulation of *hazardous substances**

The Regional Council must not grant *resource consents*^ for *discharges** that contain or result in the production of environmentally persistent hazardous chemicals or hazardous chemicals that will bioaccumulate to a level that has acute or chronic toxic *effects** on humans or other non-target species.

*Contaminated land**

HAZ-WC-P7: Identification of priority *contaminated land**

The Regional Council and *Territorial Authorities** shall jointly identify priority *contaminated land**.

Priority *contaminated land** is *land** that:

1. is listed on a register of verified *contaminated land** held by the Regional Council or a *Territorial Authority**, or

2. would have been the *site** of an activity identified on the Hazardous Activities and Industries List (Ministry for the Environment, 2004a), including horticulture and sheep dips, and *site** investigations have verified that the *land**^ is contaminated, and

3. is expected to be subject to a change of *land** use within the next 10 years that is likely to increase the risks to human health or the *environment**, including where *land** is identified for future residential zoning or where a specific development is proposed.

HAZ-WC-P8: Management of priority *contaminated land**

Where *land** use changes are likely to increase the risks to human health or the *environment** from priority *contaminated land** (as identified under RPS-HAZ-WC-P7) the Regional Council and *Territorial Authorities** must ensure that:

1. the landowner or *land** developer fully investigates the extent and degree of contamination prior to the granting of consent allowing development (assistance with investigations may be provided by the Regional Council in some cases),

2. *land** is made suitable for its intended use through an appropriate level of remediation or management (including engineering) controls, and

3. *land** remains suitable for its intended use through appropriate monitoring of residual *contaminant** levels and associated risks and through the use of management controls on the activities undertaken on the *land**.

Methods

Many of the policies in this chapter will be implemented by *Territorial Authorities** in district plans and in decisions on resource consents and designations. The policies in this chapter will also be implemented by methods in other chapters in this Plan.

Managing the environmental impacts of *waste**, *hazardous substances** and contaminated *sites** is a mix of regulatory and non-regulatory approaches. Part II of this Plan contains regional rules relating to the *waste** activities described in this chapter. The key non-regulatory methods the Regional Council will pursue are outlined below.

HAZ-WC-M1	**Regional *Territorial Authority* Waste Forum**
Description	The aim of this method is to work with the *Territorial Authorities** to achieve a regionally consistent approach to *waste** and to progress Region-wide *waste** issues and implement agreed initiatives, including: • *hazardous waste** disposal facilities • recycling facilities • resource recovery network *waste** exchange • public information • *waste** education in schools • consistent *waste** data collection and reporting • development of Region-wide *waste** reduction targets in line with the New Zealand Waste Strategy 2002 • *cleanfill area** management and monitoring • *waste** minimisation and cleaner production in business/trade sectors • economic instruments including incentives for *waste** reduction.
Who	Regional Council and *Territorial Authorities**.
Links to Policy	This method implements RPS-HAZ-WC-P1 to RPS-HAZ-WC-P5.
Targets	• Continue Regional Territorial Authority Waste Forum • Implement initiatives • Report to central Government on New Zealand Waste Strategy targets on a two-yearly basis.

HAZ-WC-M2	Public Information - *Waste**
Description	Easily accessible information will be developed and provided to increase public awareness on *waste** issues generic to the Region, including: • *Cleanfill area** management and guidelines • *waste** minimisation • availability of *waste** disposal and recovery facilities (including for campervans) • fly tipping • *hazardous substances** • burning of *waste** • offal pits and farm dumps • septic tank *discharges** • *composting**.
Who	Regional Council and *Territorial Authorities**.
Links to Policy	This method implements RPS-HAZ-WC P1 to RPS-HAZ-WC P6.
Target	Information provided via website and available in paper form by 2008.

HAZ-WC-M3	*Contaminated Land** - Information System
Description	The Regional Council will seek to work with *Territorial Authorities** to develop and implement a regionally consistent recording and category system and a procedure for the consistent handling of information for registered *contaminated land**. Appropriate information will be supplied on land information memoranda (LIM). A regional register of *contaminated land** will be maintained and updated.
Who	Regional Council, *Territorial Authorities** and Ministry for the Environment.
Links to Policy	This method implements RPS-HAZ-WC-P7 and RPS-HAZ-WC-P8.
Targets	• Regionally consistent recording and category system implemented by all *Territorial Authorities** by 2010. • Regional selected land use register linking to appropriate information held by *Territorial Authorities** by 2010.

