**From:** info@waipadc.govt.nz
**To:** Policy Shared
**Subject:** External Sender: Waipā District Plan - Plan Change Submission Form 5 - Sarah Burns
**Date:** Wednesday, 17 June 2026 3:58:28 pm
**Attachments:** REF261201826.pdf

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|---|---|
| **Full name of submitter** | Sarah Burns |
| **Contact name (if different from above)** | |
| **Email address** | [redacted] |
| **Address for service** | [redacted] |
| **Contact phone number** | [redacted] |

**This is a submission on the following proposed plan change to the Waipā District Plan**

Private Plan Change 36 - Ōhaupō Large Lot Residential Extension

| | |
|---|---|
| **Could you gain an advantage in trade competition through this submission?** | I could not |
| **Are you directly affected by an effect of the subject matter that - (a) adversely affects the environment; and (b) does not relate to trade competition or the effects of trade competition?** | I am |
| **Do you wish to be heard (attend and speak at the Council hearing) in support of your submission?** | I do |
| **If others make a similar submission, will you consider presenting a joint case with them at the hearing?** | Yes |
| **Do you support the proposed change(s)?** | I oppose |

**The specific provisions of the plan change my submission relates to are (give details):**

Rezoning of approximately 21.5 hectares at 4336 Ōhaupō Road, Ryburn Road and State Highway 3 from Rural Zone to Large Lot Residential Zone (with a small area of Reserve Zone)
Removal of the State Highway 3 Scenic Corridor Overlay from the plan change area
Introduction of the proposed Ōhaupō South Structure Plan as a new appendix to the Waipā District Plan

**My submission is**

Please refer to the attached submission.

**I seek the following decision/s from Council**

Primary relief: Decline Proposed Private Plan Change 36 in its entirety.
Secondary relief: Please refer to the attached submission.

**Attachments**

**PC36_Submission_Sarah_Burns_FINAL.pdf** (700 kb)

**PC36_Submission_Sarah_Burns_Appendix_B_Growth_Strategy.pdf** (6 mb)

**PC36_Submission_Sarah_Burns_Appendix_C_Ohaupo_Town_Concept_Plan.pdf** (1 mb)

**PC36_Submission_Sarah_Burns_Appendix_D_Waikato_Regional_Plan_Chapter_5.pdf** (720 kb)

**PC36_Submission_Sarah_Burns_Appendix_G_National_Adaptation_Plan.pdf** (7 mb)

**PC36_Submission_Sarah_Burns_Appendix_H_KiwiRail_Developing_Near_Rail.pdf** (670 kb)

# Submission in Opposition

## Proposed Private Plan Change 36

## Ōhaupō Large Lot Residential Extension

### Submitter details

Sarah Burns
6 Ryburn Road, Ōhaupō
Waipā District

### Would you like to be heard?

Yes. I wish to be heard in support of this submission. If others make a similar submission, I will consider presenting a joint case with them at the hearing.

### Summary of submission

I oppose Proposed Private Plan Change 36 in its entirety and request that it be declined, for the following reasons:

1. The proposal is inconsistent with Waipā District Council's established growth framework for Ōhaupō and would extend development beyond the areas identified for planned growth.
2. Key technical information remains outstanding, including soakage testing, flood modelling, water supply capacity assessments, wastewater effects assessments, and bat surveys.
3. The site lacks essential infrastructure and relies on untested stormwater and wastewater solutions.
4. The proposal is inconsistent with the National Adaptation Plan's priority of climate-resilient development in the right locations, and the area's stormwater capacity is already under demonstrable pressure.
5. The proposal would increase pressure on an already unsafe transport network. Vehicles on Ryburn Road operate at 83km/h in a 50km/h zone, the application provides no traffic calming, and there is no safe crossing point for residents and children.
6. The proposal would erode the rural character of Ōhaupō and requires removal of the State Highway 3 Scenic Corridor Overlay, which exists to protect the visual character of the southern approach to the village.
7. Ecological effects and cumulative effects have not been adequately assessed.

## Contents

1. Introduction and standing ..... 2
2. The proposal is inconsistent with the strategic planning framework ..... 3
3. Stormwater, flooding and runoff ..... 4
4. Infrastructure Deficiencies ..... 6
5. Traffic, noise and construction effects ..... 7
6. Character and amenity ..... 9
7. The State Highway 3 Scenic Corridor Overlay ..... 9
8. Ecological concerns ..... 10
9. Cumulative effects ..... 11
10. The application relies on incomplete information ..... 11
11. The proposed Structure Plan is premature ..... 12
12. Relief sought ..... 12
Appendix: Supporting Documents and References ..... 14
Appendix E – Photographs of Stormwater Erosion Event, Ryburn Road, 6 June 2026 (embedded) ..... 17
Appendix F – MetService Hamilton Past Weather, 26 May to 12 June 2026 (embedded) ..... 20
Appendix G – National Adaptation Plan (Ministry for the Environment, 2022) ..... 21
Appendix H – KiwiRail, Developing land near rail (PC36_Submission_Sarah_Burns_Appendix_H_KiwiRail_Developing_Near_Rail.pdf ) ..... 22

## 1. Introduction and standing

I live at 6 Ryburn Road, Ōhaupō, on the corner of Ryburn Road and State Highway 3, directly across the road from the plan change site. I am an affected neighbour in the most direct sense.

I have read the application documents. My concerns are based on the information presented in those documents as well as my direct experience of living at this location.

The applicant has not demonstrated that this land can be developed without unacceptable adverse effects on existing residents, infrastructure, ecological values, and the wider planning framework for Ōhaupō. The information needed to make the case has not been gathered, yet we are being asked to accept a rezoning that cannot easily be reversed.

