# Section 35 Evaluation Report

## Natural Hazards

**15 August 2024**

horizons
REGIONAL COUNCIL

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# EXECUTIVE SUMMARY

Regional Councils are required, under Resource Management Act 1991 (RMA) section 35, to monitor the efficiency and effectiveness of regional policy statements and regional plans. The section 35 review also assesses whether the objectives, policies and methods have been implemented or achieved, and if not, why not. This report focuses on the natural hazards provisions of the One Plan. In some cases there are overlaps with other section 35 evaluations (freshwater and coast).

The evaluation does the following:

1. It assesses the effectiveness and efficiency of the One Plan natural hazards provisions; and
2. It considers and compares these provisions against the requirements of national direction, such as the New Zealand Coastal Policy Statement and the National Policy Statement for Urban Development.

The evaluation first addresses the natural hazard provisions, starting in section 5.1 and focusing on Chapter 9 of the One Plan, followed by the coastal hazard provisions, focusing on Chapters 8 and 18 of the One Plan, starting in section 5.2.

The One Plan is partially effective. There are areas where progress towards the anticipated environmental results are unable to be assessed due to lack of monitoring information. The methods have largely been partially implemented and many policies require updating to give effect to national direction, in light of increased knowledge regarding the impacts of climate change, or for clarity to manage unintended consequences. There are integration issues with the hazards provisions which are split across three chapters. From an efficiency point of view, the costs are difficult or impossible to calculate as they tend to be spread across the organisation for multiple activities and purposes. The benefits of activities such as maintaining flood protection assets are also difficult to quantify. The assessment of efficiency for this evaluation has been limited by information availability, however some inefficiencies have been found.

# 1 Introduction

Horizons Regional Council (Horizons)[1] is required by the Resource Management Act (RMA) 1991 to have a Regional Policy Statement, Regional Plan, and Regional Coastal Plan. The One Plan encompasses all of these documents and outlines how the physical and natural resources will be managed within the region alongside territorial authorities (TAs), tangata whenua and the community.

The One Plan was notified in 2007 and became operative in 2014 following a lengthy hearings and appeal process. Since the One Plan came into effect there have been two Plan Changes and three Plan Amendments as follows:

- Plan Change 1 (2016): minor amendments were made to the Plan to insert a new policy and consequential amendments required by the National Policy Statement for Freshwater Management (2014). Through this, the opportunity was taken to correct minor errors that had been identified since the One Plan became operative.
- Plan Amendment 1 (2018): Amendments were made to the Plan to comply with the National Environmental Standard for plantation forestry. The chapters amended through this process include Chapter 13 (Rule 13-3) and the Glossary (definition of forestry).

[1] Manawatū-Whanganui Regional Council is the trading name for Horizons Regional Council.

- Plan Amendment 2 (December 2022): This amendment incorporates changes to the One Plan to comply with minor changes required by the National Policy Statement for Freshwater Management 2020, National Policy Statement for Urban Development 2020, the Resource Management (National Environmental Standards for Plantation Forestry) Regulations 2017, the Resource Management (National Environmental Standards for Freshwater) Regulations 2020 and the Resource Management (National Environmental Standards for Storing Tyres Outdoors) Regulations 2021.
- Plan Amendment 3 (February 2024): This amendment incorporates changes to comply with the requirements of the National Planning Standards.
- Plan Change 3 (2024): This plan change introduced new provisions to the Regional Policy Statement to give effect to the National Policy Statement on Urban Development.

At the time of writing, one proposed plan change was being undertaken:

- Proposed Plan Change 2 (Existing Intensive Farming Land Uses) addresses issues identified through experience in implementing the One Plan provisions that manage diffuse nutrient loss from existing intensive farming land use activities in specified water management zones. At the time of writing Plan Change 2 was working through the appeals process.

The One Plan provisions evaluated in this report set a framework for natural hazard management under the RMA. These provisions are primarily contained in the Regional Policy Statement (RPS) through Chapter 9 and the Regional Plan (RP) through Schedule J of the One Plan, and to a lesser degree in RPS Chapter 8, RP Chapters 14, 16, 17 and the Regional Coastal Plan (Chapter 18 of the One Plan). The Manawatū-Whanganui Region is susceptible to a number of natural hazards; the most significant of these is flooding which occurs frequently in the region, typically with localised impacts. However, the likelihood of a major flood occurring in any year is high. Other natural hazards include coastal, volcanic, seismic, tsunami and land subsidence hazards.

The Horizons 2021-31 Long-term Plan identifies high level outcomes. One of these is "our region's communities are resilient to the impacts of natural hazards and climate change".

# 2 Purpose of this report

The purpose of this evaluation is to assess the effectiveness and efficiency of the One Plan provisions as they relate to natural hazards. The evaluation has been initiated to ensure Horizons is meeting its statutory obligations under section 35 of the RMA.

In general, the evaluation provides an essential check on the practicability of policies, and the capacity for stated methods and targets to be achieved subject to resourcing levels, budget constraints and other circumstances.

# 3 Statutory context

## 3.1 Resource Management Act 1991

The RMA provides a well-established framework for evaluation, monitoring and review of Regional Policy Statements and Regional Plans. This evaluation is guided by Section 35 of the RMA. It will ensure Horizons meets its obligations under the RMA.

## 3.2 Building Act 2004

There is some overlap between the RMA and the Building Act 2004. Section 106(1) of the RMA allows consenting authorities to refuse to grant a subdivision consent if there is a significant risk from natural hazards. An assessment of natural hazard risk for this section requires a combined assessment of the likelihood of natural hazards occurring, the material damage to land or structures that would result from natural hazards, and any likely subsequent use of the land that would accelerate, worsen or result in damage from natural hazards. Similarly, Sections 71 and 72 of the Building Act 2004 allows building consenting authorities to refuse building consents if the land is affected by natural hazards or the work is likely to accelerate, worsen or result in natural hazards. This is unless provision has been or will be made to protect from natural hazards or restore any damage relating to natural hazards. Issuing building and subdivision consents is a function of Territorial Authorities (TAs), but the Building Act should be kept in mind when developing the Regional Policy Statement to ensure consistency.

## 3.3 Emergency Management

### 3.3.1 Civil Defence Emergency Management Act 2002

The Civil Defence Emergency Management Act 2002 (CDEMA) aims to improve and promote the sustainable management of hazards, requiring local authorities to coordinate through regional groups. Horizons, along with the TAs within the Horizons Region, were required to establish a Civil Defence Emergency Management Group within six months after the date of the commencement of this Act.

### 3.3.2 National Civil Defence Emergency Management Plan Order 2015

The National Civil Defence Emergency Management Plan Order 2015 (the Order) is made under Sections 39(1) and 45 of the CDEMA and was operative from 1 December 2015. The operative period finished on 30 November 2020 but the Order is to be used until replacement. The Order intended to set out the roles and responsibilities for CDEMA groups across the "4 Rs" (reduction, readiness, response and recovery) nationally so that all agencies and groups could understand the hazards and risks, and build resilience to those hazards, and build capability and capacity to provide coordinated, integrated and effective responses to and recovery from emergencies.

### 3.3.3 Civil Defence Emergency Management Amendment Act 2016

The Civil Defence Emergency Management Amendment Act 2016 aimed for efficient and effective recovery from emergencies. It was due to come into effect 180 days after Royal Assent on 15 November 2016 but was brought forward to assist with recovery from the Kaikōura earthquakes. The amendments established a transition notice mechanism to help the shift between emergency response and the initial recovery phase. The transition period retains some emergency powers for a specified period of time so state of emergencies are not kept in place solely to access powers. A legislative framework for managing recovery was

also established through requiring recovery planning and recovery managers. Transition periods were used following Cyclone Gabrielle, but not in the Horizons Region[2].

### 3.3.4 Proposed Bill to replace CDEMA 2002

A new Bill proposed to replace the CDEMA 2002 is under development. Initially this was to be a general amendment Bill, but as work has progressed it became clear to those involved that a new Bill was more appropriate.

The 2017 Ministerial Review into Aotearoa New Zealand's responses to natural disasters and other emergencies (TAG) identified weaknesses in the system. In 2018, the then Minister for Civil Defence shared the Government response to the TAG report. This response identified five areas to improve:

1. prioritising safety and wellbeing of people;
2. solidifying national leadership;
3. setting out clear responsibilities at a national, regional and local level;
4. increasing capability and capacity of the system; and
5. improving the information system that informs decision making in an emergency situation.

The proposed Bill aims to address these issues by:

- including community in the management approach with emphasis on disproportionately affected communities;
- giving the Chief Executive of the National Emergency Management Agency (NEMA) the ability to make 'Emergency Management Rules' which increases the responsiveness and reactivity of the legal framework;
- renaming lifeline utilities to critical infrastructure, and clarifying the roles and responsibilities of these sectors and entities;
- setting out clear roles and responsibilities at national, regional, and local levels
- clarifying the roles and functions of NEMA; and
- introducing an integrated '4 Rs' (risk reduction, readiness, response, and recovery) emergency management process.

Currently the significant role of Māori in emergency management is not formally recognised under the CDEMA 2002. The Bill acknowledges Māori participation throughout the national, regional, and local levels, and includes a Te Tiriti o Waitangi clause.

The local government structure is not proposed to change with the ability to declare local emergencies locally and CDEMA groups will be retained. The changes should result in an increased community understanding of risk and response to emergencies, a well-coordinated, high performing and trusted emergency management system, reduction of impacts of emergencies on people, the economy and the environment, and the participation of iwi and Māori recognised, enabled and valued.

Horizons Regional Council submitted on the Bill in October 2023. The Governance and Administration Committee has a report back deadline for the Bill of December 2024.

## 3.4 National direction

### 3.4.1 National Policy Statement on Urban Development

[2] NEMA Transition Periods https://www.civildefence.govt.nz/resources/previous-emergencies/transition-periods.

The National Policy Statement on Urban Development (NPS-UD) took effect on 20 August 2020 with an amended version released in May 2022. The NPS-UD introduces provisions to ensure urban environments in New Zealand are well-functioning and provide sufficient development capacity to meet the different needs of people and communities. While not directly related, the NPS-UD intersects with Natural Hazard planning through Objective 8(b): *New Zealand's urban environments are resilient to the current and future effects of climate change*, and Policy 1(f): *Planning decisions contribute to well-functioning urban environments, which are urban environments that, as a minimum, are resilient to the likely current and future effects of climate change*. Horizons is giving effect to the NPS-UD through Plan Change 3 which was notified in November 2022, and at the time of writing had been through the hearings process, with the hearing panel's recommendations due to be considered by Council in June 2024.

### 3.4.2 New Zealand Coastal Policy Statement

The New Zealand Coastal Policy Statement (NZCPS) sets objectives and policies to guide councils in achieving the purpose of the RMA in relation to the coastal environment. The current NZCPS came into effect in December 2010. The Minister of Conservation at the time, Hon Dr Nick Smith, wrote to the Chief Executive in 2014 to approve the Horizons Regional Coastal Plan (RCP), but also requested that Council progress giving effect to the NZCPS 2010[3]. The NZCPS includes a number of provisions relating to natural hazards in the coastal environment:

**Objective 5** – to ensure that coastal hazards risks taking account of climate change, are managed by:

- Locating new development away from areas prone to such risks;
- Considering responses, including managed retreat, for existing development in this situation; and
- Protecting or resorting natural defences to coastal hazards

The NZCPS also includes a number of policies relating to the identification, avoidance and management of natural hazards. The policies are:

- Policy 3: Precautionary approach
- Policy 24: Identification of coastal hazards
- Policy 25: Subdivision, use, and development in areas of coastal hazard risk
- Policy 26: Natural defences against coastal hazards
- Policy 27: Strategies for protecting significant existing development from coastal hazard risk.

The s35 evaluation of the One Plan's coastal provisions gives a detailed analysis against the NZCPS policies.

### 3.4.3 National Adaptation Plan

New Zealand's first national adaptation (NAP) was presented to Parliament in 2022. It sets out the Government's objectives for adapting to the effects of climate change, and its strategies, policies and proposals for meeting those objectives. The first NAP sets out three high level goals:

- Reduce the vulnerability to the impacts of climate change.
- Enhance adaptive capacity and consider climate change in decisions at all levels .
- Strengthen resilience to climate change.

[3] The NZCPS came into effect in December 2010; after the Proposed One Plan Decision Version August 2010. This resulted in a lack of any mechanism, including appeals, to progress formal assessment or amendments to give effect to the NZCPS 2010 in the One Plan.

The NAP also sets out four priorities for action:

- Enabling better risk-informed decisions.
- Ensuring our planning and infrastructure investment decisions drive climate-resilient development in the right locations.
- Adaptation options including managed retreat.
- Embedding climate resilience in all government strategies and policies.

### 3.4.4 Proposed National Policy Statement for Natural Hazard Decision-making

The Proposed National Policy Statement for Natural Hazard Decision-making (NPS-NHD) is under development to guide decision-making around natural hazard risk in planning and new developments under the RMA. Comprehensive national direction for natural hazards is intended to follow the proposed NPS-NHD. This work programme has come about through national inconsistency in the way local authorities assess development proposals with risk assessments.

The proposed NPS aims to:

- *Direct decision-makers to take a risk based approach to natural hazards when making planning decisions relating to new development*
- *Direct decision-makers to address the level of risk based on the likelihood and consequence of a natural hazard event, and then assess the tolerance to a natural hazard event in relation to the proposed new development*
- *Based on a decision-maker's assessment of natural hazard risk and tolerance to the risk, the proposed NPS-NHD will direct the decision-maker to:*
    - *in high natural hazard risk areas, avoid new development unless the level of risk can be reduced to at least a tolerable level*
    - *in moderate natural hazard risk areas, reduce risk to as low as reasonably practicable*
    - *in low natural hazard areas, enable new development[4].*

Horizons Regional Council contributed to the Te Uru Kahika submission on the proposed NPS in November 2023. At the time of writing, no decisions had been made.

## 3.5 One Plan

One Plan RPS Chapter 10 (Administration) states that the Regional Council will regularly check the effectiveness of the policies and methods in this Plan in achieving anticipated environmental results. This will be done every three years at the same time as reporting progress made by the community in achieving community outcomes for the Region, being the Regional Council's Long-term Plan (LTP)[5].

Monitoring and reporting on the effectiveness of the One Plan will be based on the following process:

*a) Evaluation of the Regional Council's Annual Reports and the policies and methods in this Plan to assess which policies and methods have been implemented,*
*b) Evaluation of the LTCCP [sic] and Annual Reports to assess actual work done to implement this Plan compared to the intended level of work each year, including consent, compliance and environmental incident response activity,*
*c) Evaluation of the results of environmental monitoring carried out under the Regional Monitoring Strategy to assess the condition and trends of the Region's*

[4] Ministry for the Environment. (2023).
[5] Chapter 10 refers to the Regional Council's Long-Term Council Community Plan (LTCCP).

*environment, with an emphasis on those parts of the environment where specific work has been done to make improvements, and*

*d) Assessment of whether changes need to be made to policies and methods where there is slow or no progress toward achieving anticipated environmental results.*

Chapter 10 then continues to outline that changes to the One Plan will be sought when:

a) plan effectiveness monitoring identifies the need to enhance progress toward achieving anticipated environmental results, or
b) major resource management developments arise such as significant amendments to the RMA or the adoption of national policy statements or national environmental standards by Government that have major implications for the contents of this Plan, or
c) the results of new scientific work enhance this Plan and make plan provisions more certain for resource users.

Changes to the Regional Policy Statement may be requested by a Minister of the Crown, the Regional Council or any District Council within, or partly within, the region. The process used to review and change the RPS is set out in Schedule 1 to the RMA. Any change to the Regional Coastal Plan must be approved by the Minister of Conservation.