HAZ-WC-M4	*Contaminated Land** - Identification of Priority *Sites**
Description	The Regional Council, together with *Territorial Authorities**, will identify areas of *land** where pressure for residential development exists and those areas where there is potential for *contaminated land** issues according to *land** use activities listed on the Hazardous Activities and Industries List (Ministry for the Environment, 2004a), in particular horticultural *sites** and sheep dip *sites**.
Who	Regional Council, *Territorial Authorities** and Ministry for the Environment.
Links to Policy	This method implements RPS-HAZ-WC-P7.
Target	Pressure areas identified by 2008.

Principal reasons

HAZ-WC-PR1: *Waste**

RPS-HAZ-WC-O1, RPS-HAZ-WC-P1, RPS-HAZ-WC-P2, RPS-HAZ-WC-P3 and RPS-HAZ-WC-P4 and associated methods set up an overarching policy framework for reducing *waste** generation and managing the environmental *effects** of *waste** *discharges** to air, *land** and *water**.

The Stocktake on Waste Report (Horizons Regional Council, 2004) was a first regional attempt to assess the amount and type of *waste** generated in the Region, and the current level of existing *waste** reduction and reuse opportunities. The report indicated that approximately 22 years of *landfill** (excluding farm dumps) space remained in the Region, based on current disposal rates. Looking ahead, possible scenarios include:

1. the establishment of more *landfills** for *waste** from both domestic and *industrial activity**, with associated environmental *effects**
2. increased costs associated with limited disposal space or transport and disposal outside the Region
3. reducing the amount of *waste** generated to enable remaining *landfill** space to last longer.

RPS-HAZ-WC-P1 establishes a hierarchy of reducing, reusing, recycling, recovering and finally disposing of *waste**. RPS-HAZ-WC-P1, RPS-HAZ-WC-P2, and RPS-HAZ-WC-P3 together encourage reduction, reuse and recycling activities by being less restrictive and discouraging *waste** disposal as a first option. This framework is encouraged at the national level by the New Zealand Waste Strategy (Ministry for the Environment, 2002). RPS-HAZ-WC-P4 also sets high standards for *landfills**, reflecting the significant adverse *effects** that *waste** disposal can have on the *environment**.

*Territorial Authorities** are required to develop *waste** management strategies under the Local Government Act 2002 and, along with private operators, to provide and manage *waste** disposal services. It is appropriate that the Regional Council works with the *Territorial Authorities** on the Region's generic *waste** issues, to provide a consistent approach to *waste** management and *waste** minimisation where possible.

Public information on the appropriate disposal of *wastes** and opportunities for reduction, reuse and recycling are key to reducing *waste** to *landfill** into the future.

HAZ-WC-PR2: *Hazardous substances**

RPS-HAZ-WC-O1, RPS-HAZ-WC-P5 and RPS-HAZ-WC-P6 and the associated methods set up the policy framework for managing the *effects** of the storage, use, transport and disposal of *hazardous substances** in the Region as required under s62(1)(i) of the RMA.

The Hazardous Substances and New Organisms Act 1996 provides a definition of *hazardous substances**. These substances pose a significant threat to the *environment** if not stored, used, transported and disposed of safely and appropriately. The Regional Council considers that it is in an appropriate position to control the *effects** of the *discharge** of *hazardous substances** to the *environment** by means of the resource consenting process. This enables an assessment of the environmental *effects** of *hazardous substance** *discharges** to air, *land** and *water** on a case-by-case basis. Regional rules are an effective means of controlling the *effects** of these substances. *Territorial Authorities** are considered to be in an appropriate position to manage the storage, use and transport of *hazardous substances** through their district planning provisions.

The Stockholm Convention, to which New Zealand is a signatory, aims to rid the world of *persistent organic pollutants**. Many of these are *hazardous substances** previously used in old *agrichemicals**. Despite the Regional Council providing a comprehensive old *agrichemical** collection in 1996, there is likely to be a risk posed by old *agrichemicals** still stored on farms. The Regional Council and the Ministry for the Environment are committed to providing a further collection of old *agrichemicals**.