This submission addresses the specific harms that would result.

## 2. The proposal is inconsistent with the strategic planning framework

Waipā District Council's own Ōhaupō Growth Map, dated March 2019, identifies four designated large lot residential growth cells for Ōhaupō totalling approximately 66 hectares. Growth cell O1 (17ha) has already been developed as the Charles Edwards Street subdivision, demonstrating that the planned growth framework is working and delivering housing supply in Ōhaupō. Growth cell O4 (15ha) is also identified for development now to 2035. Growth cells O2 (13ha) and O3 (21ha) are planned for beyond 2035.

This site sits outside all four growth cells. The Section 32 Evaluation Report does not demonstrate why this additional 21.5 hectares is needed when those cells remain available, nor does it examine whether development within them would meet the same objective. Section 32(1)(b) of the RMA requires an evaluation to identify other reasonably practicable options for achieving the objectives. The applicant spoke to the growth cell landowners and concluded they do not intend to develop, but that is not a section 32 assessment of the alternative. It does not address whether the land is suitable, whether the council could take steps to facilitate its release, or whether the planning framework should simply be left to work as intended.

There is also a basic urban form problem with this proposal. Ōhaupō is already an elongated village stretching several kilometres along State Highway 3 from north to south. The designated growth cells were located within the existing village footprint precisely to avoid extending that further. This site pushes the southern boundary out even more, making an already long village longer, increasing the reach of infrastructure, and adding to the travel distances residents must cover to access services.

It also changes what Ōhaupō is. Approaching from the south, Ōhaupō currently reads as exactly what it is, a small rural village surrounded by farmland. Replace that southern gateway with a 40-lot subdivision and it reads as the outer edge of suburbia. Good planning practice discourages this kind of linear sprawl. The Section 32 report does not address it.

Nor is it an answer to say the site adjoins the existing Large Lot Residential zone to the north. The council already decided where the logical extensions of the village should go when it created the growth cells. Adjacency alone can justify endless incremental sprawl, because every new development creates a new edge and a new adjacency. Approval of this plan change would also make it more difficult for the council to resist future requests for rezoning on other land outside the designated growth cells, undermining the integrity of the wider growth strategy.

The council's own policy documents say the same thing. The Waipā District Growth Strategy committed to residential development in villages like Ōhaupō occurring in a planned manner, at densities reflective of the existing character, and recognising the unserviced nature of these villages.

The Ōhaupō Town Concept Plan, adopted by the council in June 2010, includes as core principles identifying appropriate areas for future development that provide for growth without compromising the character and image of the town (Principle 1.1), and establishing a well defined urban edge and protecting Ōhaupō's rich rural hinterland from inappropriate development and land use (Principle 1.4). It also

records that low density living within the existing village is what creates its rural village feel. This proposal is in an area the council never identified as appropriate, it erodes the urban edge, and it develops the very hinterland the council committed to protecting. It fails the council's own tests.

The Section 32 Evaluation Report frames the risk of not proceeding as a possible shortage of residential capacity in Ōhaupō. That is not a planning risk. The designated growth cells are planned to carry Ōhaupō's growth through to beyond 2035. The applicant's own application acknowledges that the growth cell landowners are not intending to undertake subdivision in the short to medium term. That is a commercial decision by private landowners, not a failure of the planning framework. The risk it creates is the applicant's, not the district's.

What the council can do, if it believes there is a genuine supply problem, is review the growth strategy through its own plan change process, with proper analysis of where growth should go and in what sequence. What it should not do is accept a private plan change for an out-of-sequence site with unresolved infrastructure problems simply because a developer got there first.

The readiness of a particular developer is not a planning ground. If the slow release of zoned land were sufficient justification, any developer could bypass any growth framework simply by purchasing cheaper land outside it, and the framework would be meaningless. Even if a supply gap existed, it would not cure any of the defects of this site. The untested soakage, the floodplain, the absent infrastructure, and the unsafe intersection do not improve because other land is slow to come to market.

In short, this is not simply a request to rezone land. It is a request to depart from the council's established growth framework without any demonstrated need to do so. The panel should keep that in view when weighing every issue that follows.

The growth cell boundaries and the location of the PC36 site are both shown in the PC36 application documents.

### 3. Stormwater, flooding and runoff

This issue must be considered in the context of climate change. National planning and freshwater management frameworks require decision-makers to consider future climate effects, including more frequent and intense rainfall events. Recent national flood risk research has concluded that historical flood records are becoming a less reliable guide to future risk as extreme rainfall increases.

The applicant acknowledges the need to address climate change resilience through Waikato Regional Policy Statement Objective IM-O5. However, the Three Waters Assessment does not establish future flood levels or assess the site's resilience under future climate conditions. Instead, that work is deferred to a later consenting stage. The obligation has been recognised but not fulfilled.

The key question is whether land that already contains a mapped floodplain, relies on untested soakage, and drains to an already stressed receiving environment can be demonstrated to remain resilient over the lifetime of the development. The applicant has not provided the information necessary to answer that question.

Waipā District Council's own flood hazard mapping confirms that 5 Ryburn Road, an existing dwelling on the plan change land, falls within the 1-in-100-year flood extent (Appendix A). That mapping uses 2019 ground levels, does not reflect subsequent earthworks, and does not incorporate future climate change projections. It therefore understates the flood risk in two separate ways: it does not account for the increased runoff that would result from converting this land to residential development, and it is based on historical rainfall data rather than the more intense rainfall events that climate change projections indicate will become the norm over the lifetime of this development. The applicant has not engaged with this council mapping at all.