# 4 Evaluation scope

The scope of this evaluation is limited to chapters within the One Plan that relate to natural hazards. The provisions subject to evaluation are outlined in Table 1 below:

| One Plan Chapter to be reviewed: | Specific provisions subject to review | Comment |
|---|---|---|
| Regional Policy Statement | | |
| - Chapter 8: Coast | Policies 8-1, 8-4 | As they relate to natural hazards, including climate change. This chapter is also evaluated in the coast review. |
| - Chapter 9: Natural Hazards | Entire chapter | |
| Regional Plan and Regional Coastal Plan | | |
| - Chapter 14: Discharges to Land and Water | Rules 14-13 to 14-19, 14-21 | As they relate to natural hazards. This chapter is also evaluated in the freshwater review. |
| - Chapter 16: Takes, Uses and Diversion of Water, and Bores | Rules 16-10 – 16-13 | As they relate to natural hazards. This chapter is also evaluated in the freshwater review. |
| - Chapter 17: Activities in Artificial Watercourses, Beds of Rivers and Lakes, and Damming | Rules 17-14 - 17-17 | As they relate to natural hazards. This chapter is also evaluated in the freshwater review. |
| - Chapter 18: Activities in the Coastal Marine Area | Policies 18-5, 18-8, 18-9, and 18-11<br>Rules 18-10, 18-17 – 18-22, and 18-27 | As they relate to natural hazards, including climate change. This chapter is also evaluated in the coast review. |
| Schedules | | |
| - Schedule J: Floodways and Areas Prone to Flooding | | |

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| Documents incorporated by reference | | |
| - Environmental Code of Practice for River Works | As it relates to natural hazard management | The effectiveness of the Code of Practice in protecting freshwater values is the subject of the freshwater review. |
| Chapters out of scope | | |
| - Schedule B: Surface Water Management Values | Food control and drainage value | This schedule is evaluated in the freshwater review. |
| - Admin chapters (1, 10, 11 and 12 | | |
| - Chapter 1: Setting the Scene | | While Issue 3: Unsustainable Hill Country Land Use, and climate change both impact flood control infrastructure, Chapter 1 is the subject of a separate strategic review. |
| - Chapter 4: Land | | While unsustainable hill country land use has an adverse effect on flood control infrastructure, it is the subject of the freshwater review |

*Table 1: Specific One Plan chapters to be evaluated under section 35 of the RMA.*

In addition this evaluation will consider the One Plan's approach to climate change adaptation more broadly, considering in particular how the Plan gives effect to the National Adaptation Plan.

# 5 Evaluation

To assist this s35 evaluation, a set of guiding questions was developed to structure the evaluation. These questions focus on effectiveness (have the provisions achieved what was intended and do they work?) and efficiency (are they able to be implemented at reasonable cost?). The following questions have been used to guide the evaluation process:

| ***Effectiveness and efficiency*** | ***Issues*** |
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| • Of policies and methods in achieving the objectives<br>• Of polices and methods in achieving the Anticipated Environmental Outcomes<br>• Is there evidence that the policies and methods are being used/applied in an effective way?<br>• Do the plan provisions have the support of users – is the plan perceived to work, are the provisions enforceable?<br>  ○ Can the Plan be reasonably be implemented?<br>**Efficiency**<br>• Are there additional costs/risks/time and resource implications created as a result of the provisions? | • Are the current set of issues still relevant, and have new issues arisen?<br>• Are the issues being adequately addressed? |

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| • Is the workload implicit in the policy manageable?<br><br>• Are the regulatory, consenting and administrative transaction costs in line with what was anticipated? | |

*Table 2: Guiding questions*

# 5.1 Natural Hazards

This section outlines the Natural Hazards chapter of the One Plan.

| One Plan Chapter to be reviewed: | Specific provisions subject to review |
|---|---|
| - Chapter 9: Natural Hazards | - Objective 9-1<br>- Policies 9-1, 9-2, 9-3, 9-4, and 9-5<br>- Methods 9-1, 9-2, 9-3, 9-4 |

**Objective 9-1** focuses on avoiding or mitigating the adverse effects of natural hazards. It is supported by five policies.

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| **Objective 9-1: *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. |

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| **Policy 9-1: 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:<br>a. The Regional Council and *Territorial Authorities^* must be jointly responsible for:<br>i. 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.<br>b. The Regional Council must be responsible for:<br>i. developing objectives and policies for Region-wide management of activities for the purpose of avoiding or mitigating *natural hazards^*,<br>ii. developing specific objectives, policies and methods (including *rules^*) for the control of:<br>a. all *land^* use activities in the coastal marine area^, |

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| | b. erosion protection works that cross or adjoin mean high water springs,<br>c. all *land*^ use activities in the *beds*^ *of rivers*^ *and lakes*^, for the purpose of avoiding or mitigating natural hazards^, and<br>iii. taking the lead role in collecting, analysing and storing regional natural hazard^ information and communicating this information to *Territorial Authorities*^.<br>c. *Territorial Authorities*^ must be responsible for:<br>i. 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<br>ii. identifying ***floodways**** (as shown in **Schedule J**[1]) and other areas known to be inundated by a 0.5% annual exceedance probability (AEP) flood event[2] on planning maps in *district plans*^, and controlling land^ use activities in these areas in accordance with Policies **9-2** and **9-3**.<br>[1] **Schedule J** is not a component of Part I - the Regional Policy Statement. It is a component of Part II - the Regional Plan.<br>[2] 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. |
| **Policy 9-2: Development in areas prone to flooding** | a. 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 **Schedule J** unless:<br>i. there is a functional necessity to locate the *structure*^ or activity within such an area, and<br>ii. 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<br>iii. 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[2] are avoided or mitigated, |

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| | in which case the *structure*^ or activity may be allowed.<br><br>b. Outside of a ***floodway**** mapped in **Schedule J** 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[2] unless:<br><br>i. ***flood hazard avoidance**** is achieved or the 0.5% AEP (1 in 200 year) flood hazard is mitigated, or<br><br>ii. the non-habitable *structure*^ or activity is on production *land*^, or<br><br>iii. there is a functional necessity to locate the *structure*^ or activity within such an area,<br><br>in any of which cases the *structure*^ or activity may be allowed.<br><br>c. ***Flood hazard avoidance**** must be preferred to flood hazard mitigation.<br><br>d. When making decisions under Policies **9-2**(a) and b(i) regarding the appropriateness of proposed flood hazard mitigation measures, the Regional Council and *Territorial Authorities*^ must:<br><br>i. 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.<br><br>ii. ensure that in a 0.5% AEP (1 in 200 year) flood event[2] the inundation of access 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****,<br><br>iii. 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,<br><br>iv. ensure that adverse effects on existing *structures*^ and activities are avoided or mitigated, |

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| | v. have regard to the likelihood and consequences of the proposed flood hazard mitigation measures failing,<br>vi. have regard to the consequential *effects*^ of meeting the requirements of (d)(ii), including but not limited to landscape and natural character, urban design, and the displacement of floodwaters onto adjoining ***properties**, and<br>vii. 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.<br>e. 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.<br>f. Despite Policy **9-2**(d)(i) and (ii), 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.<br>g. This policy does not apply to new ***critical infrastructure**. |
| **Policy 9-3: 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[2] (including floodways mapped in **Schedule J**), 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**:<br>a. will not be adversely affected by floodwaters or another type of *natural hazard*^,<br>b. will not cause any adverse *effects*^ on the environment^ in the event of a flood or another type of *natural hazard*^,<br>c. is unlikely to cause a significant increase in the scale or intensity of natural hazard^ events, and<br>d. cannot reasonably be located in an alternative location. |

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| **Policy 9-4: 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:<br>a. 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,<br>b. 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<br>c. is unlikely to cause a significant increase in the scale or intensity of *natural hazard*^ events. |
| **Policy 9-5: *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:<br>a. stormwater *discharges*^ and effluent disposal,<br>b. coastal development and coastal *land*^ use,<br>c. activities adjacent to *rivers*^,<br>d. water^ allocation and *water*^ takes,<br>e. activities in a ***Hill Country Erosion Management Area****,<br>f. flood mitigation activities, and<br>g. managing storm surge. |

There are several regional plan rules that relate to natural hazards across Chapters 14, 16, 17 and 18. Chapter 18 provisions are discussed in the Coastal Hazards section of this report. The following provisions relate to the Chapter 9 provisions so that the regional plan achieves the targets and goals set by the RPS.

| Rule | Activity | Classification | Conditions/Standards/Terms | Control/Discretion<br>Non-Notification |
|---|---|---|---|---|
| **Rule 14-18 *Discharges^* of stormwater to surface *water^* and *land^*** | The *discharge^* of storm water into surface *water^* pursuant to s15(1) RMA or onto or into *land^* pursuant to ss15(1) or 15(2A) RMA, and any ancillary takes or diversions of stormwater pursuant to s14(2) RMA forming part of the stormwater system. | Permitted | a. The *discharge^* must not include stormwater from any:<br>i. *industrial* or *trade premises^* where *hazardous substances** stored or used may be entrained by the stormwater<br>ii. contaminated *land^* where the *contaminants^* of concern may be entrained by the stormwater<br>iii. operating quarry or *mineral^* extraction *site**<br><br>unless there is an *interceptor system** in place.<br><br>a. The *discharge^* must not cause or exacerbate the flooding of any other *property**.<br>b. The activity must not cause erosion of any *land^* or the *bed^* of any *water body^* beyond the point of *discharge^* unless this is not practicably avoidable, in which case any erosion that occurs as a result of the *discharge^* must be remedied as soon as practicable. | |

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| | | | c. There must be no *discharge*^ to any *rare habitat**, or reach of *river*^ or its *bed*^ with a Schedule B Value of Natural State.<br>d. For *discharges*^ of stormwater onto or into *land*^:<br>i. the *discharge*^ must be below a rate that would cause flooding outside the design *discharge*^ soakage area, except in rain events equivalent to or greater than the 10% annual exceedance probability design storm. Any exceedance must go into designated overland flow paths<br>ii. there must not be any overland flow resulting in a *discharge*^ to a natural surface water body^, except in rain events equivalent to or greater than the 10% annual exceedance probability design storm<br>iii. the *discharge*^ must not contain concentrations of *hazardous substances** that are toxic to aquatic ecosystems, or accumulate in soil.<br>e. For *discharges*^ of stormwater into surface *water bodies*^ the discharge^ must not cause any permanent reduction of the ability of the receiving | |

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| | | | *water body*^ or its *bed*^ to convey flood flows.<br>f. For *discharges*^ of stormwater into surface *water bodies*^ the *discharge*^ must not cause, after *reasonable mixing**, any of the following effects^ in the receiving *water body*^:<br>i. the production of conspicuous *oil** or grease films, scums or foams, or floatable or suspended materials<br>ii. any conspicuous change in the colour or visual clarity of the receiving *water*^<br>iii. any emission of objectionable odour<br>iv. the rendering of fresh *water*^ unsuitable for consumption by farm animals<br>v. toxicity to aquatic ecosystems<br>g. The activity must not be to any *historic heritage*^ identified in any *district plan*^ or *regional plan*^. | |
| **Rule 14-19 *Discharges*^ of stormwater to surface *water*^ or land not complying** | The *discharge*^ of stormwater into *surface water*^ or land not complying with Rule 14-18 | Restricted Discretionary | a. There must be no *discharge*^ to any *rare habitat**, *threatened habitat**, *at-risk habitat**, or reach of a *river*^ or its *bed*^ with a Schedule B Value of Natural State. | Discretion is reserved over:<br>a. measures to control flooding and erosion<br>b. *contaminant*^ concentrations and loading rates |

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| **with Rule 14-18** | | | | c. measures to avoid, remedy or mitigate adverse *effects*^ on groundwater quality<br>d. measures to manage the level of soil contamination<br>e. measures required to comply with s107(1) RMA<br>f. measures to assist with maintaining or achieving the Schedule E *water quality targets** for the relevant *Water Management Sub-zones**<br>g. management of odours arising from the stormwater *discharge*^<br>h. stormwater system |

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| | | | | *maintenance** requirements<br>i. contingency requirements<br>j. monitoring and information requirements<br>k. duration of consent<br>l. review of consent *conditions*^<br>m. the matters in Policy 14-9. |
| **Rule 16-10 Lawfully established diversions, including existing drainage** | The take, diversion or *discharge*^ of surface *water*^ and any ancillary damming of *water*^, or *discharge*^ of sediment or other *contaminants*^ in the *water*^ into *water*^ or onto or into *land*^ pursuant to s14(2) and ss15(1) or 15(2A) RMA arising from:<br>a. a diversion that was lawfully established as at the date of this *rule*^ becoming *operative*^, or<br>b. a diversion that has been lawfully established by way of *resource consent*^ after the *operative*^ date of this *rule*^ including diversions ancillary to the *operation** of existing drainage networks | Permitted | a. The diversion or *discharge*^ must be to the same *Water Management Sub-zone** to which the *water*^ would naturally flow, except diversions associated with existing *land*^ drainage.<br>b. *Effects*^ on *land*^ instability, erosion risk, flooding and soil resources (including drained peat soils) must remain the same as or similar in character, intensity and scale to those which existed before this *rule*^ became *operative*^.<br>c. The diversion must not prevent the passage of fish in *water bodies*^ containing fish.<br>d. For diversions lawfully established by way of a *resource consent*^, the | |

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| | **Advice Note:**<br><br>This *rule*^ means that, once diversions have been lawfully established, including diversions for *land*^ drainage purposes, their continued *operation** is permitted under this *rule*^. No ongoing consent is required for the *operation** of existing diversions provided the *conditions*^ of this *rule*^ are met. | | diversion must continue to comply with all *conditions*^ of the consent. | |
| **Rule 16-11 New drainage** | The take, diversion or *discharge*^ of drainage *water*^, and any ancillary damming of *water*^, or *discharge*^ of sediment or other *contaminants*^ in the drainage *water*^ into *water*^ or onto or into *land*^ pursuant to s14(2) and ss15(1) or 15(2A) RMA arising from the establishment and *operation** of new land^ drainage. | Permitted | a. The diversion or *discharge*^ must not cause or exacerbate the flooding of any *property**,* unless the flooding is in accordance with an approved Regional Council drainage scheme design.<br>b. The diversion or *discharge*^ must not cause any scouring or erosion of any *land*^ or *water body*^ beyond the point of discharge.<br>c. The diversion or *discharge*^ must not alter the natural course of any natural *water body*^*.*<br>d. There must be no diversion or *discharge*^ to or from any natural *lake*^*, rare habitat**, *threatened habitat** or *at-risk habitat**,* or reach of *river*^ or its *bed*^ with a Schedule B Value of Natural State.<br>e. The activity must not result in the lowering of *water*^ levels in any | |

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| | | | *wetland*^ that is a *rare habitat** or *threatened habitat**<br>f. The diversion or *discharge*^ must not be to the same *Water Management Zone** to which the drainage *water*^ would naturally flow.<br>g. The diversion or *discharge*^ must not cause, after reasonable *mixing**, any of the following *effects*^ in the receiving *water body*^:<br>i. the production of conspicuous *oil** or grease films, scums or foams, or floatable or suspended materials<br>ii. any conspicuous change in the colour or visual clarity of the receiving *water*^<br>iii. any emission of objectionable odour<br>iv. the rendering of fresh *water*^ unsuitable for consumption by farm animals<br>v. the natural temperature of the receiving *water*^ to change by more than 3ºC<br>vi. toxicity to aquatic ecosystems.<br>h. The diversion or *discharge*^ must not, after reasonable *mixing**, cause the dissolved oxygen of the receiving *water body*^ to fall below 80% saturation concentration, unless the dissolved oxygen is already below this limit in | |

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| | | | which case the *discharge*^ must not lower it further.<br><br>The activity must not be to any historic *heritage*^ identified in any *district plan*^ or *regional plan*^. | |
| **Rule 16-12 New diversions** | The following activities where they are associated with the establishment and *operation** of a new diversion, except as expressly provided for by other *rules*^ within this Plan:<br><br>a. the take, diversion or *discharge*^ of *water*^ and any ancillary damming of water^ pursuant to s14(2) and ss15(1) or 15(2A) RMA<br>b. any ancillary *discharge*^ of sediment or other *contaminants*^ in the *water*^ into *water*^ or onto or into *land*^ pursuant to ss15(1) or 15(2A) RMA<br>c. any ancillary excavation or disturbance of the *bed*^ of a *river*^ pursuant to ss13(1) and 13(2) RMA. | Permitted | a. The activity must involve:<br>i. a diversion of groundwater,<br>ii. a diversion from or within an *artificial watercourse**,<br>iii. a diversion from or within an existing drain that is within the RMA definition of "*river*^", or<br>iv. a diversion wholly contained within the *bed*^ of a *river*^ provided the diversion is no more than two times the *bed*^ width of the *river*^ in any 2km length of *river*^ in any 12 month period and must not exceed a length of 20 metres.<br>b. The activity must not involve the diversion of *water*^ associated with new drainage which is regulated under Rule 16-11.<br>c. The diversion must not be located within 200m of any *wetland*^ that is a *rare habitat** or *threatened habitat** and must not lower the *water*^ level in any *wetland*^ that is a *rate habitat** or *threatened habitat**. | |

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| | | | d. The diversion must not be to or from any *rare habitat*, threatened habitat** or *at-risk habitat*.*<br>e. The diversion must not increase *land^* instability or the risk of erosion.<br>f. The diversion must not cause or contribute to flooding on any other *property**<br>g. The diversion must not adversely affect any lawfully established *water^* take or use which existed at the time that the diversion commenced.<br>h. The diversion must not prevent the passage of fish in *water bodies^* containing fish.<br>i. The diversion must not be undertaken where any *infrastructure^* is located in, on, under or over the *bed^* within 1 km upstream or downstream of the diversion.<br>j. Any realigned *bed^* must have at least the same capacity as the original *bed^* to carry the diverted flow.<br>k. For diversions of surface *water^* from an *artificial watercourse** or drain, the diverted *water^* must not cause a reduction in the *water^* quality of any downstream *water body^.*<br>l. Any *discharge^* of sediment ancillary to the activity must not, after *reasonable mixing**, cause a conspicuous change in | |