HAZ-WC-PR3: *Contaminated land**

RPS-HAZ-WC-O1, RPS-HAZ-WC-P7 and RPS-HAZ-WC-P8, and the associated methods set up the policy framework for managing *contaminated land** in the Region, including an approach to determining priority *contaminated land** and a process to establish a consistent information system across the Region.

The consistent management and appropriate remediation of *contaminated land** is of national concern because of the significant threat these *sites** pose to the *environment**.

In order to adequately protect people and the *environment**, *contaminated land** needs to be located and remediated as necessary. A number of *sites** have been located in the Region already - mainly timber treatment yards, gasworks *sites**, and *landfills** - and because of this can be managed appropriately as *land** use changes. However, the increase in residential *subdivision** in rural areas in recent years means that other *contaminated land** such as horticulture and sheep dip *sites**, yet to be identified on the ground, pose a threat to people moving into those areas. These are considered priority *sites**, along with *sites** already identified. The Regional Council will work with *Territorial Authorities** to determine where pressure for residential development is expected in the next 10 years and to identify the risks associated with *contaminated land**.

Anticipated environmental results

Anticipated Environmental Result	Link to Policy	Indicator	Data Source
HAZ-WC-AER1 By 2017, the amount of residual *waste** per capita generated in the Region will be less than prior to this Plan becoming operative.	RPS-HAZ-WC-P1, RPS-HAZ-WC-P2, and RPS-HAZ-WC-P3	• Volume or weight of residual *waste** per capita	• *Territorial Authority** monitoring of solid *waste** strategies
HAZ-WC-AER2 No "clean" *sites** prior to this Plan becoming operative will become contaminated by 2017.	RPS-HAZ-WC-P2, RPS-HAZ-WC-P3, RPS-HAZ-WC-P4, RPS-HAZ-WC-P5, RPS-HAZ-WC-P6 and RPS-HAZ-WC-P7	• Number of clean sites becoming contaminated	• Regional register of *contaminated land** • Regional Council's incidents database
HAZ-WC-AER3 Priority contaminated *sites** are remediated appropriately prior to change in *land** use.	RPS-HAZ-WC-P7 and RPS-HAZ-WC-P8	• Number of remediated sites	• Regional register of *contaminated land**

HAZ – NH – Natural hazards

The Region is vulnerable to a number of *natural hazards**.* The principal threat is from flooding. Other *natural hazards** include earthquakes, tsunami, volcanic action and *land** subsidence. Climate change is likely to influence the frequency, scale or intensity of atmospherically influenced *natural hazards** such as flooding. The vulnerability of the Manawatū-Whanganui Region to *natural hazard** events is increased because of human activity such as:

- *Land disturbance** and *vegetation clearance**, particularly on hill slopes in a *Hill Country Erosion Management Site**, which can increase the erosion risk and the amount of sediment in the flood channel, in turn increasing the intensity of, and *effects** from, floods and reducing the effectiveness of mitigation measures such as stopbanks
- the increasing number of people living in hazard-prone areas (including associated infrastructure) such as along the coast and adjacent to *rivers**, which increases the damage potential from *natural hazard** events, putting lives at risk. It can also reduce the effectiveness of existing mitigation measures such as stopbanks.

Most of the Regional Council's operational work on *natural hazard** management is carried out under the Soil Conservation and Rivers Control Act 1941, which provides for the establishment of river and drainage schemes. Emergency response, community readiness, recovery planning and research into *natural hazard** risks, is carried out under the Civil Defence and Emergency Management Act 2002. These roles are implemented through the Civil Defence and Emergency Management Group Plan rather than through the One Plan. The role of the Regional Council and *Territorial Authorities** under the RMA is primarily one of risk reduction to ensure that resource use activities do not exacerbate *natural hazard** risks or impede *natural hazard** mitigation works, thereby ensuring that developments do not put people or property in places or circumstances of undue risk.
The approach to managing *natural hazards** in this Plan is to:

1. set out a clear regional framework for *natural hazard** management,
2. improve clarity around the respective roles of the Regional Council and *Territorial Authorities** under the RMA,
3. discourage future residential development and placement of *critical infrastructure** in areas prone to *natural hazard** events, particularly areas at high risk of flooding, and
4. continue to provide information to *Territorial Authorities** and the general public with regard to *natural hazards**.

Flooding
Flooding occurs frequently in the Region. The impacts of floods are mostly localised, but the likelihood of a major flood occurring in any year is high.