I observe the stormwater behaviour of this area directly from my position on the corner opposite the site. State Highway 3 sits at the ridge above us. When it rains heavily, water runs off down across our property and along Ryburn Road. We have lived here since June 2014. In all that time, we have never had a channel cut through the driveway surface by rainfall – until 6 June 2026. That day was not a named storm or an exceptional weather event. MetService past weather observations for Hamilton record 27.2mm of rainfall on 6 June 2026. Looking at the surrounding days, most recorded trace amounts or nothing at all, making 6 June one of only two significantly wet days in that entire period. Yet that single day was enough to cut a new channel through our driveway, carrying gravel and sediment across the sealed concrete apron at the entrance. That has never happened in eleven years of living here.

Significantly, the property at 5 Ryburn Road, which is one of the existing dwellings on the plan change land itself, experienced the same thing during the same event. Erosion channels were cut into the gravel surface of their driveway, with material washing down in parallel rills and spreading across the drive in a sediment fan before dispersing onto Ryburn Rd. Photographs of this erosion event at both properties are attached as Appendix E.

The proposed stormwater solution relies almost entirely on rainwater soaking into the ground, via on-lot tanks overflowing to soakage pits and roadside swales designed to absorb runoff before it leaves the site. However, the Three Waters Assessment is explicit that soakage testing has not been undertaken and will be done at resource consent stage.

The S-map soil classification data cited in the same report, drawn from the government's own national soil database, confirms that soils in the lower-lying areas of the site are poorly draining. The stormwater strategy depends entirely on those same soils absorbing the development's runoff.

If soakage testing shows the soils cannot absorb the required volumes, the design will need to change significantly. But by then the rezoning will have been granted.

I anticipate two responses on stormwater.

1. Large Lot Residential is low-density development, so most of each lot remains permeable. But every lot still adds a roof, a driveway, an effluent disposal field, and an overflowing water tank, all draining to the same already inadequate system. On top of that sits the internal road network, the single largest area of hard surface in any subdivision, engineered specifically to shed water quickly rather than absorb it. Lot size does not change the fact that the soakage on which the entire strategy depends has never been tested.

2. Engineering solutions such as raised house platforms can deal with the floodplain. Raising a platform does not remove floodwater. It does nothing for the roads, effluent fields, and infrastructure that remain at ground level.

Converting pastoral farmland to roads, rooftops, and driveways will strip away the pasture and soil that currently absorbs a great deal of rainfall. The receiving environment for all of this water is a drain running alongside the railway line, discharging eventually to Lake Ngaroto via Lake Ngarotoiti. Neither the drain nor the lake has been assessed for their capacity to receive the post-development flows.

The area around that drain and the railway corridor already floods in heavy rain events. Local residents have expressed concerns about the maintenance of the drain. Adding the stormwater load from a 40-lot residential development to a corridor that already floods raises serious questions about the integrity of the railway. KiwiRail's own guidance specifically identifies stormwater discharges and modified overland flow paths that may cause flooding or scour of rail embankments and ballast as matters requiring assessment when development is proposed adjacent to a railway corridor. No such assessment appears in the application documents.

## 4. Infrastructure Deficiencies

There is no reticulated wastewater system anywhere in Ōhaupō. Every one of the proposed 40 lots would rely on on-site wastewater disposal, with effluent discharged into the ground via individual treatment systems.

The ponds at the lower end of the site, where the New Zealand dabchick were recorded, sit downgradient of the proposed lots. The application does not assess whether nutrients or contaminants from 40 on-site wastewater systems could affect those ponds, groundwater, or the wider peat lake catchment over time. The applicant's own report says the ecological values of the ponds should be preserved, yet the cumulative risk of nutrient seepage has not been assessed at all, raising questions about consistency with the freshwater outcomes sought by the NPS-FM.

Water supply on the southern side of Ryburn Road is currently trickle-fed rather than pressure-fed. The existing town supply does not extend to the development area and it has not been confirmed whether network pressure and capacity are sufficient for 40 new connections. Firefighting requirements alone demand either 45,000 litre water tanks on each lot or a 25 litre per second supply for 30 minutes. This is a significant infrastructure gap that has not been resolved.

Because the town supply cannot meet the demand of 40 households, every lot will effectively need rainwater tanks as a primary water source. Those tanks fill during rain events and once full, they overflow. That overflow goes into the same soakage pits and drainage system that the stormwater strategy is relying on to absorb runoff from rooftops, driveways, and roads. In a heavy rainfall event, the tanks fill and overflow at exactly the moment the soakage system is already under maximum pressure. These issues compound one another, and the application does not assess them together.

## 5. Traffic, noise and construction effects

All traffic to and from the proposed development will use Ryburn Road, passing through the SH3/Ryburn Road intersection immediately in front of my property.

The Integrated Transport Assessment models 70 additional vehicle trips per peak hour, all entering and leaving through a single new give-way T-intersection on Ryburn Road. The report's own SIDRA traffic modelling software shows that the right-turn movement from Ryburn Road onto SH3 currently operates at Level of Service F, meaning it is already at the worst level on the scale. The plan change makes this slightly worse. The applicant describes this change as less than minor, but the baseline is already failing. A transport network that is already operating at a failing level should not be relied upon to absorb further growth without demonstrated mitigation.

Ryburn Road already has a significant speed environment problem. The transport assessment's own survey recorded an 85th percentile speed of 83km/h in a posted 50km/h zone. The proposed subdivision access would introduce a new intersection into this environment, requiring residents to turn across oncoming traffic in a location where vehicle operating speeds are substantially above the legal limit. The application does not address how residents, including children, would safely cross Ryburn Road on foot. At a minimum, the proposal should have assessed traffic calming measures and a pedestrian crossing facility with a central refuge. Neither appears in the application documents.