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| | | | the colour or visual clarity of the receiving *water^.*<br>m. The construction of a new diversion located within a *river^* must comply with the general *conditions^* listed in Section 17.3 Table 17.2. | |
| **Rule 16-13 Diversions that do not comply with *permitted activity^* and *controlled activity^* *rules^*** | Any diversion pursuant to s14(2) RMA that does not comply with one or more *conditions^*, standards or terms of a *permitted activity^* or *controlled activity^* *rule^* in this chapter, but which is not expressly classified as a *discretionary activity^*, or *prohibited activity^.* | Discretionary | a. The diversion must not be to or from any *rare habitat*, threatened habitat** or *at-risk habitat** | |
| **Rule 17-14 Activities undertaken by or on behalf of the Regional Council in *rivers^* within a Schedule B Value of Flood Control and Drainage** | The following activities within a reach of a *river^* with a Schedule B Value of Flood Control and Drainage, where they are undertaken by or on behalf of the Regional Council:<br>a. the erection, placement, or extension of any *structure^* in, on, under or over the *bed^* of a *river^* pursuant to 13(1) RMA<br>b. the excavation, drilling, tunnelling or other disturbance (including gravel extraction) of the *bed^* of a *river^* pursuant to s13(1) RMA | Permitted | a. The activity must be undertaken in accordance with the Environmental Code of Practice for River Works (Horizons Regional Council. June 2010).<br>b. The activity must not involve:<br>i. an activity prohibited under Rule 17-1<br>ii. an activity regulated under Rule 17-3, except to the extent that the activities may be carried out in specified Sites of Significance – Aquatic and Sites of Significance – Cultural in accordance with (a). | |

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| | c. any damming or diversion of *water*^ pursuant to s14(2) RMA<br>d. any *discharge*^ or deposition of plants, removed *bed*^ material, rock, shingle, earth *cleanfill material*, water*^ or sediment into *water*^ or sediment into *water*^ or onto or into *land*^ pursuant to ss13(1), 15(1) or 15(2A) RMA<br>e. the damage, destruction, disturbance or removal of plants or parts of plants pursuant to s13(2) RMA | | | |
| **Rule 17-15 Activities affecting Schedule B Value of Flood Control and Drainage** | Except as regulated by Rule 17-5, the following activities pursuant to ss9(2) and 13(1) RMA in, on or under an *artificial watercourse** or a reach of a *river*^ with a Schedule B Value of Flood Control and Drainage or adjacent *land*^ as defined in (j) to (m):<br>a. the planting of a tree or shrub<br>b. the erection, placement or extension of any building or other *structure*^ (including accessways)<br>c. the erection, placement or extension of a fence perpendicular to a *river*^ or *artificial watercourse** | Discretionary | | |

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| | d. the erection, placement or extension of a fence greater than 1.2 m high parallel to a *river*^ or *artificial watercourse**<br>e. the deposition of any rock, shingle, earth, debris or other *cleanfill material**<br>f. any excavation, drilling, tunnelling or other disturbance likely to undermine the functional integrity of a stopbank or *river*^ control *structure*^<br>g. any *land disturbance** that impedes access required for *maintenance* of a *river*^ or drainage scheme<br>h. the *upgrade**, reconstruction, alteration, extension, removal or demolition of any *structure*^ that is maintained by the Regional Council for the purposes of flood control or erosion protection or drainage and any ancillary:<br>i. excavation, drilling, tunnelling or other disturbance of the *river*^ or *lake*^ *bed*^ pursuant to s13(1) RMA<br>ii. *discharge*^ of *water*^ or sediment into *water*^ or onto or into *land*^ | | | |

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| | pursuant to ss15(1) or 15(2A) RMA<br>iii. deposition of substances in or on the *bed*^ of the *river*^ or *lake*^ pursuant to s13(1)<br>iv. *land disturbance** pursuant to s9(2) RMA<br>where the activities listed in (a) to (h) are undertaken in any of the following areas:<br>i. within the *bed*^ of a *river*^ or within an *artificial watercourse**<br>j. on a stopbank<br>k. on any strip of *land*^ between an *artificial watercourse** or *bed*^ of a *river*^ and 8 m inland of the landward toe of a stopbank<br>l. for areas without stopbanks, anywhere from within 10 m of an *artificial watercourse** or the *bed*^ of a *river*^<br>m. Only *land*^ use activities described under (f) and (g) are controlled under this *rule*^ on *land*^ described under (j) and (k) on and adjacent to the Manawatū River secondary stopbank located between Ruahine Street at Fitzroy Bend and Ruamahanga Crescent. The | | | |

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| | other listed *land*^ use activities are not controlled in that area.<br><br>This rule does not apply to activities undertaken by or on behalf of the Regional Council | | | |
| **Rule 17-16 Small-scale gravel excavation** | The excavation or other disturbance of the *bed*^ of a *river*^ or *lake*^ for the purpose of extracting gravel and other *bed*^ material, pursuant to s13(1) RMA and any ancillary:<br>a. damming or diversion of *water*^ pursuant to s14(2) RMA<br>b. *discharge*^ of *water*^ or sediment into *water*^ or onto or into *land*^ pursuant to ss15(1) or 15(2A) RMA<br>c. deposition of substances in or on the *bed*^ of the *river*^ or *lake*^ pursuant to s13(1). | Permitted | a. The activity must not take place in a *river*^ or *lake*^ regulated under Rule 17-3.<br>b. The amount of gravel and *bed*^ material extracted must not exceed 50 m3 in any 12 month period.<br>c. The gravel or other material must only be extracted from an area of *river*^ *bed*^ that is not covered by flowing *water*^ at the time of extraction.<br>d. The activity must comply with the general *conditions*^ listed in Section 17.3.<br>e. The activity must not take place in any *rare habitat**, *threatened habitat** or *at-risk habitat**. | |

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| **Rule 17-17 Other gravel extraction** | Except as regulated by Rules 17-3 and 17-16, the excavation or other disturbance of the *bed*^ of a *river*^ or *lake*^ for the purpose of extracting gravel and other *bed*^ material, pursuant to s13(1) RMA and including any ancillary:<br>a. damming or diversion of *water*^ pursuant to s14(2) RMA<br>b. *discharge*^ of *water*^ or sediment into *water*^ or onto or into *land*^ pursuant to ss15(1) or 15(2A) RMA<br>c. deposition of substances in or on the *bed*^ of the *river*^ or *lake*^ pursuant to s13(1)<br>d. *discharges*^ to air pursuant to s15(2A) RMA | Discretionary | a. The activity must not take place in any *rare habitat**, threatened habitat** or *at-risk habitat**.* | |

The table below outlines the linkages between the objectives, policies and methods, and the anticipated environmental outcomes and performance indicators.

| ONE PLAN: natural hazard linkages | | | | |
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| Objectives (RPS) | Supporting Policy Framework | Methods | Indicators | Anticipated environmental results |
| Objective 9-1: *Effects^ of natural hazard^* events | Policy 9-2 | | Number of new dwelling houses in areas prone to flooding consistent with Policy 9-2 | By 2017, the risk to people, property and *critical infrastructure** will be the same as or less than before this Plan became operative. |
| | Policies 9-2, and (5-24) | | Number of incidents where activities are affecting schemes, especially stopbanks | |
| | Policies 9-1, 9-2, 9-3, 9-4, and 9-5 | Methods 9-1, 9-2, 9-3, and 9-4 | Natural hazard information shared with Territorial Authorities and interested parties | |
| | Policies 9-1, 9-2, 9-3, 9-4, and 9-5 | Methods 9-1 and 9-2 | District plans incorporating hazardous areas on planning maps and associated regulation of land use in those areas | |
| | Policies 9-1, 9-2, 9-3, 9-4, and 9-5 | Method 9-4 | Public perception | 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. |
| | Policies 9-1, 9-2, 9-3, 9-4, and 9-5 | Methods 9-3 and 9-4 | Number of requests for information | |
| | Policies 9-1, 9-2, and 9-3 | Methods 9-1 and 9-2 | District plans incorporating hazardous areas on planning maps and associated regulation of land use in those areas | |

## 5.1.1 Effectiveness Assessment

### 5.1.1.1 Methods

Objective 9-1 and Policies 9-1, 9-2, 9-3, 9-4, and 9-5 are implemented through the four non-regulatory methods in Chapter 9 of the Regional Policy Statement, rather than through rules. District plans also implement the objective and policies. There are policies in Chapter 5, and rules in Chapters 14, 16, and 17 that are relevant to natural hazards, but these do not directly implement the objectives and policies of Chapter 9. Coastal hazards are discussed in section 5.2.

Method 9-1 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. The method states that this information will be provided to Territorial Authorities for district planning purposes and to other interested parties, and maps will be updated as required. This method implements Policies 9-1, 9-3 and 9-4. The method implied a comprehensive set of information would be created for the region. The hazards were not mapped by the target date of 2010, though the target date was unachievable given that the One Plan was made operative in 2014. The Horizons Regional Council Natural Hazards Viewer was launched in 2022 and is housed on the Horizons website. Additionally, the Horizons District Advice team provides ongoing hazard information to Territorial Authorities and other interested parties. Regular programmed hazard mapping has been funded through LTP[6], through a Hazard Mapping Project. This has been undertaken since 2015, primarily focused on flood mapping, but has also included seismic and lahar risk assessments[7]. However, while the target states that mapping will be updated as required, every time a new drain or culvert is installed or there is a new subdivision, flood mapping is rendered out of date. This is because landform changes (such as earthworks and scheme upgrades) can reduce the confidence levels of flood modelling. Over time and after sequential flood events, return periods of modelling can change which may mean the current flood modelling will be less conservative for mitigating or avoiding risk[8]. Data collection and updating of mapping does not occur at a rate that has resulted in the comprehensive view of all hazards anticipated by the method, or even kept pace with changes to flood and drainage information resulting from development. Additionally, when there are new future projections of sea-level rise for future climate scenarios, coastal assessments and flood modelling cannot easily be updated[9]. As a result, this method has been only partially implemented. Additional issues with providing ongoing hazard information are discussed in section 5.1.1.2.

Method 9-2 states that 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 on district plans, and the Regional Council's District Advice service. This method intends to implement Policies 9-1, 9-2, 9-3, and 9-5. The Horizons Regional Council Natural Hazards Viewer was launched in 2022 and is housed on the Horizons website. This was not completed by the target date of 2010, or by three years after the plan was made operative; 2017. As discussed above, a Hazard Mapping Project has been undertaken with a focus on flood mapping. The flood mapping does not match what was outlined in Policy 9-2, however, which has caused consistency issues with district plan mapping as Horizons has not been able to provide a flood layer matching this policy[10]. This issue is further discussed in section 5.1.1.3. The mapping on the viewer is not necessarily updated as new mapping occurs. This method has been partially implemented.

[6] Horizons Regional Council Long-term Plan 2021-2031.
[7] B. Watson, personal communication, June 2024.
[8] S. Carswell, personal communication, May 2024.
[9] S. Carswell, personal communication, May 2024.
[10] M. Mackay, personal communication, April 2023.

Method 9-3 states that 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. This method implements Policies 9-1, 9-2, 9-3, 9-4, and 9-5. Horizons District Advice team, along with the Horizons Regional Council Natural Hazards Viewer give effect to Method 9-3. District Advice frequently provides updated information to Territorial Authorities and the general public about any natural hazards that might relate even indirectly to their enquiry[11]. The information that District Advice provides varies on a case by case basis. Sometimes the most up-to-date information is not the most appropriate information to provide due to low confidence levels and data limitations, and so older, but more appropriate information is provided, or a combination of older and new[12]. The aspect of providing information has been implemented, but not necessarily up to date natural hazard information. As such, Method 9-3 has been partially implemented.

Method 9-4 states that 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 costal 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. This method implements Policies 9-1, 9-2, 9-3, 9-4, and 9-5. As with Methods 9-1 and 9-3, Method 9-4 is primarily given effect to by the Horizons District Advice Team, the Flood & Emergency Management section on the Horizons website, and the Horizons Regional Council Natural Hazards Viewer. Horizons Emergency Management and River Management teams also play a role in preparing and making available this information. The Hazard Mapping Project has also assisted with this information gathering. As in Method 9-1, the information and mapping is not updated each time new information is discovered, such as a new subdivision, even though the method calls for up-to-date natural hazard information. Additional issues with providing ongoing hazard information are discussed in section 5.1.1.2. As up-to-date natural hazard information is not always provided, this method has been only partially implemented.

#### 5.1.1.2 Policies

Policy 9-1

Policy 9-1 is intended to give effect to s62(1)(i) of the RMA, which requires regional policy statements to state the local authority responsible for specifying the objectives, policies, and methods for the control of the use of land to avoid or mitigate natural hazards or any group of hazards – i.e., whether it will be the regional council or territorial authorities.

Policy 9-1(b)(ii) states that the Regional Council must be responsible for developing specific objectives, policies and methods for the control of: all land use activities in the coastal marine area (CMA), erosion protection works that cross or adjoin mean high water springs, and all land use activities in the beds of rivers and lakes, for the purpose of avoiding or mitigating natural hazards. Erosion protection works that cross or adjoin mean high water springs are both are provided for in One Plan Chapters 8 and 18, as well as other chapters that have been evaluated in the freshwater s35, including 13, 14, 16 and 17. Provisions relating to the control of land use activities in the CMA are discussed in section 5.2. Activities in the beds of rivers and lakes are provided for in Chapters 5 and 17 and were evaluated in the Freshwater s35[13].

Policy 9-1(b)(iii) states that the Regional Council must be responsible for taking the lead role in collecting, analysing and storing regional natural hazard information and communicating this information to Territorial Authorities. The underlying assumption is that this information is best developed on a regional scale and will then be made accessible through the mechanisms set out in

[11] S. Carswell, personal communication, March 2023.
[12] S. Carswell, personal communication, February 2024.
[13] Shirley, L. (2023).

the methods. While the Regional Council has been undertaking the Hazard Mapping Project, Territorial Authorities have also been collecting and storing natural hazards data. One example of this is liquefaction studies undertaken by Tararua District, Horowhenua District, Whanganui District and Palmerston North City Councils[14]. Horizons has completed regional level liquefaction studies[15]. This is not at a scale which allows for site-specific analysis of liquefaction to be undertaken, but does identify areas that may warrant a site-specific analysis of liquefaction hazard, resulting in the need for district councils to conduct their own studies. The information obtained through these district level studies is not always shared with Horizons[16], even with a LGOIMA request[17], which hinders the effectiveness of the methods. In particular, the Horizons District Advice teams' ability to provide up-to-date natural hazard information. This has occurred because while regional scale liquefaction studied have been completed, Horizons has not had the resources to undertake the district level liquefaction studies itself[18]. This indicates that Horizons have not taken a lead role, as directed by Policy 9-1(b)(iii), which indicates ineffectiveness. A future plan change should consider if the information is best developed at a regional scale or at a TA level, and whether funding is available to undertake this regionally.

Additional issues with the delineation of roles in Policy 9-1 are discussed in section 5.2.1.1 of this evaluation.

To assess the use of policies in consenting decisions, data has been extracted from Council's consent database, IRIS. It is important to note that the IRIS system has relied on users to input data, such as policies, and to describe the activity. Differences in how data is described can mean that not all activities are captured when searching by type. There is also the potential for error in which policies are inputted.

IRIS data[19] indicates that 19 individual consents that refer to Policy 9-1 have been granted since the plan became operative, of which eight are current. The activities of the consents range from vegetation clearance and earthworks to land disturbance within 8 metres of a stopbank to discharge of cleanfill. Some of these consents are in flood prone areas or within close proximity to a stopbank, and also have though Policy 9-2 tagged to them. Some also have Policy 9-5 tagged to them; these are consents for the Whanganui Port where sea level rise is a relevant consideration. Some other consents have additional links to Objective 5-4 which relates to the management of beds of rivers and lakes. This objective states that "the land adjacent to the bed of reaches with a Schedule B Value of Flood Control and Drainage will be managed in a way which provides for flood mitigation purposes". The connection with Policy 9-1 in this case is because Policy 9-1(b)(ii)(c) allocates responsibility to the Regional Council for developing specific objectives, policies and methods for the control of all land use activities in the beds of rivers and lakes for the purpose of avoiding or mitigating natural hazards. From this data, it can be inferred that the policy is consistently being applied correctly to relevant resource consent applications.