The February 2004 storm event caused widespread flooding. Recovery from that event will span many years. It showed only too well the problems that can arise from the combination of such a large storm event with *vegetation clearance** on hill slopes and residential settlements and infrastructure on flood-prone or unstable *land**. The resulting sedimentation in *waterbodies** and erosion on *land** has impacted on infrastructure, people, *land** use and the natural *environment*.

Today over half of the Region's population lives on the floodplains of the major *rivers**. The establishment of river and drainage schemes (with the associated construction of stopbanks, floodgates, spillways and retention dams) has been an integral part of the development of the Region. Current schemes undergo regular review and assessments are undertaken for areas that could be included in these schemes or established as new schemes. More information on minimising the *effects** of erosion and flooding on the *beds** of *rivers** and *lakes** can be found in RSP-LF-FW.

Erosion
Hill country erosion and coastal erosion are both of concern, as human activity has the potential to greatly increase erosion risk and associated impacts on people and property. Hill country erosion is addressed in RSP-LF-LW.

Other *natural hazards**
Other *natural hazards** that occur less frequently include earthquakes, volcanic action, *land** subsidence and coastal *environment* hazards (including tsunami, storm surge and *sea level rise** hazards). Despite their low frequency, they have potential to put the Region at risk. Although little is

known of the risks of these hazards, current research, such as the Regional Council's tsunami hazards study, will enable better future planning. Due to limited knowledge of the influence climate change may have on some *natural hazard** events, a precautionary approach to establishing or intensifying *land** use activities in areas potentially subject to *natural hazards** is required. Potential impacts will continue to be dealt with by contingency planning, such as the regional civil defence response team and insurance schemes, until further research can be undertaken.

Issues

HAZ-NH-I2: *Effects** of *natural hazard** events

*Natural hazard** events can adversely affect people, including their social, economic and cultural wellbeing, and the *natural and physical resources** they rely on, such as property and infrastructure. In particular:

1. development can exacerbate the risks from *natural hazards**, particularly flooding and coastal hazards, by placing more people, property and infrastructure in hazard-prone areas and by reducing the effectiveness of existing hazard mitigation measures such as stopbanks,

2. climate change is likely to cause the hydrological cycle to become more extreme, resulting in an increase in the intensity and frequency of hazards such as droughts, heavy rainfall, cyclones and storm surges, and

3. predicted *sea level rise** is likely to increase the risk of inundation and damage to communities and infrastructure in coastal areas during *natural hazard** events.

Objectives

HAZ-NH-O2: *Effects** of *natural hazard* events

The adverse *effects** of *natural hazard** events on people, property, *infrastructure** and the wellbeing of communities are avoided or mitigated.

HAZ-NH-O2: Ngā pānga o ngā mea mōrearea o te ao tūroa

Ka parea, ka whakaitingia ngā pānga kino o ngā mea mōrearea o te ao tūroa ki te tangata, ngā rawa, ngā kaupapa o raro, me te oranga ōhanga o ngā hapori.

Policies

HAZ-NH-P9: Responsibilities for *natural hazard** management

In accordance with s62(1)(i) RMA, *local authority** responsibilities for *natural hazard** management in the Region are as follows:

1. The Regional Council and *Territorial Authorities** must be jointly responsible for:
   a. raising public awareness of the risks of *natural hazards** through education, including information about what *natural hazards** exist in the Region, what people can do to minimise their own level of risk, and what help is available.
2. The Regional Council must be responsible for:
   a. developing objectives and policies for Region-wide management of activities for the purpose of avoiding or mitigating *natural hazards**,
   b. developing specific objectives, policies and methods (including *rules*^) for the control of:

i. all *land** use activities in the *coastal marine area*^,
ii. erosion protection works that cross or adjoin mean high water springs,
iii. all *land** use activities in the *beds** of *rivers** and *lakes**,

for the purpose of avoiding or mitigating *natural hazards**, and

c. taking the lead role in collecting, analysing and storing regional *natural hazard** information and communicating this information to *Territorial Authorities**.

3. *Territorial Authorities** must be responsible for:

a. developing objectives, policies and methods (including *rules*^) for the control of the use of *land** to avoid or mitigate *natural hazards** in all areas and for all activities except those areas and activities described in (b)(ii) above, and

b. identifying *floodways** (as shown in RP-SCHED10) and other areas known to be inundated by a 0.5% annual exceedance probability (AEP) flood event[1] on planning maps in *district plans*^, and controlling *land** use activities in these areas in accordance with RPS-HAZ-NH-P10 and RPS-HAZ-NH-P11.