Ryburn Road is not designed to carry the volume of commuter traffic that 40 households will generate. The transport assessment's own crash analysis recorded seven crashes within 100 metres of this site over the five years from 2019 to 2024, including one at the SH3/Ryburn Road intersection itself. SH3 is rated medium collective and personal risk. Ryburn Road west of Charles Edwards Street is rated medium personal risk. This is not a safe, low-traffic environment that can easily absorb additional demand.

The recorded crash statistics may not capture all incidents occurring at this location. For example, vehicles have struck and damaged our fence on two separate occasions and left the scene without reporting the incident. The real safety picture at this corner is worse than the transport assessment acknowledges.

The right turn from SH3 into Ryburn Road is already dangerous in practice. To make that turn you must sit stationary in the middle of a state highway waiting for a gap in oncoming traffic, with vehicles approaching from behind from the north and vehicles coming around the corner toward you from the south simultaneously. Vehicles on SH3 are supposed to slow to 70km/h approaching the intersection but most do not. This is not a theoretical concern, it is something I experience every time I come home. Adding the development's traffic to this intersection, with new residents making that same turn every day, will make an already dangerous situation significantly worse.

Because of my corner position I am also exposed to traffic noise from both directions, and every vehicle entering or leaving the proposed development will pass my property. Traffic noise at this corner has already increased following the Charles

Edwards Street subdivision. The cumulative effect of successive developments is addressed further in Section 9. No traffic noise assessment has been prepared for this plan change. Given that position and the volume of additional trips proposed, one is warranted.

Construction effects need to be considered too. I am already living with the construction of the current new builds across the road below 5 Ryburn Road. Trucks struggle to manoeuvre into the sites, drive onto our berm leaving deep ruts in the grass and mud, and concrete trucks have arrived at 6am, outside permitted hours. That is the reality of the build of two new houses.

This proposal means earthworks, roading construction, and then the building of more than 40 homes, a construction programme that will run for years. If the rules are already being breached on a small build across the road, I have no confidence that consent conditions will protect neighbouring residents through a development of this scale. The application contains no assessment of construction noise, construction traffic, or the duration of construction effects on existing residents.

The applicant will say that construction management is a matter for resource consent conditions rather than zoning. That is true as far as it goes, but it does not answer the section 32 point. Section 32(1)(c) of the RMA requires the evaluation report to contain a level of detail that corresponds to the scale and significance of the effects anticipated from implementing the proposal. A multi-year construction programme beside existing homes is a significant anticipated effect of this rezoning, and the Section 32 Evaluation Report contains no assessment of it at all. The question is not whether consent conditions could address it, but whether the evaluation has identified and assessed it as required. It has not.

If any version of this plan change is approved, the Structure Plan should include explicit construction management and staging requirements, so that the controls are set at zoning stage rather than left to be negotiated consent by consent.

The site’s entire western boundary is the North Island Main Trunk railway line. Placing more than 40 homes against an operating rail corridor raises reverse sensitivity issues the application does not address. Rail operations occur 24 hours a day and generate noise and vibration. New residents will experience this day and night, and the complaints that follow can put pressure on nationally significant infrastructure.

KiwiRail’s own guidance identifies residential development near rail corridors as an activity that may be inconsistent with ongoing rail operations. KiwiRail also specifically identifies stormwater discharges and modified overland flow paths as matters requiring assessment when development is proposed adjacent to a railway corridor. The application contains no assessment of these effects, no setback provisions, and no evidence that KiwiRail has been consulted (see Appendix H).

## 6. Character and amenity

We chose to live on Ryburn Road because our property was on the edge of the village, with open farmland to the south and a genuine sense of space. When we bought here, the Charles Edwards Street subdivision did not exist, and neither did the houses at 7 and 10 Ryburn Road. We were not advised those were coming either. Those houses have already blocked our view to Mount Kakepuku and the farmland to the south, the same farmland where this subdivision is now proposed. We have already absorbed that change to our neighbourhood. Now this proposal would place a further 40 dwellings, internal roads, and cul-de-sacs on the remaining farmland directly opposite us. If this proceeds, we will effectively be living in town. There is a limit to how much change existing residents should be expected to absorb, and that limit has been reached. The cumulative amenity effects of consecutive subdivisions are inconsistent with the character outcomes sought by the Waipā District Plan.

The Section 32 Evaluation Report acknowledges that amenity and character will change from rural to urban but dismisses this as consistent with adjacent land uses. That reasoning is circular. The fact that there is existing large lot residential development to the north of the site does not mean that extending it southward across the road from existing residents has no effect on those of us who already live here.

## 7. The State Highway 3 Scenic Corridor Overlay

The public notice reveals that this plan change proposes not only to rezone the land but also to remove the State Highway 3 Scenic Corridor Overlay from the plan change area. This is a significant and separate change that has received no meaningful attention in the application documents.

The Scenic Corridor Overlay exists specifically to protect the visual and landscape character of the SH3 corridor as it passes through Ōhaupō. The site is prominent and visible from the highway. The overlay is part of what makes the southern approach to Ōhaupō feel like entry into a rural village rather than a suburban subdivision. Removing it opens the door to development that could significantly alter that character, not just on this site but by setting a precedent for further erosion of the overlay elsewhere along the corridor. Deleting a scenic protection in order to build the very kind of development it exists to prevent is not a minor planning adjustment. It defeats the purpose of the overlay entirely.

There is also a basic fairness problem. Every other property along the SH3 corridor through Ōhaupō remains subject to the overlay and the restrictions that come with it. When we built a shed on our own property we were required to comply with the overlay rules, including the setback from SH3. No reason has been given why this developer should be released from rules that existing property owners on the same corridor have had to follow. Treating the overlay as negotiable for those with the resources to pursue a plan change, and binding for everyone else, undermines the integrity of the protection entirely.