Policy 9-2

Policy 9-2 is intended, from a flooding perspective, to give effect to Objective 9-1; the adverse effects of natural hazard events on people, property, infrastructure and the wellbeing of communities are avoided or mitigated. The policy refers to annual exceedance flood events; 0.5% AEP (1 in 200 year) and 0.2% AEP (1 in 500 year). This component is problematic. Its intent when drafted was that due to climate change, a 0.5% AEP would reflect 1% AEP events in 50 years' time from when the One Plan was notified[20]. However, due to improvements in knowledge, data and modelling since the One Plan was notified, there are now varying climate change scenarios that can

[14] S. Carswell, personal communication, October 2023.
[15] GNS Science Consultancy Report 2016/40.
[16] S. Carswell, personal communication, August 2023.
[17] P. Tucker, personal communication, August 2023.
[18] P. Tucker, personal communication, August 2023.
[19] As at 17 October 2023.
[20] Blackwood, P. (2009).

be applied and this policy does not provide the necessary guidance on how climate change scenarios should be implemented, as subsequently required by the NAP.

Policies 9-2(a)(i) and (b)(iii) allow for development if there is a functional necessity. Functional necessity is not defined in the One Plan, nor in the district plans within the region. Functional need is defined in the National Planning Standards and must be included through a Schedule 1 process. Whanganui District Council has the only district plan within the region with a definition for functional need. A future review of the One Plan should consider using the definition for functional need in place of functional necessity.

Policy 9-2(c) states that *flood hazard avoidance** must be preferred to flood hazard mitigation. The definition is also used within Policy 9-2(b)(i). The definition for flood hazard avoidance is not used elsewhere in the One Plan. The definition is:

*Flood hazard avoidance means, for the purpose of Policy 9-2, ensuring flood control measures are in place that provide protection from the 0.5% annual exceedance probability (1 in 200 year) flood event and those measures are soundly designed and constructed such that there is minimal risk of the measures failing.*

This definition came about because the policy, now called Policy 9-2, in the One Plan as notified in 2007 took a strong avoid approach. It was considered by submitters to be unworkable as the policy did not allow for the mitigation of flood hazards. This was due to the difficulties of dealing with residual risk should mitigation measures fail[21]. The end of hearings officer report recommended wording changes for the policy which included a minimum avoid or mitigation requirement[22]. In the reasons for the decisions on submissions to the proposed One Plan, the hearings panel chose to reword the policy and insert a definition for flood hazard avoidance.

There does not appear to be any material difference between the definition for flood hazard avoidance and mitigation of the 0.5% AEP. A future plan review should consider if the preference is for an avoidance or a mitigation approach, and either remove the definition for flood hazard avoidance or update it so that there is a clear distinction between avoidance and mitigation.

Horizons is required to have regard to the NAP when making or changing the RPS or RP. When making or changing plans or policy statements, the NAP requires use of the Shared Socioeconomic Pathway or RCP8.5 to 2130 as a minimum climate change scenario when screening for coastal risks and hazards. Councils are advised to stress test plans, policies and strategies under a range of climate change scenarios. Additionally, it should be determined how far into the future to account for climate change, whether this be 50 years or 200 years, and decide which climate change scenario would be most appropriate to apply. Determining the appropriate climate change scenario will then guide a review of Policy 9-2. Policy 9-2 will also require flexibility to adapt to and accommodate new knowledge of climate change as and when it becomes available.

Data obtained from IRIS indicates that there are 22 individual consents that refer to Policy 9-2 since the plan became operative. The activities of the consents range from stream alignment to gravel extraction to bridge construction. These consents are generally tagged to Policy 9-2 as they are located in flood prone areas or within close proximity to a flood bank. From this information it can be inferred that the policies are being applied appropriately and referenced consistently in consenting decisions.

Policy 9-2 also refers to Schedule J (floodways and areas prone to flooding). Schedule J requires updated mapping, and while it is relatively effective for the identified areas, there are no rules within the Regional Plan that restrict activities. This is because Policy 9-2 is focused on development activities in areas prone to flooding which is the domain of TAs under Policy 9-1. However, any review of this policy should consider whether there are any activities regulated by Regional Council that should also be restricted in flood hazard areas. For example, while on-site

[21] Percy, P. (2009).
[22] Percy, P. (2009).

wastewater is primarily the concern of TAs, a resource consent is required from Horizons. If the on-site wastewater is impacted by a flood, water quality could be affected (Rules 14-13 to 14-17). Another example is the discharge of cleanfill to land (Rule 14-21). If this land is in a floodway, the course of the flood waters could be altered. Additionally, TAs have different mapping to Schedule J in their District Plans which is an effectiveness issue in that there is inconsistent methodology within the region and creates confusion for plan users.

Policy 9-3

Policy 9-3 is intended to give effect to the infrastructure component of Objective 9-1, specifically new critical infrastructure. The One Plan definition for critical infrastructure is:

*Critical infrastructure* means infrastructure^ necessary to provide services which, if interrupted, would have a serious effect^ on the people within the Region or a wider population, and which would require immediate reinstatement. Critical infrastructure* includes infrastructure^ for:*

*a. electricity substations*
*b. the treatment and storage of water^ for public supply (excluding the distribution network)*
*c. the management of human sewage treatment (excluding the reticulation system)*
*d. strategic road and rail networks (as defined in the Regional Land Transport Strategy)*
*e. health care institutions including hospitals*

Data obtained from IRIS did not identify any consents that refer to Policy 9-3 since the One Plan became operative. This could indicate that no consents have been lodged for this activity, that there has been an error in tagging the policies in IRIS, or that the policies are not being referenced in consenting decisions. Policy 9-3 refers to new critical infrastructure; maintenance and upgrades would not trigger this policy. New critical infrastructure is not built often in the region so it is possible that no consents had been lodged for the activity at the time the data was extracted[23]. Alternatively, this lack of identification may be due to how critical infrastructure is defined.

One issue identified with the definition for critical infrastructure, which was also identified in the section 35 evaluation report for infrastructure, energy, waste, hazardous substances and contaminated land (Chapter 3), is the inclusion of strategic road and rail networks as defined in the Regional Land Transport Strategy (RLTS). The legislation that requires this strategy was repealed by the Land Transport Management Amendment Act 2013 and replaced with Regional Land Transport Plans (RLTP). The RLTP does not identify strategic road and rail networks[24]. The definition for critical infrastructure, or Policy 9-3, should be amended in a future plan review to clarify how significant land transport is identified.

An additional issue identified is the inconsistency between infrastructure being identified as critical, and as of regional or national importance. Some infrastructure, such as electricity substations and road and rail networks as mapped in the RLTP, is identified as both infrastructure of regional or national importance, and as critical infrastructure. This was also identified as an issue in the s35 Chapter 3 evaluation. A future plan review should consider if it would be appropriate for simplicity to list critical infrastructure within the list of infrastructure and other physical resources of regional or national importance under Policy 3-1. This would change the effect of other provisions, particularly in Chapter 3, which reference infrastructure and other physical resources of regional or national importance. Alternatively, the definition could be amended to update the reference to the legislation. A new method, potentially situated in Chapter 3, could accompany this to compel the RLTP to identify these significant and important road and rail networks. Any review of the definition of critical infrastructure should be reflected in Policy 9-3.

Because the RLTP does not identify strategic road and rail networks, and because Policy 9-3 names the RLTS, new consents for strategic road and rail networks would not necessarily trigger the policy. However, there are two examples of new major roading project applications that have been

[23] J. Mitchell, personal communication, December 2023.
[24] L. Shirley, personal communication, February 2024.

tested through court processes since the One Plan was made operative where Policy 9-3 has been discussed in the resource consenting process, though not tagged in IRIS. These are the Te Ahu A Turanga and Ōtaki to North of Levin (still going through the consent process) projects.

In the case of Te Ahu A Turanga, Policy 9-3 is noted, though not discussed in any detail, in the planning evidence[25]. The planning evidence was in agreement with the Assessment of Effects on the Environment report by the applicant[26] that, as far as practicable, the location and design of the project minimised potential adverse effects from natural hazards, both to and from the infrastructure. As this was not a major point of contention in the consenting process, it can be expected that the policy would only be discussed briefly[27]. This indicates that Policy 9-3 is still being applied appropriately in consenting decisions despite the lack of identification of the project in the RLTP.

In the case of the Ōtaki to North of Levin project, Policy 9-3 is discussed in more detail. In this example, the planning evidence[28] did not agree with the view of the applicant that the project was consistent with the policy and suggested conditions would be required to address the adverse effects of flooding. This example also indicated that Policy 9-3 is still being applied appropriately in consenting decisions despite the lack of identification of the project in the RLTP. However, it can be inferred from both examples that policies are not being appropriately tagged in consenting decisions.

Policy 9-3, like Policy 9-2 references the AEP flood event criteria. This requires review to give effect to the NAP. This policy also references Schedule J which, as noted above, requires tidying.

Policy 9-4

Policy 9-4 is intended to give effect to Objective 9-1, the adverse effects of natural hazard events on people, property, infrastructure and the wellbeing of communities are avoided or mitigated, for all aspects other than flooding. No issues have been identified with Policy 9-4 aside from those already noted in relation to the delineation of roles and responsibilities in Policy 9-1, and the associated methods. No consents were found in IRIS with this policy tagged. From this, it can be inferred that types of hazards other than flooding, climate change and sea level rise are not being taken into account in consent decision making. A possible reason for this is that other hazard risks, such as liquefaction and fault lines, are more commonly a district council consideration such as for residential development. It is possible that we have not received applications where these hazards are relevant. A future plan review should consider if other hazards should be taken into account in consent decision making, and if a more robust policy framework is required to support this.

Policy 9-5

Policy 9-5 is intended to provide for climate change in future decision making. As with Policy 9-2, there is no guidance provided around which and how climate change scenarios should be applied. A precautionary approach is directed. The intent of the policy was that a precautionary approach is to be applied where information on the implications of climate change and sea level rise are uncertain. This was, in part, due to the role that hazard avoidance plays in reducing risk.

The District Advice team has identified the risks of developing land close to active fault lines as an issue[29]. The One Plan is not as directive about refusing consent as s106 RMA and s71 Building Act. The risks of liquefaction are significant in the region and are likely to worsen with climate change. More alluvial soil will be saturated from flooding or high rainfall events as well as seawater intrusion. This means that there will be more areas prone to liquefaction when there is moderate-strong ground shaking[30]. Nowhere in this chapter are fire hazards specifically identified, nor are they mapped on the hazards viewer. This hazard is also likely to increase with climate change. Now

[25] St Clair, M. (2020). APP-2017201552.00 – Te Ahua a Turanga: Manawatū Tararua Highway.
[26] Waka Kotahi. (2020). APP-2017201552.00 – Te Ahua a Turanga; Manawatū Tararua Highway.
[27] J. Mitchell and S. Westcott, personal communication, April 2024.
[28] St Clair, M. (2023). APP-20212032100 – Ōtaki to North of Levin.
[29] S. Carswell, personal communication, March 2023.
[30] S. Carswell, personal communication, October 2023.

that there is increased information on the effects of climate change and sea level rise, a future plan review should consider incorporating this information into the Chapter 9 policies.

Data obtained from IRIS showed six current resource consents with Policy 9-5 tagged. As discussed under Policy 9-1, these consents are for the Whanganui Port and are being applied appropriately as sea level rise should be a consideration.

Other issues

Objective 5-1 states that "*Surface water bodies and their beds are managed in a manner which safe guards their life supporting capacity and recognises and provides for the Values in Schedule B.*" This is supported by Policy 5-1, which identifies the Schedule B Surface Water Quality Values that must be recognised and provided for when decisions are made on avoiding, remedying or mitigating the adverse effects of activities. The Values include Flood Control and Drainage – *"The integrity of existing flood and river bank erosion protection structures and existing drainage structures is not compromised and the risks associated with flooding and erosion are managed sustainably".* However, the experience from Manawatū District Council Plan Change 51 is that this is not sufficiently directive to influence district planning for this particular issue; Precinct 4 as proposed would have resulted in stormwater being discharged into a river which did not have capacity to convey it in a flood.

While the RPS is does not deal explicitly with stormwater discharges, the regional plan does. Discharges of stormwater to surface water and land is a permitted activity (Rule 14-18), provided the discharge does not cause any permanent reduction in the ability of the receiving water body to carry flood flows. Discharges that do not comply with the permitted activity move to Rule 14-9, a restricted discretionary activity with discretion reserved over measures to control flooding and erosion. Policy 14-1 requires decision makers to have regard to the objectives and policies of both Chapters 5 and 9 when consenting discharges to water. Horizons is reliant on the requirement of s75(4)(b) which states that a District Plan must not be inconsistent with a Regional Plan. The argument that the District Plan should not enable development where this may be the result is not strong as there is the ability to apply for consents such as discharges. An issue has emerged from the cumulative impact of development in areas prone to flooding. Generally plan changes or subdivision consents consider the impact of the individual development, which may be minor; however, the cumulative impact of each plan change or consent becomes more than minor. A future natural hazards plan review could look to Auckland Unitary Plan Policies B10.2.2, or Waikato RPS Policy 6.1 for provisions that direct the consideration of cumulative effects. This could also be linked to Future Development Strategies developed under the NPS-UD.

These regional plan provisions mean that the One Plan as written should prevent any issues arising from stormwater discharges impacting on Horizons' flood control and drainage schemes. However, this is not necessarily the case, for three reasons. First, most of the region's stormwater discharges are unconsented, with only four active stormwater consents granted under the operative One Plan at the time of writing, and a further three consents granted under the Proposed One Plan. Stormwater has not been a priority for our regulatory teams and for TAs[31] (wastewater has been given more attention) which means a number of existing stormwater discharges may not be complying with the permitted activity requirements. Second, by the time a TA applies for a stormwater discharge consent, the district planning decisions that would affect that stormwater discharge and the ability to avoid or mitigate any adverse effects have already be made. While district plans cannot be inconsistent with a RP[32], a restricted discretionary pathway does not provide a strong argument; in these cases Horizons can only point out where it would be extremely unlikely for a consent to be granted. Thirdly, the permitted activity rule performance standards are fairly lenient and rely on people giving advice on consent requirements being aware of which river catchments are at capacity from a flow/peak volume perspective[33]. The first issue is largely a

[31] L. Shirley, personal communication, May 2024.
[32] RMA s75 (4) (b)
[33] S. Westcott, personal communication, April 2024.

question of compliance resource. The second and third are more a question of having appropriate One Plan direction to ensure that stormwater management is addressed appropriately in district plans. A future plan change should consider providing RPS direction for a preferred approach to managing stormwater quantity. This would prevent stormwater issues being locked into a district plan before they reach the regional council consenting process. Some other regional councils already incorporate this kind of direction in their regional policy statements; for example, Canterbury RPS Policy 5.3.5 and associated methods, and Otago pRPS LF-FW-M7.

Issues have also emerged when considering the potential hazards caused by an increase in the volume of stormwater entering a waterbody as the result of development, compromising the waterbody's flood-carrying capacity. A particular recent example was traversed in Plan Change 51 to the Manawatū District Plan to enable Precinct 4 in Feilding for residential development. In this case, Precinct 4 as proposed would have resulted in stormwater being discharged into a river which did not have any capacity to convey it in a flood, and the One Plan did not provide sufficient support to officers to avoid adverse impacts from stormwater discharge to Horizons' flood control scheme. Policy 9-2 guides TAs in their regulation and management of development in areas prone to flooding, and in particular directs that their chosen flood mitigation measures avoid adverse effects on existing flood protection infrastructure. However, 'flood mitigation measures' does not include the effects of stormwater discharge on the ability of a waterbody to convey flood flows. Therefore, Chapter 9 does not provides any substantive policy support in avoiding the impact of additional stormwater discharge on Horizons' river and drainage networks.

No issues were identified with applying Rules 16-10 to 16-13 with respect to natural hazards. Chapter 16 is discussed with greater depth in the freshwater s35 review.

Policy 5-24, Activities in rivers or lakes and their beds with a Value of Flood Control and Drainage, enables the degree of flood hazard and erosion protection existing at the time of plan notification (31 May 2007) to be maintained or enhanced. A future plan review should consider if only the protection existing at that date should be enabled to be maintained or enhanced, if the date should be updated, or if all protection managed by the Regional Council should be included.