HAZ-NH-P10: Development on land prone to flooding

1. The Regional Council and *Territorial Authorities** must not allow the establishment of any new *structure** or activity, or any increase in the scale of any existing *structure** or activity, within a *floodway** mapped in RP-SCHED10 unless:

a. there is a functional need to locate the *structure** or activity within such an area, and

b. the *structure** or activity is designed so that the adverse *effects** of a 0.5% annual exceedance probability (AEP) (1 in 200 year) flood event[2] on it are avoided or mitigated, and

c. the *structure** or activity is designed so that adverse *effects** on the *environment**, including the functioning of the *floodway*, arising from the *structure** or activity during a flood event[1] are avoided or mitigated,

in which case the *structure** or activity may be allowed.

2. Outside of a *floodway** mapped in RP-SCHED10 the Regional Council and *Territorial Authorities** must not allow the establishment of any new *structure** or activity, or an increase in the scale of any existing *structure** or activity, within an area which would be inundated in a 0.5% AEP (1 in 200 year) flood event[1] unless:

a. *flood hazard avoidance** is achieved or the 0.5% AEP (1 in 200 year) flood hazard is mitigated, or

b. the non-habitable *structure** or activity is on *production land*^, or

c. there is a functional necessity to locate the *structure** or activity within such an area,

in any of which cases the *structure** or activity may be allowed.

3. *Flood hazard avoidance** must be preferred to flood hazard mitigation.

4. When making decisions under RPS-HAZ-NH-P10(1) and RPS-HAZ-NH-P10(2)(a) regarding the appropriateness of proposed flood hazard mitigation measures, the Regional Council and *Territorial Authorities** must:

a. ensure that occupied *structures** have a finished floor or ground level, which includes reasonable freeboard, above the 0.5% AEP (1 in 200 year) flood level.

b. ensure that in a 0.5% AEP (1 in 200 year) flood event[1] the inundation of access

[1]Flood event does not include the effects of stormwater which are managed by *Territorial Authorities*^ under different criteria including engineering, subdivision and design standards/manuals

between occupied *structures** and a safe area where evacuation may be carried out (preferably ground that will not be flooded) must be no greater than 0.5 m above finished ground level with a maximum *water** velocity of 1.0 m/s, or some other combination of *water** depth and velocity that can be shown to result in no greater risk to human life, *infrastructure*^ or *property**,

c. ensure that any more than minor adverse *effects** on the effectiveness of existing *flood hazard avoidance** or mitigation measures, including works and *structures** within River and Drainage Schemes, natural landforms that protect against inundation, and overland stormwater flow paths, are avoided,

d. ensure that adverse *effects** on existing *structures** and activities are avoided or mitigated,

e. have regard to the likelihood and consequences of the proposed flood hazard mitigation measures failing,

f. have regard to the consequential *effects** of meeting the requirements of RPS-HAZ-NH-P10-4(b), including but not limited to landscape and natural character, urban design, and the displacement of floodwaters onto adjoining *properties**, and

g. have regard to the proposed ownership of, and responsibility for *maintenance* of, the flood hazard mitigation measures including the appropriateness and certainty of the *maintenance* regime.

5. Within that part of the Palmerston North City Council district that is protected by the Lower Manawatū River Flood Control Scheme to a 0.2% AEP (1 in 500 year) standard, including the Mangaone Stream stopbank system, additional *flood hazard avoidance** or mitigation measures will generally not be required when establishing any new *structure** or activity or increasing the scale of any existing *structure** or activity.

6. Despite RPS-HAZ-NH-P10(4)(a) and (b), within that part of the Whanganui central city bounded by Bates Street, Ridgway Street and Victoria Avenue, flood hazard mitigation measures will not be limited to considering flood *height** and flow but will include such methods as resilient construction and emergency management systems.

7. This policy does not apply to new *critical infrastructure**.

HAZ-NH-P11: New *critical infrastructure**

The placement of new *critical infrastructure** in an area likely to be inundated by a 0.5% AEP (1 in 200 year) flood event[1] (including *floodways* mapped in RP-SCHED10), or in an area likely to be adversely affected by another type of *natural hazard**, must be avoided, unless there is satisfactory evidence to show that the *critical infrastructure**:

1. will not be adversely affected by floodwaters or another type of *natural hazard**,
2. will not cause any adverse *effects** on the *environment** in the event of a flood or another type of *natural hazard**,
3. is unlikely to cause a significant increase in the scale or intensity of *natural hazard** events, and
4. cannot reasonably be located in an alternative location.