The council's own Ōhaupō Town Concept Plan, adopted in June 2010, reinforces the overlay's purpose. That plan calls for retaining pockets of rural views to support and enhance Ōhaupō's rural image, and for a defined entry to the village at its southern

approach. The rural outlook along the SH3 corridor at that southern approach is part of the image the plan seeks to protect, and the Scenic Corridor Overlay is one of the few tools that actually protects it. Deleting the overlay to enable a subdivision at the southern entry works directly against the council's own adopted planning for the village.

The applicant may argue that the Large Lot Residential zone provides equivalent protection to the overlay. That argument is not supported by the actual district plan rules. The State Highway 3 Scenic Corridor Overlay under Section 25 of the Waipā District Plan imposes specific controls that the Large Lot Residential zone does not replicate. Under Rule 25.4.2.2, buildings within the corridor must use colours and materials in accordance with Appendix N6, limiting the palette to earth tones consistent with the rural landscape. No equivalent colour or materials control applies in the Large Lot Residential zone. Under Rule 25.3.5.2, the stated purpose of the overlay is specifically to protect prominent and memorable views to the volcanic cones and nationally significant peat lakes along the SH3 corridor, and the location of buildings, driveways, and infrastructure must be managed to recognise, maintain or enhance those views. The Large Lot Residential zone has no equivalent viewshaft protection requirement.

The Section 32 Evaluation Report does not provide an adequate assessment of the landscape and visual effects of removing this overlay. The applicant bears the burden of demonstrating why the overlay is no longer required. The application largely assumes that because development is proposed, the overlay should be removed. That approach reverses the purpose of the overlay. The question is not whether the overlay prevents development, but whether the reasons for protecting the corridor have ceased to exist. No such case has been made. I oppose its removal and request that the Scenic Corridor Overlay be retained regardless of what the panel decides about the rezoning itself.

## 8. Ecological concerns

I have observed New Zealand dabchick (weweia) on the ponds within the plan change site. The applicant's own Ecological Effects Assessment records two dabchick on the larger ponds and acknowledges they use the site for feeding and resting. Dabchick are classified as Threatened - Nationally Increasing, and the ecological report recommends that the two largest ponds, which are where the dabchick were recorded, be preserved and enhanced. The applicant's concept plan proposes to retain those ponds, but there is no binding commitment to this at plan change stage. Enhancement works and buffer planting are described as recommendations only.

The ecological report also identifies eight mature trees on site, including macrocarpa and a London plane, as high-risk potential roost habitat for long-tailed bats (pekapeka). Long-tailed bats are classified as Threatened - Nationally Critical, and a confirmed bat record exists within 200 metres of the site's eastern boundary. No bat survey has been undertaken. The report recommends that DOC protocols be followed before any tree removal. The concept plan would require removal of most of these trees and there is no condition requiring the protocols to be followed before rezoning is granted.

Any changes to the hydrology of this land, whether from increased runoff, on-site effluent disposal, or the loss of pasture absorption capacity, have the potential to affect the water quality of Lake Ngaroto and the wider peat lake system. Lake Rotomanuka sits on the eastern side of State Highway 3 and while it does not receive direct drainage from this site, the ecological report notes it as the nearest Significant Natural Area at 200 metres from the site boundary, underlining the ecological sensitivity of this broader landscape.

## 9. Cumulative effects

The application appears to assess the effects of this proposal largely in isolation. However, the Resource Management Act requires cumulative effects to be considered. When viewed alongside existing and planned growth in Ōhaupō, the proposal would place additional pressure on local roads, wastewater infrastructure, stormwater systems, community facilities, and the rural character of the area.

Existing residents have already experienced the effects of the Charles Edwards Street development. This proposal must be assessed in combination with that recent growth, not in isolation. Traffic, noise, stormwater pressure, and the loss of rural character are cumulative effects that become significant when successive developments are considered together.

Individually, each development is described as having effects that are less than minor. Collectively, they are changing what it is like to live in Ōhaupō. The Section 32 Evaluation Report makes no attempt to assess this proposal together with the growth the village has already absorbed.

## 10. The application relies on incomplete information

Section 32(2)(c) of the RMA requires the evaluation to assess the risk of acting or not acting if there is uncertain or insufficient information about the subject matter of the provisions. The Section 32 Evaluation Report states there is no uncertainty around the plan change provisions and no need to assess those risks. I disagree with that conclusion.

These are not minor gaps. They are foundational questions about whether the land can support the proposed development without causing harm. A plan change is not the appropriate mechanism for resolving them after the fact. Where critical information remains unavailable, a precautionary approach is warranted because the consequences of an incorrect zoning decision may be effectively irreversible.

The outstanding information is not peripheral to the proposal. It relates directly to whether the site can safely accommodate development and whether adverse effects can be avoided, remedied or mitigated. In those circumstances, deferring the necessary investigations until after rezoning reverses the normal planning sequence and risks enabling development on land that may ultimately prove unsuitable.

The proper sequence is to test whether land is suitable before zoning it for development, not after. Deferring the critical tests to resource consent stage transfers the risk of an unsuitable site from the developer, who chose it, onto the community, who did not. Once the zoning changes, the presumption shifts in favour

of development proceeding. The panel should not grant that presumption on the basis of work that has not been done.

## 11. The proposed Structure Plan is premature

In addition to the rezoning and the removal of the Scenic Corridor Overlay, this plan change introduces a proposed Ōhaupō South Structure Plan as a new appendix to the Waipā District Plan. The Structure Plan is the document that will determine how the entire development is laid out, including road layout, lot configuration, stormwater management, wetland buffers, and the treatment of the ponds and permanent stream on site. Once adopted, it becomes the framework within which all future resource consents for the development will be assessed.