Rule 17-14, activities undertaken by or on behalf of the Regional Council in rivers within a Schedule B value of flood control and drainage, states that the activity must be undertaken in accordance with the Environmental Code of Practice (ECOP) for River Works. The s35 freshwater review explored the effectiveness of this ECOP. The review found:

*"The consenting framework for Horizons' flood control and drainage activities is generally functioning well. The permitted activity status gives Horizons the operational flexibility do to the works required, with the particular advantage of not having to apply to another part of Horizons for a resource consent. Consequently, activities for flood control and drainage have largely been undertaken as a permitted activity in accordance with the Environmental Code of Practice for River Works (ECOP), with the odd consent required for those that do not meet the ECOP (usually due to a technicality). Since the Plan came into effect, a number of new flood control and drainage areas have been identified with flood protection provided for at risk communities in these areas. The ECOP and planning framework does not provide for situations where a new Flood Control and Drainage area is developed. This gap will need to be considered and addressed through a Plan review. In addition, the issue of land use activities within the riparian margin or associated with stopbank construction in a Flood Control and Drainage area will require addressing. This disconnect within the Plan often means an activity requires resource consent for land disturbance, despite the activities in the bed being permitted"*[34].

#### 5.1.1.3 Anticipated Environmental Results

The first Anticipated Environmental Result (AER) relating to natural hazards states:

[34] Shirley, L. (2023).

By 2017, the risk to people, property and *critical infrastructure** will be the same or less than before this Plan became operative.

One indicator of this AER is that District Plans are incorporating hazardous areas on planning maps and associated regulation of land use in those areas. District plans are incorporating the One Plan direction, and Horizons submits on district plan changes when required. Tararua District Council incorporates flood mapping in their district plan with associated regulation of land use in those areas but lacks other hazards. Manawatū District Council, Whanganui District Council, Palmerston North City Council, Ruapehu District Council, Rangitīkei District Council and Horowhenua District Council incorporate hazardous areas on planning maps with associated regulation of land use in those areas. One issue with this process is that under the RMA, an adaptive planning approach, where changes in mapping can be incorporated post adoption of district plans without a formal plan change process, is not possible. Any new information, improvements from stopbank upgrades or identified issues with mapping cannot be incorporated; the layers are "locked in" and cannot be easily updated[35]. Additionally, the mapping in district plans is not identical to Horizons' maps, particularly with respect to Schedule J[36]. A future plan review should consider whether mapping layers that sit outside the One Plan can be relied upon to identify natural hazard risk. This would require careful consideration as to the ability of people affected by mapping and associated rules to submit on changes to the mapping.

The Horizons river management team maintains the river and drainage systems in the flood control and drainage scheme areas of the region to optimise flood protection. Horizons can also provide river and drainage engineering advice to those within non-scheme areas, and environmental grants are available for river engineering works. These works take into account type of land use, level of flood protection needed, erosion control, waste disposal, native habitat protection, recreation and spiritual values.

Another indicator listed for this AER is "natural hazard information shared with Territorial Authorities and interested parties". As discussed in section 5.1.1.1, the District Advice tem frequently provides natural hazard information to Territorial Authorities and the general public. The Emergency Management and River Management teams have also played an important role in the preparation and dissemination of this information.

One indicator listed in the One Plan is "number of new dwelling houses in areas prone to flooding consistent with Policy 9-2". Horizons collects statistics on number of consent applications the District Advice team provides feedback on, but does not specifically collect the information listed in the indicator. It would be an arduous process to estimate this on mapping as there is not exact mapping consistent with Policy 9-2 available. Doing so would not give an accurate number of new dwellings anyhow, as it would be impossible to distinguish if a building was a dwelling from the imagery. Additionally, Horizons is not necessarily informed of the final outcomes on the building consents we provide responses to. The mapping available, and on the natural hazards viewer on the Horizons website, shows 'modelled wet extents', which is an indicative layer with generalised areas generated from model outputs for flood modelling undertaken thus far. Not all areas in the region have been or will be mapped with the 0.5% AER[37].

In the development of the proposed One Plan (May 2007), the flood hazard policy moved from "avoidance or mitigation" to solely "avoidance". This was unpalatable for submitters Palmerston North City Council and Landlink Ltd., who requested Horizons include mitigation as an option in order to provide for development[38]. In the Decisions on Submissions to the Proposed One Plan (August 2010)[39], Policy 9-2 was significantly revised to provide for development in areas prone to flooding where conditions are met, and to define the term "flood hazard avoidance" in such a way that it enabled development in limited circumstances. During the process, a minor amendment to

[35] S. Carswell, J. Foxall, and P. Tucker, personal communication, November 2023.
[36] A. Steffert, personal communication, July 2023.
[37] A. Steffert, personal communication, July 2023
[38] Horizon Regional Council. (2007).
[39] Horizons Regional Council. (2010).

this indicator of the AER occurred to change wording from "floodable areas" to "areas prone to flooding". However, the implication of the addition of mitigation into the policy for the indicator was not considered. While this indicator would be straightforward to assess in the context of an "avoid only" policy, it is difficult to determine how many new houses comply with the mitigation direction in the operative Policy 9-2. At the time the term "mitigation" was included, the need for a consequential amendment to the indicator was not identified which has caused this indicator to be insufficient. Another issue is that there are no rules in the One Plan if someone wishes to build within a floodable area or mapped area in the One Plan. A future plan review should consider whether rules should be added to better guide decision making in flood prone areas.

An issue that arose from including the term "mitigation" is that in relation to the PNCC plan change 23 for the College of Education site at Hokowhitu. The provisions of the district plan change were, from a planning perspective, consistent with the One Plan. However there were concerns from Horizons River Engineers about the risks of developing inside areas protected by flood control and drainage scheme should they fail[40]. Additionally, there have been issues with people who have purchased land as a part of this subdivision constructing structures such as fences into the stopbank[41]. A future plan review should consider whether Rule 17-15 sufficiently manages natural hazard risk in proximity to a stopbank or whether further RPS direction is required. This could be partly addressed through a method of education for property owners adjacent to or near stopbanks regarding the rules that apply to them and their responsibilities. There has also been an issue raised by the consenting team where activities in proximity to flood control and drainage schemes, though not close enough to be captured by the rule, have a risk of impacting the river should the river move[42], but Horizons has limited discretion to consider those impacts as the activity falls under other rules such as large scale land disturbance. A future plan review should also consider, for future proofing, taking climate change into account, whether the scope of Rule 17-15 should be expanded, or whether there is an alternative way to address this concern.

The other data source listed for this AER is territorial authorities (TAs). TAs do not specifically collect this information and are largely unable to provide it even with a LGOIMA request due to lack of resourcing and/or data. The exception to this is Rangitīkei District Council (RDC) who have advised that approximately 95 habitable buildings were consented for construction within Rangitīkei District Plan Natural Hazard Areas 1 and 2 (Flooding) between the start of 2014 and April 2023. It is important to note that the RDC flood mapping varies from the mapping in the One Plan. For context, there were a total of 453 dwellings that obtained building consent in the Rangitīkei District during this same time frame indicating 21% of dwellings were consented in areas prone to flooding. The Rangitīkei District Plan gives effect to Policy 9-2 and so the assumption is that any more than minor risk is avoided or mitigated in these consented new habitable buildings. This provides some evidence that the AER has been achieved. In addition, when conducting a high-level analysis, Palmerston North City Council, Horowhenua District Council, Whanganui District Council, Tararua District Council and Ruapehu District Council all have District Plans which appear to give effect to the intent of Policy 9-2, though PNCC references an old version of the One Plan. Manawatū District Council is currently in the process of updating their District Plan in order to give effect to the natural hazards provisions of the One Plan.

Horizons submits on district plan changes where they do not give effect to these policies. The indicator listed and its data sources are on the whole insufficient to determine the risk to people, property and critical infrastructure.

Another indicator of this anticipated environmental result is "number of incidents where activities are affecting schemes, especially stopbanks". Data sources for this indicator are the Regional Council's Operations Group maintenance records, the Regional Council's compliance database, and the Regional Council's incident database. Compliance data does not record any of the information

[40] P. Tucker, personal communication, August 2023.
[41] S. Westcott, personal communication, April 2024.
[42] J. Mitchell and S. Westcott, personal communication, May 2024.

for the Chapter 9 indicators, nor do the maintenance records. The most useful data source is the Horizons' incidents database. However, the incidents database has limitations and is unable to be specifically searched for this information. By running a search of the incidents data base with the search terms of "damage" and ("scheme" or "bank") and a list of schemes, 59 incidents were identified between the start of 2014, and the end of March 2023. By completing a visual search of all land and water incidents, 288 incidents were identified over the same period. However, with this method, the incidents were not restricted to those affecting schemes, but any recorded incidents relating to or exacerbating natural hazards such as flooding, erosion, drainage, culverts and gravel extraction. The incident reports often contained limited information. In many instances, the reported incident could not be verified. As such, this is not a sufficient data source to determine the risk to people, property and critical infrastructure.

While there is limited data available in order to assess if this AER has been achieved or not, it would seem that there is a lot of work that has been undertaken which reduces the risk to people, property and critical infrastructure. While this work is unable to be quantified, it provides evidence that progress has been made towards achieving this AER. Any review of this chapter should consider replacing the indicators and data sources that have been ineffective in measuring progress towards the AER.

The second AER is as follows:
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.

This AER also has the indicator that District Plans are incorporating hazardous areas on planning maps and associated regulation of land use in those areas. As discussed above, this is generally occurring but under the RMA, an adaptive planning approach, where changes in mapping can be incorporated without a further formal plan change process post adoption of District Plans, is not possible.

One indicator for this AER is number of requests for information. Horizons District Advice service responds to requests for information from both territorial authorities and the general public for properties in our region. While the One Plan aims to discourage housing, infrastructure, business and community facilities built in locations likely to be inundated during a 1 in 200 year flood event, the One Plan only contains flood hazard policies around this element, not rules, and so the role of the district advice team is limited to provision of data and information. The advice to the general public serves to inform on a variety of subjects including hazard risk and flood history, such as advice on flood inundation levels for new dwellings or extending existing dwellings, information for insurance purposes, land valuation and potential property purchases. Information to territorial authorities aims to assist with building and land use consents, and subdivision decisions. The district advice team also provide any relevant information held, in particular that relates to natural hazards and the One Plan. The number of requests for information is increasing over time, as shown in figure 1 below, however, the number of new dwellings consented is also increasing, so this indicator does not adequately measure progress toward the AER.

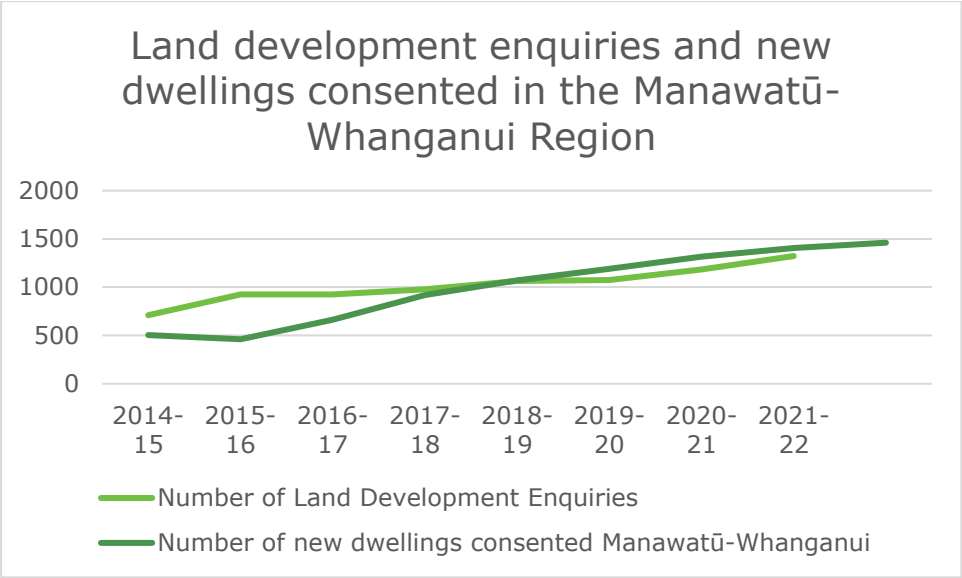


*Figure 1: The number of land development enquiries to Horizons Regional Council District Advice and the number of new dwellings consented in the Manawatū-Whanganui Region*[43]

An indicator for this AER is public perception with a data source of customer surveys. In a 2012-2013 regional survey, it was found that 65% of residents felt they could remain self-sufficient for 4 days[44]. The 2019 CDEM report found that while a similar 75% of residents felt they were able to look after themselves for up to 4 days, only 49% were actually prepared and had an emergency plan and only 38% were prepared with an emergency plan and a supply kit. This report, and a national survey undertaken in 2021[45], also indicated that preparedness was greater after recent emergencies, and that those who thought about emergencies were more prepared overall; indicating that awareness and preparedness are linked[46]. The results of these surveys suggest that public perception is that people are more aware and better prepared for the risks associated with natural hazards than before the Plan became operative, however, it is less clear whether the One Plan provisions have directly contributed to that increase.

While there are information constraints to assess if this AER has been achieved or not, the information available suggests that people are more aware of the risks of natural hazards in the region and how to cope with them than they were before the One Plan became operative.

#### 5.1.1.4 Giving effect to the NPS-UD and NAP

The likely current and future effects of climate change on flood hazard are considered through the setting of a 0.5% Annual Exceedance Probably (AEP)[47] standard for flood protection. At the time of notification, a 1% AEP was generally considered the minimum recommended standard for flood protection[48]. However, climate change is likely to make flood events larger and more frequent, effectively increasing the AEP. A 0.5% AEP flood in 2008 will become a 1% AEP flood in the 2050s. Therefore, the 0.5% AEP standard was chosen in to ensure that a 1% AEP level of protection would still be achieved in 2050. This will need to be reviewed when these provisions go through a s79 plan review to ensure their alignment with the most up-to-date climate projections, but the underlying policy logic gives effect to the NPS-UD.

Horizons, as with all councils, is required to have regard to the NAP when making or changing the RPS or RP. When making or changing plans or policy statements, the NAP requires use of the

[43] Stats NZ. (n.d.).
[44] Peter Glen Research. (2013).
[45] Civil Defence. (2021).
[46] SIL Research. (2019).
[47] AEP refers to the likelihood of a flood occurring in a given year. A 1% AEP means a flood of a particular size has a 1% change of occurring in any given year, sometimes referred to as a 1 in 100 year flood event. A 0.5% AEP can be referred to as a 1 in 200 year flood event.
[48] Peter Blackwood. (2009).

Shared Socioeconomic Pathway or RCP8.5 to 2130 as a minimum climate change scenario when screening for coastal risks and hazards. For detailed risk and hazard assessments in both coastal and non-coastal areas at high risk of being affected, the NAP requires use of both the middle of the road and fossil fuel intensive scenarios; SSP2-4.5 or RCP4.5, and SSP5-8.5 or RCP 8.5 to 2130. The NAP then goes on to specify that when using RCP, add relevant rate of vertical land movement. For all other climate hazards and risks, the NAP requires use of the most recent downscaled climate projections. Additionally, councils are advised to stress test plans, policies and strategies under a range of climate change scenarios.

The One Plan does not align with these new requirements regarding climate change modelling and any future review will need to address this.

#### 5.1.1.5 Summary of effectiveness

The Chapter 9 methods have all been partially implemented. The primary reason they have not been fully implemented is that mapping and hazard information is not necessarily kept up to date or completed to the degree required as required by the methods, despite the Hazard Mapping Project.

The Chapter 9 policies have varying effectiveness. Policy 9-1 is generally functioning well aside from (b)(ii), as discussed in section 5.2.1.1, and (b)(iii); taking the lead role in collecting, analysing and storing regional natural hazard information. Due to resourcing constraints and, at times a lack of lead-in time from Territorial Authorities to signal what upcoming information will be required[49], Territorial Authorities have been undertaking studies, indicating Horizons has not taken a lead role. The policy is consistently being applied correctly to relevant resource consent applications.

There are several key issues identified with the effectiveness of Policy 9-2:

- Climate change modelling must be reviewed to give effect to the NAP.
- The floodway mapping in Schedule J needs updating.
- Cumulative impacts of development in floodways are not effectively addressed.
- Stormwater discharges are occurring from development into waterways with no additional flood carrying capacity.
- Functional necessity is not defined in the One Plan.
- There is no material difference between flood hazard mitigation and the definition of flood hazard avoidance.
- The policy is not prescriptive enough and the intent of the policy has not necessarily been captured in district plans. Something to consider in a future plan change is if Policy 9-2 can be reworded to strengthen its original intent, for example, if mitigation is insufficient, the activity must not be allowed.

Policy 9-3 has been ineffective, particularly in directing resource consent decision making. This is primarily because the One Plan definition for critical infrastructure references the superseded Regional Land Transport Strategy, and so new strategic road and rail networks do not trigger the policy. Policy 9-3 also references the 0.5% AEP (1 in 200 year) flood event criteria which must be reviewed to give effect to the NAP, and Schedule J which requires updating.