HAZ-NH-P12: Other types of *natural hazards*^

The Regional Council and *Territorial Authorities** must manage future development and activities in areas susceptible to *natural hazard** events (excluding flooding) in a manner which:

1. ensures that any increase in risk to human life, property or *infrastructure*^ from *natural hazard** events is avoided where practicable, or mitigated where the risk cannot be practicably avoided,
2. is unlikely to reduce the effectiveness of existing works, *structures**, natural landforms or other measures which serve to mitigate the *effects** of *natural hazard** events, and

3. is unlikely to cause a significant increase in the scale or intensity of *natural hazard** events.

HAZ-NH-P13: *Climate change^*

The Regional Council and *Territorial Authorities** must take a precautionary approach when assessing the *effects** of climate change and *sea level rise** on the scale and frequency of *natural hazards** with regard to decisions on:

1. stormwater *discharges** and effluent disposal,
2. coastal development and coastal *land** use,
3. activities adjacent to *rivers**,
4. *water** allocation and *water** takes,
5. activities in a *Hill Country Erosion Management Site**,
6. flood mitigation activities, and
7. managing storm surge.

Methods

The following are non-regulatory methods to implement the policies of RPS-HAZ-NH:

HAZ-NH-M5	Hazards Research
Description	This method provides for the investigation, identification and mapping of those parts of the Region that are at risk from *natural hazards**, including seismic, volcanic, *land** subsidence, tsunami, flooding and coastal erosion hazards. It includes consideration of *sea level rise** and climate change implications on those hazards. This information will be provided to *Territorial Authorities** for district planning purposes and to other interested parties, and maps will be updated as required.
Who	Civil Defence and Emergency Management Group, Regional Council, *Territorial Authorities** and research institutes.
Links to Policy	This method implements RPS-HAZ-NH-P9, RPS-HAZ-NH-P11 and RPS-HAZ-NH-P12
Target	Hazards are mapped by 2010 and updated as required.

HAZ-NH-M6	Areas Prone to Flooding Research
Description	A Region-wide study of areas prone to flooding, including consideration of *sea level rise** and climate change implications, will be carried out to update flood maps and information in order to assist *Territorial Authorities** in the development of district plans, and the Regional Council's advice service.
Who	Civil Defence and Emergency Management Group, Regional Council, and research institutes.
Links to Policy	This method implements RPS-HAZ-NH-P9, RPS-HAZ-NH-P10, RPS-HAZ-NH-P11 and RPS-HAZ-NH-P13.
Target	Hazards are mapped by 2010 and updated as required.

HAZ-NH-M7	*Natural Hazard** Information and Advice
Description	The Regional Council will provide *Territorial Authorities** and other interested parties with up-to-date *natural hazard** information to assist in the assessment of *land** development consent applications, particularly *subdivisions**.
Who	Regional Council.
Links to Policy	This method implements RPS-HAZ-NH-P9, RPS-HAZ-NH-P10, RPS-HAZ-NH-P11, RPS-HAZ-NH-P12 and RPS-HAZ-NH-P13.
Target	Ongoing advice to *Territorial Authorities** and other interested parties.

HAZ-NH-M8	Public Information – *Natural Hazards**
Description	Easily accessible information will be developed and provided to increase public awareness of the risks of *natural hazards**, including earthquake, volcanic action, *land** subsidence, tsunami, flooding and coastal erosion, including consideration of *sea level rise** and climate change implications. Up-to-date *natural hazard** information will be provided to the general public and other interested parties (for example, advance warning flood and lahar systems and civil defence literature), together with advice on appropriate options for avoiding or mitigating *natural hazards**.
Who	Civil Defence and Emergency Management Group, Regional Council, *Territorial Authorities**, research institutes and other relevant agencies.
Links to Policy	This method implements RPS-HAZ-NH-P9, RPS-HAZ-NH-P10, RPS-HAZ-NH-P11, RPS-HAZ-NH-P12 and RPS-HAZ-NH-P13.
Target	Information provided via website and available in paper form by 2010.