The problem is that the Structure Plan has been prepared before the foundational technical work, detailed in section 10 above, has been completed. A Structure Plan built on those unresolved foundations is not a sound planning document. It locks in a development layout before the constraints of the land are properly understood, and it will be very difficult to revisit once the rezoning has been granted.

## 12. Relief sought

### Primary relief

I request that the panel decline Proposed Private Plan Change 36 in its entirety.

### Secondary relief

If the panel is minded to approve any part of the proposal, I request the relief set out below. This secondary relief does not imply acceptance of the development.

The plan change should not be approved until the following matters have been completed, reported to the panel, and demonstrated to produce results that support the development proceeding. Completing the work is not sufficient. If the results show the land is unsuitable, the plan change should not be granted on that basis alone:

- Soakage testing is completed and the results demonstrate that the land can absorb post-development stormwater volumes without adverse effects on adjacent properties. If the soakage testing shows the soils cannot adequately absorb those volumes, the plan change should be declined.
- Detailed flood modelling is completed, including assessment of post-development flows on adjacent properties. If the modelling shows that development would increase flood risk to existing properties or the railway corridor, the plan change should be declined.
- Water supply capacity is confirmed as sufficient for 40 connections including firefighting requirements. The effect of 40 on-site effluent disposal fields on the ponds within the site and the wider peat lake catchment is independently assessed. If either assessment shows the infrastructure is inadequate or the environmental effects are unacceptable, the plan change should be declined.
- A bat survey is completed in accordance with DOC protocols, and the results inform any conditions around tree removal.

In addition, the following should be included as conditions or structure plan requirements:

- That the two ponds where dabchick have been recorded are formally protected and not removed or significantly modified as part of any future development.
- That DOC bat survey and tree felling protocols are required as a condition of any subdivision consent involving removal of the identified high-risk roost trees.
- That a cumulative traffic assessment is required that accounts for the additional traffic already generated by the Charles Edwards Street subdivision, not just the traffic generated by this development in isolation.
- That an independent road safety assessment is required for the SH3/Ryburn Road intersection given its existing crash history, the proposed new give-way intersection on Ryburn Road, and the speed environment at that location.
- That a traffic noise assessment is required for properties on the corner of Ryburn Road and SH3, given the corner position of those properties and the volume of additional trips proposed.
- That traffic calming measures and a pedestrian crossing point with a central refuge on Ryburn Road be required as part of any development infrastructure, to provide a safe crossing for residents and children of the new subdivision.
- That stormwater management design is required to demonstrate no increase in peak flows to adjacent properties, including properties on Ryburn Road, not merely no increase to the wider receiving environment.
- That the Structure Plan include explicit construction management and staging requirements, covering hours of work, truck routes, and the protection of berms and adjacent properties, so that these controls are set at plan change stage rather than left to individual consents.
- That rail noise, vibration, setback, and reverse sensitivity effects on the North Island Main Trunk railway line be assessed, and KiwiRail's position obtained, before any decision is made.
- That no decision be made on Proposed Private Plan Change 36 until all outstanding technical information identified in this submission has been completed, independently reviewed, and made available for public comment.
- That all technical assessments relied upon by the applicant be subject to independent peer review commissioned by Waipā District Council at the applicant's cost.
- That the State Highway 3 Scenic Corridor Overlay be retained over the plan change land regardless of what is approved.
- That the proposed Ōhaupō South Structure Plan appendix not be adopted in its current form, and not be finalised until all outstanding technical assessments have been completed and their findings incorporated into it.
- That Waipā District Council provide its own assessment of the Ōhaupō growth cells, including whether the existing designated capacity remains adequate to

meet projected demand, and whether this proposal is consistent with the council's own growth strategy and spatial planning for the village.

- That Waipā District Council obtain KiwiRail's position on the proposal, including in relation to stormwater discharges to the rail corridor, reverse sensitivity, noise and vibration effects, and any setback or design requirements KiwiRail considers necessary, before any decision is made.

## Appendix: Supporting Documents and References

Appendix A – Waipā District Council Flood Hazard Mapping (embedded)

Appendix B – Waipā District Growth Strategy (PC36_Submission_Sarah_Burns_Appendix_B_Growth_Strategy.pdf)

Appendix C – Ōhaupō Town Concept Plan (PC36_Submission_Sarah_Burns_Appendix_C_Ohaupo_Town_Concept_Plan.pdf)

Appendix D – Waikato Regional Plan, Chapter 5 (Land and Soil Module) (PC36_Submission_Sarah_Burns_Appendix_D_Waikato_Regional_Plan_Chapter_5.pdf)

Appendix E – Photographs of Stormwater Erosion Event, Ryburn Road, 6 June 2026 (embedded)

Appendix F – MetService Hamilton Past Weather, 26 May to 12 June 2026 (embedded)