No issues of effectiveness were found for Policy 9-4 nor 9-5. However, there are no resource consents that reference Policy 9-4, and those for 9-5 are for the Whanganui Port. A future plan review should consider if this is appropriate, or if a more robust policy framework is required to manage hazards other than flooding, climate change and sea level rise. Coastal developments are discussed in section 5.2.1.1.

The Flood Control and Drainage value from Schedule B has not been effective in influencing district planning. The stormwater provisions in Chapter 14, and the supporting policy framework including

[49] P. Tucker, personal communication, February 2024

in the RPS, require updating to consider the cumulative impact of development in areas prone to flooding. Experience through district plan changes has shown that the increase in the volume of stormwater entering a waterbody as the result of developing has compromised the waterbody's flood carrying capacity as 'flood mitigation measures 'mentioned in Policy 9-2 does not include stormwater discharge effects. A preferred approach to managing the natural hazard effects arising from stormwater quantity must be determined.

Measuring the effectiveness of the Chapter 9 AERs is difficult. In particular, the data sources for the anticipated environmental outcome are typically no longer in use. Where they are used, the information is not specifically tagged to natural hazards, or they rely on data from other organisations and assume they are collecting it which is not the case. The AERs tend to have indicators that Horizons does not specifically collect information on. There are also a number of instances where Horizons assumed external data sources are collecting information but this has not necessarily occurred. On the whole, the indicator sources are not providing the data that was expected they would and so this does not allow for effective or efficient assessment against the AER. In addition, the indicators are narrow in the information they capture and are not necessarily reflective of the AERs as a whole. While the indicators and data sources should be reviewed to improve the effectiveness of measuring progress towards the AERs, the limited information available would suggest that there has been positive progress made towards achieving the AERs.

### 5.1.2 Efficiency assessment

The following two questions have guided this efficiency assessment:

- Are there additional costs/risks/time and resource implications created as a result of the provisions?
- Is the workload implicit in the policy manageable?

Many of the indicators of the anticipated environmental results rely on data external to Horizons. It is assumed that this data is being collected but this has not been the case, or at least, it has not been collected in a way that is efficient to extract or analyse. As discussed in 5.1.1.3, to obtain the information for the indicator "number of new dwelling houses in areas prone to flooding consistent with Policy 9-2" would be time costly which, in addition to being ineffective for the purpose of evaluating the method, is also cost inefficient. The implicit benefits of activities such as maintaining flood protection assets is also extremely difficult to assess.

Natural hazards costs are difficult or impossible to calculate as the costs are often spread throughout the organization and for multiple purposes. For example, LocalMaps and ArcMap have a single site-wide license of $55k per year. However, this is applied to all the capabilities that the platform offers and is used throughout different areas of Council business. Additionally, District Advice provide natural hazards information, but through responses to Land Development Enquiries. There is no simple method to determine what proportion of land development enquiries include natural hazard information. This budget is $378k for the 2023-2024 financial year[50], but again cannot be attributed solely to natural hazards management.

Collecting natural hazards data also has broader benefits to the organisation and the region. A scheme review was undertaken through the catchment operations budget in 2021 with a cost of $48,321.50+GST for Ōhau Manakau modelling and $82,000+GST for Ashhurst stream modelling[51]. Additionally, a Hazard Mapping Project has been undertaken since 2015. This project has primarily focused on flood mapping, but has also include seismic studies, and a lahar risk assessment for Ohakune. The below figure shows the budget for this project from the 2015-16 to 2022-23 financial years. The average budget over this time period was $210,069.38.

[50] S. Carswell, personal communication, May 2024.
[51] J. Jung, personal communication, May 2024.

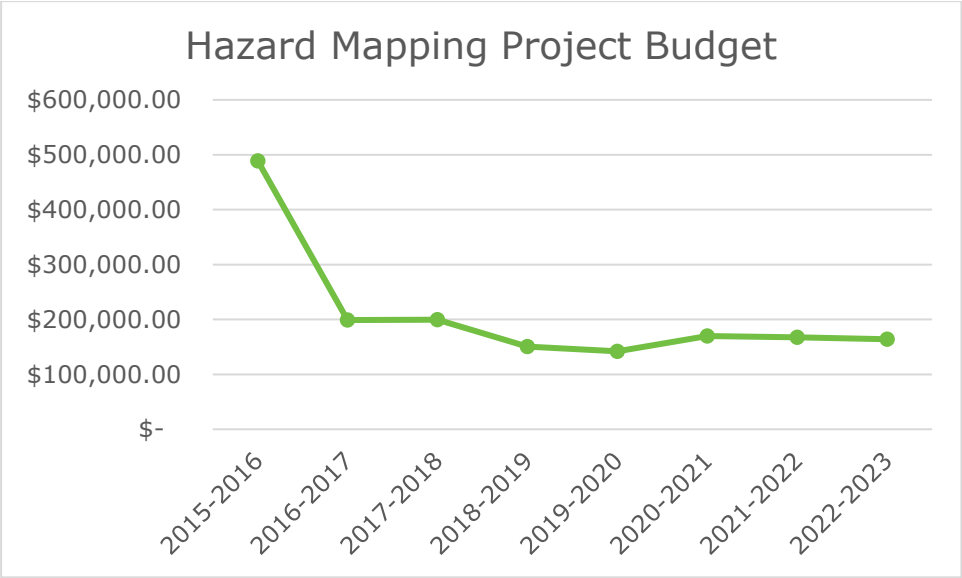


*Figure 2: The budget for the Hazard Mapping Project over time*[5253]

As discussed in section 5.1.1.2, there has been an effectiveness issue identified with the way natural hazard information is collected and shared within the region. This is also an efficiency issue with the districts duplicating effort in obtaining hazards studies, such as liquefaction studies, as the studies Horizons has commissioned are not at the scale required to be useful for district councils to make decisions under the RMA and the Building Act. The issues found with information sharing between councils are also inefficient with time and resourcing spent to obtain data that should be readily shared.

The Horizons 2022-23 Annual Plan saw an increase of $250,000 in insurance costs primarily associated with flooding protection assets, at a total of $480,000. This cost, as well as other costs associated with hazard management, are likely to continue to increase with climate change and therefore the cost benefit dynamic of maintaining flood protection assets will likely change and therefore impact the efficiency of Horizons' flood control activities and provisions.

The consenting framework for Horizons' flood control and drainage activities is generally functioning well[54]. The permitted activity status gives Horizons the operational flexibility do to the works required, with the particular advantage of not having to apply to another part of Horizons for a resource consent. Where flood control and drainage works are required outside the mapped Flood Control and Drainage value, then the works fall into the broader consenting framework of Chapter 17, generally as a discretionary activity under Rule 17-23. This can create significant regulatory cost, depending on the scale of the activity. An example of this is activities outside the bed of waterbodies, which was an unintended consequence of amendments during appeals[55]. This issue is discussed in more detail in the Freshwater S35 report.

The benefits from natural hazard mitigation/protection are difficult to quantify. Benefits include protection of land and property which reduces potential damage and increases land values, improved productivity of land which adds value to the regional economy, and the protection of regionally and nationally important infrastructure[56].

[52] Hazard Mapping Project 2015-2025 LTP.
[53] B. Watson, personal communication, June 2024.
[54] Note: the effectiveness of the regional plan in protecting the health and well-being of freshwater from flood control and drainage activities is outside the scope of this review, and is considered in the freshwater review.
[55] P. Tucker and M. Reiche, personal communication, August 23 2023
[56] Horizons Regional Council. (2021).

## 5.2 Coastal Hazards

The s35 evaluation of the One Plan's coastal provisions provides a more detailed assessment of Chapters 8 and 18 as a whole, rather than from a hazards perspective. The report found that the Plan is partially effective with areas where policies and methods do not deliver AERs or were not implemented as intended. The efficiency assessment was limited due to constrained data availability and integrity. It found the One Plan will require review to give effect to the NZCPS.

This section outlines the One Plan provisions as they relate to coastal hazards.

| One Plan Chapter to be reviewed: | Specific provisions subject to review |
|---|---|
| - Chapter 8: Coast | - Policies 8-1, 8-4 |
| - Chapter 18: Activities in the Coastal Marine Area | - Policies 18-5, 18-9, 18-11<br>- Rules 18-10, 18-17, 18-18, 18-19, 18-20, 18-21, 18-22, 18-27 |

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| **Policy 8-1: Integrated management of the coastal environment** | Integrated management of the coastal environment must be sought, including through:<br>a. provisions in this chapter and the provisions of the Regional Coastal Plan (Chapter 18 and Schedule I as well as Chapters 11, 12 and 19 and the relevant definitions in the Glossary),<br>b. provisions in other chapters of this Plan address *water*^ quality, erodible *land*^ (including the *coastal foredune**, *natural hazards*^, indigenous *biological diversity*^, landscapes and natural character, air *discharges*^, and *infrastructure*^, energy and *waste** (including *hazardous substances**,<br>c. provisions in *district plans*^ that identify the landward extent of the coastal environment, sustainably manage *land*^ use activities and, where appropriate, avoid subdivisions or development in any existing or potential hazard risk area, protect coastal dunes and avoid sprawling subdivision along the coastal edge, and<br>d. joint initiatives where resource management issues arise and are not addressed within the existing management frameworks of the respective *regional plans*^ and *district plans*^. |
| **Policy 8-4: Appropriate use and development** | Any use or development in the CMA must:<br>a. have a functional necessity to be located in the CMA,<br>b. facilitate restoration or rehabilitation of natural features where reasonably practicable, and<br>c. avoid, as far as reasonably practicable, any adverse *effects*^ on the following important values:<br>i. any characteristic listed in Table I.1 in Schedule I: Part B for each Protection Activity Management Area<br>ii. elements and processes that contribute to the natural character and open space characteristics of the CMA<br>iii. the landscape and seascape elements that contribute to the natural character of the CMA<br>iv. areas of significant indigenous vegetation and significant habitats of indigenous fauna, and the maintenance of indigenous *biological diversity*^<br>v. the intrinsic values of ecosystems<br>vi. the natural integrity and functioning of physical processes (including recognition of *sea level rise**<br>vii. *historic heritage*^.<br><br>When avoidance is not reasonably practicable, the adverse *effects*^ must be remedied or mitigated |
| **Policy 18-5: Consent decision-making for new *structures*^** | When making decisions on *resource consent*^ applications and setting consent *conditions*^ for *structures*^ in the CMA, the Regional Council must have regard to: |

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| | a. the Regional Policy Statement, particularly all the objectives and policies of Chapters 2 and 8, Objective 3-1 and Policies 3-1, 3-2, 3-3, 3-6 and 3-7, Objectives 6-2 and 6-3, and Policies 6-6 and 6-11, Objective 9-1 and Policies 9-3 to 9-5 and any relevant policies in the NZCPS;<br>b. the functional necessity for locating the *structure*^ in the CMA;<br>c. the provisions for public access and safety, including navigation safety;<br>d. the avoidance, where practicable, of any adverse *effects*^ on natural character and landscape, *tikanga Māori, historic heritage*^, indigenous flora and fauna, and the stability of *river*^ banks and the *foreshore*^. Where avoidance is not reasonably practicable, the adverse *effects*^ must be remedied or mitigated;<br>e. whether the *structure*^ is of a suitable scale for the surrounding area, and uses the *space*^ in the CMA efficiently;<br>f. whether the *structure*^ is to be built and maintained in a manner to withstand coastal processes and *natural hazards*^, including any potential *effects*^ of *climate change*^ and *sea level rise**;<br>g. any consequential adverse *effects*^ on other parts of the coast including whether the *structure*^ may affect sediment transport or exacerbate erosion or the risk of inundation; and<br>h. whether the *structure*^ contributes to any cumulative adverse *effects*^ in the vicinity of the proposed *structure*^. |
| **Policy 18-8: Consent decision-making for reclamation and drainage** | When making decisions on *resource consent*^ applications and setting consent *conditions*^ for activities involving reclamation or drainage of the *foreshore*^ or seabed, the Regional Council must have regard to:<br>a. the Regional Policy Statement, particularly all the objectives and policies of Chapters 2 and 8, Objective 3-1 and Policies 3-1, 3-2, 3-3, 3-6 and 3-7, Objectives 6-2 and 6-3, and Policies 6-6 and 6-11, Objective 9-1 and Policies 9-3 to 9-5 and any relevant policies in the NZCPS;<br>b. the functional necessity for locating the activity in the CMA;<br>c. the efficient use of any area to be reclaimed or drained by minimising the area used to the extent reasonable;<br>d. avoiding any restrictions on public access, other than for commercial, safety, cultural or conservative purposes, or to ensure a level of security appropriate for activities authorised by a *resource consent*^;<br>e. ensuring that material used in any reclamation is uncontaminated by<br>i. substances which when subjected to biological, chemical or physical breakdown would degrade *water*^ quality; or<br>ii. pest plant material which could propagate or proliferate within or beyond the *site**.<br>f. ensuring that any reclamation or drainage is not sited where there are existing significant areas of indigenous flora or fauna feeding, breeding, spawning, nesting or roosting areas; |

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| | g. avoiding any adverse *effects*^ on *tikanga Māori*^ or *historic heritage*^, and avoiding, remedying or mitigating any adverse *effects*^ on natural character and any characteristic identified within any Protection Activity Management Area set out in Table I.1;<br>h. requiring proof that a reclamation has been designed and approved by a registered engineer with experience in coastal processes and construction, and has taken into account the *effects*^ of future *sea level rise** and potential storm surges;<br>i. ensuring that any drainage of the *foreshore*^ will not result in instability of the beach, estuarine substrate or *river*^ bank areas, or adversely impact on *water*^ quality at the *discharge*^ *sites**; and<br>j. available alternatives to the applicant's proposal and the applicant's reason for making the proposed choice. |
| **Policy 18-9: Consent decision-making for activities involving disturbance, removal or deposition** | When making decisions on *resource consent*^ applications and setting consent *conditions*^ for activities involving the disturbance of the *foreshore*^ or seabed, the deposition of substances in, or under the *foreshore*^ or seabed, or the removal of any sand, shell, shingle or other natural materials from the CMA, the Regional Council must have regard to:<br>a. the Regional Policy Statement, particularly all the objectives and policies of Chapters 2 and 8, Objective 3-1 and Policies 3-1, 3-2, 3-3, 3-6 and 3-7, Objectives 6-2 and 6-3, and Policies 6-6 and 6-11, Objective 9-1 and Policies 9-3 to 9-5 and any relevant policies in the NZCPS;<br>b. the applicable *Water Management Zone** or *Sub-zone** and the relevant *water*^ quality Values and targets in Schedule I;<br>c. avoiding any restrictions on public access, other than for commercial, safety, cultural or conservation purposes, or to ensure a level of security appropriate for activities authorised by a *resource consent*^, and any adverse *effects*^ on natural character and any known and publicly used shellfish beds;<br>d. any *effects*^ on any feeding, breeding, spawning, nesting or roosting areas<br>e. avoiding as far as reasonably practicable, any resultant adverse *effects*^ on coastal erosion, the risk of inundation, the stability of banks or *foreshore*^, or flood control *structures*^;<br>f. avoiding any adverse *effects*^ on *tikanga Māori*^ or on *historic heritage*^, and avoiding, remedying or mitigating any adverse *effects*^ on any characteristic identified within any Protection Activity Management Area set out in Table I:1;<br>g. mitigating any adverse *effects*^ on recreational and *amenity values*^;<br>h. ensuring, where non-marine material is being deposited within the CMA, that it is does not contain any *hazardous substances** or commercial or household *wastes**; and<br>i. where the removal of sand, shingle, shell or other natural materials is for commercial purposes, the available alternatives to the applicant's proposal and the applicant's reason for making the proposed choice. |
| **Policy 18-11: Consent decision-making for** | When making decisions on *resource consent*^ applications and setting consent *conditions*^ for any activity in the CMA involving the damming or diversion of *water*, the Regional Council must have regard to: |

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| **damming and diversions in the CMA** | a. the Regional Policy Statement, particularly all the objectives and policies of Chapters 2 and 8, Objective 3-1 and Policies 3-1, 3-2, 3-3, 3-6, and 3-7, Objective 6-2 and Policy 6-6, Objective 9-1 and Policies 9-3 to 9-5 and any relevant policies in the NZCPS;<br>b. the applicable *Water Management Zone** or *Sub-zone** and the relevant *water^* quality Values and targets in schedule I;<br>c. the functional necessity for locating the activity in the CMA;<br>d. avoiding any adverse *effects^* on fish spawning and bird feeding, breeding, nesting, or roosting areas;<br>e. ensuring that any adverse *effects^* on *water^* clarity are not visibly noticeable within 24 hours of the activity being completed;<br>f. ensuring that any adverse *effects^* on *river^* bank stability or coastal sediment processes do not contribute to erosion elsewhere or exacerbate the risk from *natural hazards^*; and<br>g. ensuring that public access is not unreasonably restricted |