Principal reasons

HAZ-NH-PR4:

RPS-HAZ-NH-O2, RPS-HAZ-NH-P9 to RPS-HAZ-NH-P13 and the methods above set out a regional framework for avoiding or mitigating the adverse *effects** of *natural hazard** events on communities, infrastructure and the natural *environment*.

RPS-HAZ-NH-P9 clarifies the respective roles of the Regional Council and *Territorial Authorities** as required by s62 RMA. RPS-HAZ-NH-P9 largely continues the delineation of responsibilities under the former Regional Policy Statement. The Regional Council has taken on the role of setting a regional framework for *natural hazard** management, while allowing decisions on most *land** use activities to be made by *Territorial Authorities**.

RPS-HAZ-NH-P10 targets *floodways* and land prone to flooding, as flooding is the most significant *natural hazard** in the Region. Areas prone to flooding (including the "floodable land" as in Figure 42 are defined as land that would be inundated by a 0.5% AEP (1 in 200 year) flood event[2]. This is a change from the previously used standard for delineating land prone to flooding of a 1% AEP (1 in 100 year) flood event[1], in order to take into account the likely *effects** of climate change. RPS-HAZ-NH-P10 generally seeks to avoid residential development and other new activities in areas likely to be affected by flooding, due to the risks to human life and property. It is recognised, however, that some activities have a functional need to be located in areas prone to flooding (RPS-HAZ-NH-P10(1) and RPS-HAZ-NH-P10(2)), or that mitigation for dwellings and other activities (for example, access in or out of areas prone to flooding and building design) can be put in place to avoid any increase in impacts of floods (RPS-HAZ-NH-P10(4)(a) and (b)).

RPS-HAZ-NH-P12 sets up the general management regime for other types of *natural hazards**. Hazard avoidance is preferred to hazard mitigation because of the impacts on human life, property and infrastructure. Avoiding all hazards is difficult, however, because of their infrequency and the widespread nature of their *effects**.

RPS-HAZ-NH-P10, RPS-HAZ-NH-P11 and RPS-HAZ-NH-P12 also include provisions seeking to ensure that the effectiveness of existing hazard mitigation measures is not undermined by future activities.

RPS-HAZ-NH-P11 seeks to ensure that *critical infrastructure** is not disabled by *natural hazard** events, by avoiding the placement of *critical infrastructure** in areas prone to *natural hazards**. The policy recognises that in some cases this is unavoidable – for example, roading and gas supplies in coastal areas regardless of tsunami risk, and infrastructure in settlements located on liquefaction zones.

RPS-HAZ-NH-P13 seeks to ensure that the implications of climate change are considered as appropriate.

Anticipated environmental results

Anticipated Environmental Result	Link to Policy	Indicator	Data Source
HAZ-NH-AER4 By 2017, the risk to people, property and *critical infrastructure** will be the same as or less than before this Plan became operative.	*Hazards** and Risk Policies: RPS-HAZ-NH-P9, RPS-HAZ-NH-P10, RPS-HAZ-NH-P11, RPS-HAZ-NH-P12 and RPS-HAZ-NH-P13 *Land** and *Freshwater** Policies: RPS-LF-LAND-P1, RPS-LF-LAND-P2, RPS-LF-LAND-P3, RPS-LF-FW-P27 and RPS-LF-FW-P29	• Number of new dwelling houses on land prone to flooding consistent with Policy 9-2 • Number of incidents where activities are affecting schemes, especially stopbanks • *Natural hazard** information shared with *Territorial Authorities** and interested parties • District plans incorporating hazardous areas on planning maps and associated regulation of *land** use in those areas	• *Territorial Authorities** • Regional Council's Operations Group *maintenance* records • Regional Council's compliance database • Regional Council's incidents database
HAZ-NH-AER5 By 2017, people will be more aware of the risks of *natural hazards** in the Region and how to cope with them than they were before this Plan became operative.	*Hazards** and Risk Policies: RPS-HAZ-NH-P9, RPS-HAZ-NH-P10, RPS-HAZ-NH-P11, RPS-HAZ-NH-P12 and RPS-HAZ-NH-P13	• Public perception • Number of requests for information • District plans incorporating hazardous areas on planning maps and associated regulation of *land** use in those areas	• Customer surveys • Subdivision Enquiry Database (SED)