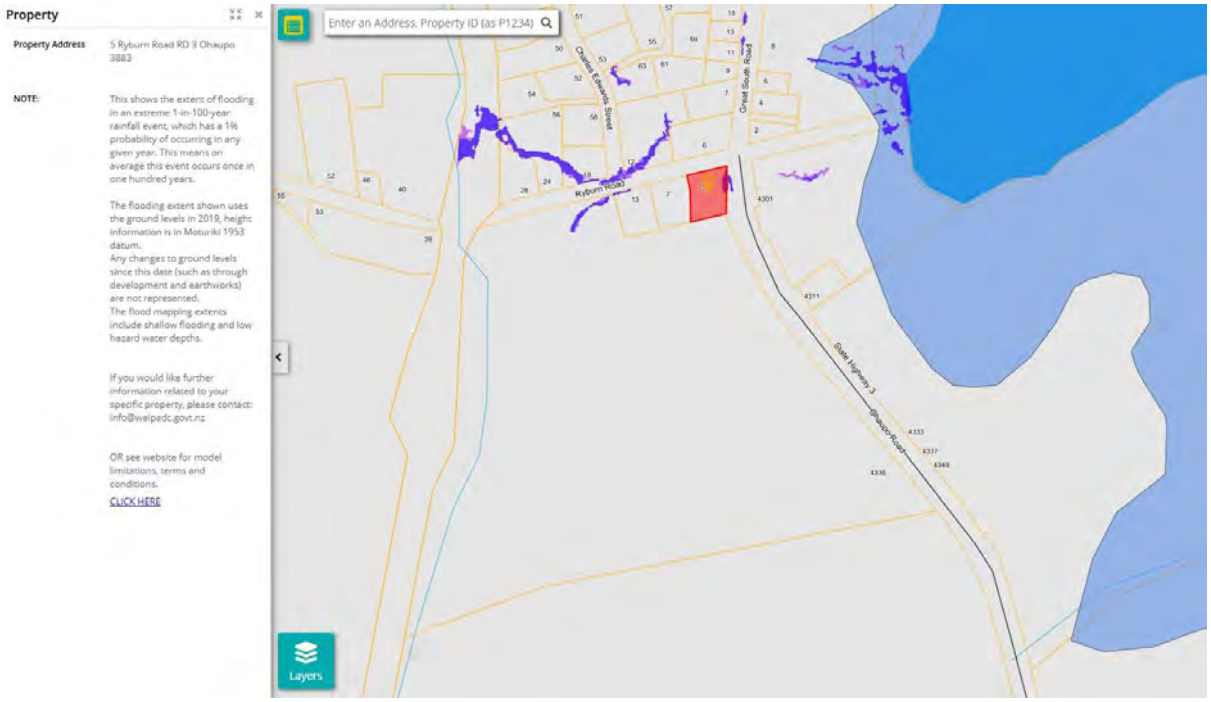
Appendix G – Aotearoa New Zealand's first National Adaptation Plan (Ministry for the Environment, August 2022) (PC36_Submission_Sarah_Burns_Appendix_G_National_Adaptation_Plan.pdf)

Appendix H – KiwiRail, "Developing land near rail" (PC36_Submission_Sarah_Burns_Appendix_H_KiwiRail_Developing_Near_Rail.pdf)

The following documents are attached to this submission. They are referenced in the body of the submission and are provided to assist the panel. Where a document is already part of the applicant's application, it is not attached again but is identified for ease of reference.

**Documents attached to this submission**

Appendix A: Waipā District Council flood hazard mapping tool output for 5 Ryburn Road, Ōhaupō (June 2026). Screenshot from the council's online flood mapping tool confirming that 5 Ryburn Road falls within the 1-in-100-year flood extent. The tool note states the mapping uses 2019 ground levels and does not account for subsequent earthworks, development, or climate change projections.




Appendix B: Waipā District Growth Strategy (Waipā District Council). Referenced in section 2 in relation to the council's commitment to planned, character-appropriate residential growth in villages including Ōhaupō.

Appendix C: Ōhaupō Town Concept Plan (Waipā District Council, adopted 29 June 2010). Referenced in sections 2 and 7 in relation to the council's adopted principles for Ōhaupō's urban edge, rural hinterland protection, and the southern approach to the village.

Appendix D: Waikato Regional Plan, Chapter 5 (Land and Soil Module), operative version including NES-PF amendments as at 9 August 2019. Referenced in section 3 in relation to Objective 5.1.2, which requires that there be no increase in the adverse effects of flooding as a result of land use activities.

**Documents in the applicant's application (not re-attached)**

Ōhaupō Growth Map, 14 March 2019 (Waipā District Council). PC36 Application, Figure 5.

Three Waters Assessment (Te Miro Water Limited, April 2025). Referenced throughout section 3. Source document: PC36 Appendix G.

**Online sources cited**

Waipā District Council flood hazard mapping tool (Appendix A). Output generated for 5 Ryburn Road, Ōhaupō, June 2026. Available at: floodmaps.waipadc.govt.nz

RNZ, "One-in-100-year coastal floods now happening twice a year in Wellington – study", 11 June 2026. Reports on a study published in *Nature Climate Change*

finding human-caused sea-level rise has made coastal sea-level extremes four times more frequent since 1900. Available at: rnz.co.nz/news/environment_climate/597849

Earth Sciences New Zealand (NIWA), “Nationwide study reveals escalating flood risk”, 30 October 2025. Five-year national research programme mapping 1-in-100-year inland rainfall flood risk across 256 floodplains nationwide, with projections under +1, +2, and +3 degrees of additional warming. Lead scientist states historical flood data is “no longer a reliable guide to the future.” Available at: niwa.co.nz/news/nationwide-study-reveals-escalating-flood-risk

New Zealand National Climate Change Risk Assessment 2020 (Ministry for the Environment). Referenced in section 3 in relation to increasing frequency of extreme rainfall events. Available at: environment.govt.nz/publications/national-climate-change-risk-assessment-2020

KiwiRail, “Developing land near rail”. Referenced in sections 3 and 5 regarding reverse sensitivity, rail noise and vibration, stormwater effects on rail infrastructure, and activities requiring assessment adjacent to railway corridors. Available at: kiwirail.co.nz/our-business/property/developing-near-rail