The following rules relate to coastal hazards. They link to the provisions set out in Chapter 8 so that the RP achieves the targets and goals set by the RPS.

| Rule | Activity | Classification | Conditions/Standards/Terms | Control/Discretion<br>Non-Notification |
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|---|---|---|---|---|
| **Rule 18-10**<br><br>**Wharf extension in the Port Activity Management Area** | The erection, reconstruction, placement, alteration or extension of any wharf *structure*^ pursuant to s12(1) RMA located within the Port Activity Management Area as shown in Schedule I, and any ancillary:<br>a. *occupation*^ of the *foreshore*^ or seabed pursuant to s12(2) RMA.<br>b. disturbance of the *foreshore*^ or seabed pursuant to s12(1) RMA.<br>c. deposition of natural mineral substances on the *foreshore*^ or seabed pursuant to s12(1) RMA.<br>d. *discharge*^ of *water*^ or *contaminants*^ into the CMA pursuant to s15(1) RMA.<br>e. damming or diversion of *water*^ in the CMA pursuant to s14(1) or 14(2) RMA. | Permitted | a. The activity must comply with the *conditions*^ listed in Table 18.1 for the relevant Value other than conditions 18.1(h) and (k).<br>b. Any extension in length to the wharf must not be greater than 10% of the existing length of 570m.<br>c. There must be no extension in width to the existing wharf.<br>d. The width of any extension referred to in (b) must be the same or a lesser width as the existing wharf.<br>e. The design and materials used must be similar in nature and scale of *effects*^ to those used for the existing wharf *structure*^.<br>f. The *structure*^ must be designed to withstand the *effects*^ of *climate change*^ and *sea level rise**.<br>g. The Regional Council must be notified at least 10 *working days*^ prior to commencement of any work. | |
| **Rule 18-17**<br><br>**Drainage** | Any drainage of the *foreshore*^ or seabed pursuant to s12(1) RMA. | Discretionary | | |

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| **Rule 18-18**<br>**Small reclamations except in Protection Activity Management Areas** | The reclamation of any area of the *foreshore*^ or seabed pursuant to s12(1) RMA, except as otherwise covered by Rule 18-19 and excluding those areas identified as Protection Activity Management Areas as set out in Schedule I. | Discretionary | a. Either:<br>i. The reclamation must be less than 1 ha; or<br>ii. The reclamation must extend less than 100m in all directions.<br>b. In the case of an incremental reclamation connected to or part of another reclamation which was commenced or which received a *resource consent*^ after 5 May 1994, the sum of the existing and proposed reclamations must not exceed the size dimensions specified in condition (a). | |
| **Rule 18-19**<br>**Small reclamation within the Port Activity Management Area** | The reclamation of any area of the *foreshore*^ or seabed pursuant to s12(1) RMA, in the Port Activity Management Area as shown on Figure I.10, and any ancillary:<br>a. *occupation*^ of *space*^ in the CMA pursuant to s12(2) RMA.<br>b. *structure*^ pursuant to s12(1).<br>c. disturbance of the *foreshore*^ or seabed pursuant of s12(1) RMA.<br>d. *discharge*^ of *water*^ or *contaminants*^ into the CMA pursuant to s15(1) RMA. | Restricted Discretionary | a. Either:<br>i. The reclamation must be less than 1 ha; or<br>ii. The reclamation must extend less than 100m in all directions.<br>b. In the case of an incremental reclamation connected to or part of another reclamation which was commenced or which received a *resource consent*^ after 5 May 1994, the sum of the existing and proposed reclamations must not exceed the size dimensions specified in condition (a). | Discretion is restricted to:<br>a. the functional necessity for the reclamation.<br>b. the material used as fill for the reclamation.<br>c. the visual amenity of the activity.<br>d. any hydrodynamic impacts on the neighbouring shoreline, including existing significant areas of indigenous flora or fauna breeding or nesting areas.<br>e. *effects*^ on *historic heritage*^.<br>f. review of consent *conditions*^. |

| | | | | |
|---|---|---|---|---|
| **Rule 18-20**<br><br>**Large reclamations except in Protection Activity Management Areas** | The reclamation of any area of the *foreshore*^ or seabed pursuant to s12(1) RMA, excluding those areas identified as Protection Activity Management Areas in Schedule I, which does not comply with Rule 18-18. | Discretionary | | |
| **Rule 18-21**<br><br>**Small reclamations in Protection Activity Management Areas** | The reclamation of any area of the *foreshore*^ or seabed pursuant to s12(1) RMA within any Protection Activity Management Area shown in Schedule I. | Non-complying | a. Either:<br>i. The reclamation must be less than 1 ha; or<br>ii. The reclamation must extend less than 100m in all directions.<br>i. In the case of an incremental reclamation connected to or part of another reclamation which was commenced or which received a *resource consent*^ after 5 May 1994, the sum of the existing and proposed reclamations must not exceed the size dimensions specified in condition (a). | |

| | | | | |
|---|---|---|---|---|
| **Rule 18-22**<br><br>**Large reclamations in Protection Activity Management Areas** | The reclamation of any area of the *foreshore*^ or seabed pursuant to s12(1) RMA, within any Protection activity Management Area shown in Schedule I, which does not comply with Rule 18-21. | Non-complying | | |
| **Rule 18-27**<br><br>**Beach nourishment** | Any disturbance, removal or deposition of natural marine substances on the *foreshore*^ or seabed pursuant to s12(1) or s12(2) RMA for the purposes of beach nourishment, and any ancillary:<br>a. *occupation*^ of *space*^ in the CMA pursuant to s12(2) RMA.<br>b. *discharge*^ of *water*^ or *contaminants*^ into the CMA pursuant to s15(1) RMA. | Controlled | a. Any materials to be deposited must not contain any *contaminants*^ that are not already present in natural materials at the *site**.<br>b. Any material to be removed must not result in *accelerate erosion** of the *foreshore*^.<br>c. The activity must comply with conditions (b), (e)-(g) and (i)-(k) listed in Table 18.1 for the relevant Value. | Control is reserved over:<br>a. the particle size and composition.<br>b. the timing of the activity.<br>c. duration, fees and charges, review and monitoring. |

The table below outlines the linkages between the objectives, policies and methods, and the anticipated environmental outcomes and performance indicators.

| ONE PLAN: coastal hazard linkages | | | | | |
|---|---|---|---|---|---|
| Objectives (RPS) | Supporting Policy Framework | Methods | Data sources | Indicators | Anticipated environmental results |
| (Objective 9-1)<br>No chapter 8 objectives have been identified for coastal hazards | (Policies 9-1 to 9-5) | | • Regional Council's state of environment land monitoring programme<br>• Regional Council and Territorial Authority incidents databases<br>• Land use mapping<br>• Sustainable Land Use Initiative Implementation reports (two-yearly) | • Coastal erosion/accretion<br>• Confirmed incidents of property or infrastructure damage | By 2017, there will be a net reduction in the damage to property or infrastructure as a result of coastal erosion, the effects of sandstorms or *sea level rise** in the coastal environment. |
| | Policy 8-1 | | | | |
| | Policy 8-4 | | | | |
| | Policy 18-5 | Rule 18-10 | | | |
| | Policy 18-8 | Rules 18-17 to 18-22 | | | |
| | Policy 18-9 | Rule 18-27 | | | |

## 5.2.1 Effectiveness Assessment

This section of this report takes a different structural approach to the natural hazards section in that it first examines the policy framework of coastal hazards, followed by methods, AERs, and giving effect to the NZCPS.

#### 5.2.1.1 Policy framework of coastal hazards

As discussed in section 5.1.1, Policy 9-1(b)(ii) states that the Regional Council must be responsible for developing specific objectives, policies and methods for the control of: all land use activities in the coastal marine area (CMA). In the case of activities in the CMA, there have been no objectives developed for the purpose of avoiding or mitigating natural hazards. There have been methods developed in the form of Regional Coastal Plan (Chapter 18) rules, which specifically apply to the CMA. Policies for the control of land use activities in the coastal marine area for the purpose of avoiding or mitigating natural hazards are included in the Regional Coastal Plan, Chapter 18.

There are no objectives for the purpose of avoiding or mitigating natural hazards in the CMA. There are also no objectives in Chapter 8 which relate to natural hazard management. There is, however, an AER relating to natural hazards in Chapter 8.

The Anticipated Environmental Result (AER) from Chapter 8 relating to natural hazards states:

*By 2017, there will be a net reduction in the damage to property or infrastructure as a result of coastal erosion, the effects of sandstorms or sea level rise* in the coastal environment.*

There are no methods in Chapter 8 which seek to address natural hazards, and therefore none to progress the above AER. The Chapter 8 policies which relate to the AER are Policies 8-1 and 8-4.

Policy 8-1 is relevant to natural hazards as it requires integrated management of the coastal environment to be sought, including through the natural hazards chapter of the One Plan. Additionally, subdivisions and development are to be avoided in any existing or potential hazard risk area. The policy refers the user to provisions in other One Plan chapters, such as natural hazards. This policy does not progress the AER.

Policy 8-4 is relevant to natural hazards as it references climate change. Any use or development in the CMA must avoid, as far as reasonably practice, any adverse effects on the natural integrity and functioning of physical processes (including recognition of sea level rise). Avoiding adverse effects seeks to limit these effects. This policy works in the opposite direction of the AER, which seeks to reduce effects.

In the absence of Chapter 8 policies to progress the above AER, a future plan review should consider whether the AER would best fit into the policy framework of Chapter 9. Policy 9-4 addresses natural hazards other than flooding, and Policy 9-5 seeks to address climate change. Methods 9-1 and 9-4 consider coastal erosion and sea level rise, and Method 9-3 considers all hazards within the context of land development. The District Advice team already provides information relating to coastal hazards. This information is typically one aspect of a parcel of information on natural hazards and as such, it would be inefficient, and impossible due to resourcing constraints, to determine the volume of coastal hazard information that is provided[57]. Implementation of Policies 9-4 and 9-5, and Methods 9-1, 9-3, and 9-4 may assist in progressing the above Chapter 8 AER. A future plan review should also consider development of an objective for the purpose of avoiding or mitigating natural hazards in the CMA, as responsibility for this is allocated to the Regional Council in Policy 9-1(b)(ii). The most appropriate place for this objective may be in Chapter 18, the Regional Coastal Plan, which specifically addresses activities in the CMA.

[57] S. Carswell, personal communication, February 2024.

Additionally, it appears that Chapter 18 does not integrate well with Chapter 9. There are examples of consenting decisions involving Chapter 18 policies and rules in which the consenting decision discusses adverse effects on flooding and erosion[58], effects on flood flows[59], and flood effects[60], but do not reference Chapter 9 policies. This may be because the hazards policies of Chapter 18 direct the decision maker to have regard to only Objective 9-1 and Policies 9-3 to 9-5, and flooding is primarily captured in Policy 9-2. However, the RP and RCP must give effect to the entire RPS. A future plan review should consider how these chapters could be better integrated to ensure all relevant matters are considered in resource consenting and to ensure that the RP gives effect to the entire RPS.

Issues of policy framework and integration with Chapter 9 aside, there have been policies developed for the control of land use activities in the CMA for the purpose of avoiding or mitigating natural hazards.

Policy 18-5 guides consent decision-making for new structures. Decision makers must have regard to Objective 9-1, Policies 9-3 to 9-5, and whether the structure is to be built and maintained in a manner to withstand coastal processes and natural hazards, including any potential effects of climate change and sea level rise. They must also have regard to adverse effects on other parts of the coast including whether the structure may exacerbate erosion.

Policy 18-8 guides consent decision-making for reclamation and drainage. Decision makers must have regard to Objective 9-1, Policies 9-3 to 9-5, and requiring proof that a reclamation has been designed and approved by a registered engineer with experience in coastal processes and construction, and has taken into account the effects of future sea level rise and potential storm surges.

Policy 18-9 guides consent decision-making for activities involving disturbance removal or deposition. Decision makers must have regard to Objective 9-1, Policies 9-3 to 9-5, and avoiding as far as reasonably practicable, any resultant adverse effects on coastal erosion, the risk of inundation, the stability of banks or foreshore, or flood control structures.

Policy 18-11 guides consent decision-making for damming and diversions in the CMA. Decision makers must have regard to Objective 9-1, Policies 9-3 to 9-5, and ensuring that any adverse effects on river bank stability or coastal sediment processes do not contribute to erosion elsewhere or exacerbate the risk from natural hazards.

Policies 8-4, 18-5, 18-8, 18-11 and rule 18-19 refer to functional necessity which, as discussed in section 5.1.1.2 is not defined; this creates potential for discrepancies in how they are applied.

Data obtained from Horizons' consents database, IRIS, indicates that there are 16 individual consents that refer to Policy 8-1, 25 that refer to Policy 8-4, 14 that refer to Policy 18-5, seven that refer to Policy 18-8, 17 that refer to Policy 18-9, and five that refer to Policy 18-11.

Consents related to Policy 8-1 are appropriately and consistently referenced. Consents tagged to Policy 8-4 vary from land disturbance activities to boat ramps and dewatering activities. Policy 8-4 is about appropriate use and development in the CMA and avoiding adverse effects on listed important values. This policy appears to be applied appropriately.

Policy 18-5 is about consent decision-making for new structures in the CMA. The consents with this policy attached are attached appropriately as they are for construction of new structures such as bollards, boat ramps and rock walls. Consents related to Policy 18-9 are largely land disturbance and removal activities, as is appropriate for the policy. Policy 18-8 guides consent decision-making for reclamation and drainage. The resource consents that refer to Policy 18-8 are activities relating to the Whanganui Port Wharf which is appropriate as the activity includes reclamation. Decision makers must require proof that a reclamation has been designed and approved by a registered

[58] Resource Consent Decision APP-2015200538.00.
[59] Resource Consent Decision APP-2015200283.00.
[60] Resource Consent Decision APP-2018202093.00.

engineer with experience in coastal processes and construction, and has taken into account the effects of future sea level rise and potential storm surges. The consenting decision document shows an engineering firm has considered the proposal, and the potential wave effects on the structures. It also shows that the design will factor in sea level rise[61]. Policy 18-11 is about consent decision-making for damming and diversions in the CMA. The consents with this policy tagged to them are about recontouring or realignment of streams. From this information it can be inferred that the coastal hazard policies are generally being applied appropriately and referenced consistently in consenting decisions.

#### 5.2.1.2 Methods

The methods in Chapter 9 are also relevant to the coast, have been partially implemented, and are discussed in section 5.1.1.1. There are no Chapter 8 methods which relate to coastal hazards, and therefore no other non-regulatory methods. However, there are regulatory methods in the form of Chapter 18 rules. These are used in consenting decisions so in examining rules as methods, the methods have been implemented. No issues have been identified with applying rules 18-10, 18-17, 18-18, 18-19, 18-20, 18-21, 18-22 or 18-27 in consent decision making when considering natural hazards.

#### 5.2.1.3 Anticipated Environmental Result

The Anticipated Environmental Result (AER) from Chapter 8 relating to natural hazards states:

By 2017, there will be a net reduction in the damage to property or infrastructure as a result of coastal erosion, the effects of sandstorms or *sea level rise** in the coastal environment.

The indicators for this AER are coastal erosion/accretion and confirmed incidents of property or infrastructure damage.

Regional Council's state of environment (SOE) land monitoring is a data source for this AER. While the 2013 SOE report mentions coastal erosion as a key hazard the region faces, it does not give information on the state of coastal erosion in the region. The 2019 SOE report is the same. This data source is not an effective indicator for the AER.

Incidents databases are another data source that has proved ineffective. The Horizons incidents database returned only five incidents since 2014 and only one of these was within 5km of a CMA. This could be because there are very few incidents on the coast but there is no way to verify that. This data source is not an effective indictor for the AER.

Another data source for this AER is land use mapping. The Horizons Regional Council test Property Viewer shows mapping of Land-use Capability undertaken by Manaaki Whenua. Much of the coast is class 7 which is classed as high-risk land requiring active management[62]. It is unclear how this has affected coastal erosion in the region over time. This data source is ineffective in assessing the AER.

The Horizons Regional Council Natural Hazard Viewer shows mapping of shorelines over time in specific areas. Generally, the west coast appears to have coastal accretion. The shoreline is not shown on the east coast.

SLUI (Sustainable Land Use Initiative) implementation two-yearly reports is another indicator for this AER. SLUI does not address the issue of coastal erosion, it addresses inland erosion. Rock walls or a huge influx of sand from inland erosion are the only things that slow coastal erosion, and are things SLUI does not do. SLUI makes a significant reduction in sediment travelling down the region's rivers which would reduce the quality of sand entering the coastal system to replenish eroding dunes. Horizons does not specifically collect data on coastal erosion[63], however, Horizons is aware of Ākitio having a history of coastal erosion with some locals undertaking foreshore

[61] Resource Consent Decision APP-2022203676.00.
[62] Manaaki Whenua. (n.d.).
[63] M. Todd, personal communication, December 2023.

protection over the years. Storm events have caused water to wash over the road and to the foot of some houses[64], with some damage occurring. We are also aware of damage at Foxton Beach to the boat ramp and boat club, and land erosion occurring in Waikawa[65]. This data source is ineffective in assessing the AER.

#### 5.2.1.4 Giving effect to the NZCPS

Objective 5 of the NZCPS is about ensuring coastal hazard risks are managed when taking climate change into account. One Plan Policy 18-5 gives direction on consent making for new structures. Regard must be had as to whether the structure will withstand natural hazards, including potential effects of climate change and sea level rise.

Policy 3 of the NZCPS directs a precautionary approach be taken with respect to activities in the coastal environment where there is little or uncertain information, but potentially significant effects. One Plan Policy 9-5 gives partial effect through 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 certain decisions.

Policy 26 of the NZCPS is about natural defences against coastal hazards. There are no One Plan provisions relating to enhancement of natural defences to protect the coastal environment. A future plan review will need to give effect to the NZCPS.

Policy 9-1 (c) allocates the responsibility for land use control to avoid or mitigate natural hazards to territorial authorities. Therefore, TAs are primarily responsible for implementing Policies 25 and 27 of the NZCPS in the coastal environment. The exception to this is in the CMA under (b) (ii) (A), which is allocated to Horizons. A future plan review should consider how to better articulate the split between TAs and Horizons in responsibilities within the CE and CMA. Policy 27 is about strategies for protecting significant existing development from coastal hazard risk. Horizons gives effect to Policies 25 and 27 here through Policy 18-5. However, the One Plan does not explicitly discourage hard protection structures in the CMA and promote the use of alternatives to them (Policy 25 (e)), although Policy 8-4 may provide some implicit direction on this.

Despite Policy 9-1 (c), Policy 9-1 (b) (i) allocates responsibility for region-wide natural hazard objectives and policies to Horizons. Therefore, Policies 9-3, -4 and -5 must be considered against Polices 25 and 27. Policy 25 requires that land use change that would increase the risk of adverse effects from coastal hazards (considered over a 100 year time period) be avoided, and any increase in harm from coastal hazards be avoided. In contrast, Policy 9-4 (a) allows mitigation of the effects of natural hazards where avoidance is not practicable. Policy 8-1 (b) requires that district plans avoid, where appropriate, subdivision or development in any existing or potential hazard risk areas. While this may broadly give effect to Policy 25, a future plan review should consider strengthening these provisions to better align with the NZCPS's clear requirement of avoidance.

Chapter 9 is silent on managing the coastal hazard risk to existing developments. A future plan review should reconsider this to give effect to Policy 25 (c) and Policy 27. The proposed Climate Adaptation Act may provide a more robust legislative framework to manage this and will need to be considered as part of any future plan review.

Policy 9-1 (b) (iii) allocates the responsibility for leading collecting, analysing and storing regional natural hazard information to Horizons. Therefore, Horizons is primarily responsible for implementing NZCPS Policy 24. Horizons gives effect to this through Method 9-1. However, a future RPS review should consider whether Policy 9-4 is specific enough to give effect to Policy 24, though there is no provision to identify hazards, or whether specific coast hazards policy is required

[64] G. Cooper, personal communication, November 2023.
[65] S. Carswell, personal communication, November 2023.

to guide how coastal hazards should be identified and avoided in district plans, in a manner similar to Policy 9-2.

#### 5.2.1.5 Summary of effectiveness

A significant issue has been identified with the effectiveness with the integration of Chapters 8, 9 and 18, and how Chapter 18 gives effect to the whole of Chapter 9. There are no objectives in Chapter 8 for the purpose of avoiding or mitigating natural hazards in the CMA, even though responsibility to develop this is allocated to the Regional Council under Policy 9-1(b)(ii), which has effectively orphaned the natural hazard policies and AER of the chapter. There are also no methods in the chapter which progress the AER, and the policies either point to policies in other chapters or work in the opposite direction to the AER. A future plan review should consider whether the AER would best fit into the policy framework of Chapter 9, and the development of an objective for the purpose of avoiding or mitigating natural hazards in the CMA. Resource consents in the CMA that discuss flooding do not reference Chapter 9 policies which indicates the RP is not giving effect to the RPS as a whole.

Lack of information has been a significant constraint in assessing the effectiveness of coastal hazard provisions. With the information available, it appears that the policies are generally being applied appropriately and referenced consistently in consenting decisions. An issue identified above in section 5.1.1.2 under Policy 9-2 is that functional necessity is not defined in the One Plan which creates potential for discrepancies in how they are applied.

There are no additional non-regulatory methods aside from in Chapter 9. In examining regulatory rules as methods, the methods have been implemented through the use of rules in consenting decisions.

The coastal provisions require changes to give effect to the NZCPS. Objective 5 is given effect to through One Plan Policy 18-5. Partial effect is given to Policy 3 through One Plan Policy 9-5. Horizons gives effect to NZCPS Policy 24 through One Plan Method 9-1, though a future plan review should consider whether the provision should further guide how coastal hazards should be identified and avoided in district plans. Implementation of NZCPS Policies 25 and 27 is primarily allocated to Territorial Authorities through One Plan Policy 9-1 with the exception of the CMA. Horizons gives effect to these NZCPS policies through One Plan Policy 18-5, however clearer direction on avoidance of hard protection structures and promotion of alternatives is required. A future plan review should consider strengthening One Plan Policies 9-4(a) and 8-1(b) to better align with the NZCPS Policy 25 requirement of avoidance of increased harm from coastal hazards. There are no One Plan provisions that give effect to NZCPS Policy 26.

Progress towards the coastal hazard AER, 'by 2017, there will be a net reduction in the damage to property or infrastructure as a result of coastal erosion, the effects of sandstorms or *sea level rise** in the coastal environment', is difficult to measure due to information constraints. The indicators are coastal erosion/accretion and confirmed incidents of property or infrastructure damage. Horizons does not specifically collect information for these indicators, which are ineffective as a result. The data sources for this indicator are SOE reporting, incidents databases, land use mapping and SLUI reports. Neither SOE or SLUI reporting address coastal erosion/accretion and are ineffective data sources to assess progress towards the AER. The incidents database only returned one relevant incident. Land use mapping in both the Natural Hazard Viewer and test Property Viewer is ineffective in showing the change in coastal erosion/accretion over time across the region. Overall the indicators and data sources for the AER are ineffective and no conclusion can be made on progress towards the AER.

## 5.2.2 Efficiency Assessment

This desktop evaluation has not found any inefficiencies in the approach to coastal hazards management, however there is minimal data and monitoring available on coastal hazards.

As discussed in section 5.1.2, natural hazards costs are difficult or impossible to calculate as the costs are often spread throughout the organization and for multiple purposes. This is no different for the coast. For example, State of Environment monitoring has an annual cost of $132,000 for the coast and estuaries. However, this includes aspects such as water quality monitoring that are not specific to natural hazards. The benefits of protection or mitigation against hazards are also extremely difficult to quantify. Even the costs of consenting cannot be separated out to consider coastal hazards, as the broader consents are for wider activities, such as wharf construction. The information constraints for the coast are discussed in more detail in the s35 report for Chapter 8: Coast.

## 5.3 Overall findings for Plan efficiency and effectiveness

Constrained data availability and integrity have limited the conclusions able to be drawn about the effectiveness and efficiency of the natural hazard provisions of the One Plan. The Chapter 9 methods have all been partially implemented, primarily because mapping and hazard information is not necessarily kept up to date. Chapter 18 rules, as methods, have been implemented.

The Chapter 9 policies have varying effectiveness. They require review to address key issues:

1. Give effect to the NAP
2. Update flood mapping, modelling, and underlying climate change assumptions
3. Address cumulative impacts of development in floodways
4. Address stormwater discharges on flood carrying capacity
5. Determine if mitigation or avoidance is the preferred approach
6. Determine if other hazards should have their own prescriptive policies

The definitions for functional necessity, flood hazard avoidance and critical infrastructure also require review to address the effectiveness of Chapter 9 policies.

Measuring progress towards the anticipated environmental results has proven difficult. A number of the anticipated environmental results rely on data from either Horizons or other organisations with the assumption it would be collected, which either has not occurred, or it is not in a form that allows for efficient extraction. Indicators are narrow in the information they capture and are not necessarily reflective of the AERs or objective as a whole. The indicators and data sources require review, but the limited information they provide suggests that there has been positive progress made towards achieving the AERs.

A significant issue has been identified with the effectiveness with the integration of Chapter 8 and Chapter 9, and how Chapter 18 gives effect to them. There have been no objectives developed for the purpose of avoiding or mitigating natural hazards in the CMA, despite responsibility for this allocated to Horizons through Policy 9-1(b)(ii). There is an AER for coastal hazards, but no non-regulatory methods within Chapter 8 (though Chapter 9 methods still apply) in order to progress the AER. The Chapter 8 policies either point to policies in other chapters or work in the opposite direction to the AER. It should be considered whether the Chapter 8 natural hazards AER would better fit into the Chapter 9 framework which already includes some policies and methods that address hazards in the coast. A future plan review should also consider development of an objective for the purpose of avoiding or mitigating natural hazards in the CMA. Additionally, a future plan review should consider how Chapter 18 gives effect to the entire RPS and how Chapters 8, 9 and 18 might be better in integrated to ensure all relevant matters are considered in resource consenting decisions.

Aside from the policy framework, lack of information has constrained the effectiveness assessment of coastal hazards. With the information available, no issues of effectiveness have been identified. The policies are generally being applied appropriately and referenced consistently in consenting decisions. The coastal provisions require review to give effect to the NZCPS.

Much like the Chapter 9 AERs, progress towards the Chapter 8 AER relating to coastal hazards was difficult to measure due to information constraints. Horizons does not specifically collect information for its indicators. The only data sources that delivered the information they sought to were the incidents database and land use mapping. Neither provided the quantity or quality of information required to draw a conclusion towards the AER.

This desktop evaluation has found inefficiencies in the way natural hazard information is collected and distributed. No other inefficiencies have been found in the approach to natural hazards management, however, there is minimal data and monitoring available, particularly with respect to coastal hazards.

Natural hazards costs are difficult or impossible to calculate as the costs are spread throughout the organisation and for multiple purposes. Local Maps and ArcMap have a single license fee which is applied to all the capabilities that the platform offers. There is no simple method to determine what proportion of the District Advice budget is used to provide natural hazard information. State of Environment monitoring has an annual cost for the coast and estuaries, but this is not solely for the purpose of hazard monitoring. Even the costs of consenting cannot be separated out to consider hazards as the broader consents are for wider activities, such as wharf construction or discharge of cleanfill. The average annual cost of the Hazard Mapping project, from 2015-16 to 2022-23 financial years was $210,069.38. The benefits from natural hazard protection are also difficult to quantify as benefits range greatly from protection of land value and productivity to protection of human life.

## Potential amendments to one plan provisions identified through implementation

| Provision | Suggested change | Reason |
|---|---|---|
| **Policy 9-1** | Explore allocating responsibility in (b)(iii) to Territorial Authorities. | TAs are undertaking studies where Horizons has not taken a lead role. It may be more appropriate for studies to be undertaken at a district scale. |
| | Explicitly allocate responsibility for making policy to manage the impact of stormwater discharge on flood hazard, including from urban intensification. Then create some policy if allocated to us. | Experience from Precinct 4, Tara-ika. |
| **Policy 9-2** | Update references to 0.5% AEP (1 in 200 year) and 0.2% AEP (1 in 500 year) flood events. | Give effect to the NAP, the policy does not match the original intent due to increased knowledge, data and modelling. |
| | Consider cumulative effects on flood hazard and stormwater discharges from development into waterways with no additional flood carrying capacity. | Current gaps identified. |
| | Reword to strengthen policy intent. | District plans inconsistent with policy intent leading to development in flood prone areas that do not necessarily mitigate enough against flood risks. |
| | Consider adding rules to better guide decision making in flood prone areas. | Development is still occurring in flood prone areas |
| **Policy 9-3** | Update references to 0.5% AEP (1 in 200 year) flood events. | Give effect to the NAP. |
| **Policies 9-3 and 3-1** | Ensure that critical and regional infrastructure are identified consistently. This could be through changes to the definitions, as below. | Inconsistencies in critical vs regionally important infrastructure. This was also identified as an issue in the s35 Chapter 3 evaluation. |
| **Policy 9-4** | Review to consider if the policy is specific enough to give effect to NZCPS Policy 24. | Give effect to NZCPS. |
| | Consider whether other key types of natural hazard such as seismic | The One Plan is not as directive about refusing consent as s106 RMA and s71 Building Act. This has been |

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|---|---|---|
| | and liquefaction should have their own directive policies. | identified as an issue for the District Advice team. There are risks to developing land close to active fault lines. The effects of these issues are also likely to increase with climate change. |
| **Policy 9-5** | Include guidance as to how and which climate change scenarios should be considered. | Give effect to the NAP. |
| **Methods 9-1, 9-2 and 9-4** | Remove target date.<br>Remove requirement to keep mapping updated or commit to undertaking the work.<br>Consider a new method to provide education to property owners near stopbanks | Date has passed.<br>Updates are not currently occurring as anticipated.<br>Issues have been identified with development occurring on or near stopbanks |
| **Method 9-3** | Consider whether providing up to date natural hazard information is the most appropriate way to increase hazard awareness, or if the information provided should be the best information available. | District Advice does not always provide the most up to date natural hazards information as new information does not always have sufficient integrity. |
| **Chapter 9 AERs** | Update indicators and data sources.<br>Consider including indicators specific to hazards other than flooding such as "number of consents issued in areas in close proximity to active fault lines". | Many data sources are not in use or don't give the information required. Some of the indicators do not assist in assessing progress towards the AERs.<br>Specific indicators are only in relation to flooding. |
| **Chapter 8 natural hazards objective** | Develop an objective. | Responsibility under Policy 9-1. |
| **Chapter 8 all policies** | Require review. | Give effect to the NZCPS.<br>Framework requires review to determine if the hazards provisions would better fit within the framework in Chapter 9. |
| **Chapter 8 third AER** | Increased monitoring of coastal risks/processes. | No information held on the indicators, data sources do not help in assessing progress towards the AER. Sea level predictions change. A template is required so that new information can update the modelling. |
| **Policy 5-24** | Only flood hazard and erosion protection existing at 31 May | Consider if the date should be updated, or if all protection managed |

| | | |
|---|---|---|
| | 2007 is enabled to be maintained or enhanced. | by the Regional Council should be included. |
| **Rule 17-15** | Consider whether Rule 17-15 sufficiently manages natural hazard risk in proximity to a stopbank or whether further RPS direction is required. | Issues with development occurring on and near stopbanks. |
| | Consider whether the scope of Rule 17-15 should be expanded, or create a new rule. | There is a gap with some activities not captured by the rule that may result in hazard impacts. |
| **Schedule J** | Update mapping. | TAs have different mapping in their District Plans and Schedule J in relation to Policy 9-2 is not always given effect to. |
| **Glossary** | Define functional need in place of functional necessity. | Defining functional need is required through a Schedule 1 plan change, currently functional necessity is not defined. |
| | Define non-habitable and occupied structures. | These are referred to in Policy 9-2 but not defined which makes them difficult to quantify when reviewing anticipated environmental outcomes. |
| | Consider if the preferred approach is mitigation or avoidance, and update the definition for flood hazard avoidance to reflect this. | The definition of flood hazard avoidance would require a consequential amendment should Policy 9-2, in particular the AEP component, be changed. The current definition does not allow for adequate distinction between flood hazard avoidance and flood hazard mitigation. |
| | Update the definition for critical infrastructure. | The definition refers to superseded legislative requirements and critical infrastructure is not being identified as a result. To clarify how significant land transport is identified. Consider amending the definition to change RLTS to RLTP. |
| | Consider including critical infrastructure as infrastructure of regional or national importance. | For simplicity as some infrastructure is identified under both categories. |
| **Chapter 3 additional method** | Consider including a new method in Chapter 3 that links to policy 3-1 in which the RLTP will map road and rail networks of regional or national importance and will define strategic road and rail networks | The RLTP must take into account any relevant regional policy statements or plans that are for the time being in force under the RMA. This would assist in ensuring important and strategic road and rail networks are identified. |

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