Sarah Burns
6 Ryburn Road, Ōhaupō
June 2026

## Appendix E – Photographs of Stormwater Erosion Event, Ryburn Road, 6 June 2026 (embedded)

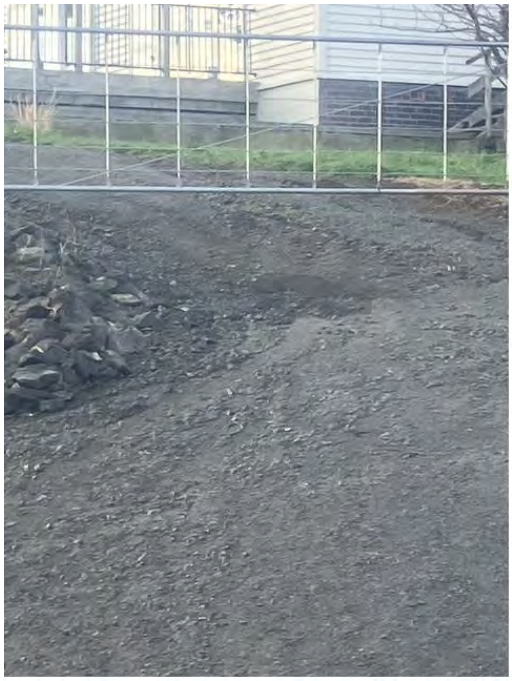
The following photographs were taken following the rainfall event of 6 June 2026. MetService past weather observations for Hamilton record 27.2mm of rainfall on that day, making it one of only two significantly wet days across the surrounding period. They show the stormwater behaviour of existing driveways in the immediate catchment of the plan change site.

**Photo 1: 6 Ryburn Road (submitter's property)**



The sealed concrete apron at the entrance to the driveway at 6 Ryburn Road, showing gravel and sediment carried down from the unsealed upper drive and deposited across the concrete surface. A clear demarcation line marks where runoff transported material onto the apron, with displaced stones scattered across it.

**Photo 2: 5 Ryburn Road – upper driveway**



The upper section of the gravel driveway at 5 Ryburn Road, one of the existing dwellings on the plan change land. Erosion channels are visible in the disturbed gravel surface.

**Photo 3: 5 Ryburn Road – mid driveway**



The mid-section of the same driveway, showing surface wash patterns and faint rilling across the gravel.

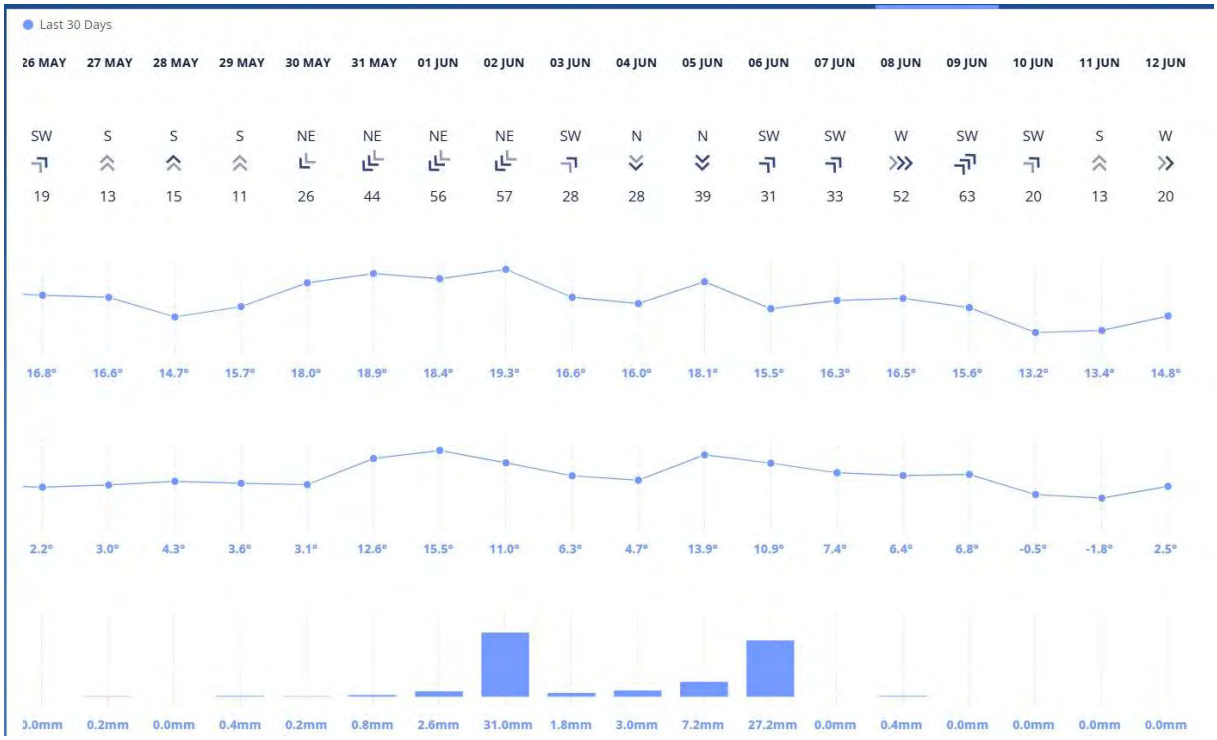
**Photo 4: 5 Ryburn Road – lower driveway**



The lower section of the driveway, showing pronounced parallel rilling and a spreading sediment fan where runoff dispersed across the surface toward Ryburn Road.

## Appendix F – MetService Hamilton Past Weather, 26 May to 12 June 2026 (embedded)

Screenshot from MetService New Zealand past weather observations for Hamilton, showing daily rainfall totals for the period 26 May to 12 June 2026. The data shows 27.2mm recorded on 6 June 2026, the date of the driveway erosion event described in section 3 and documented in Appendix E. The surrounding days recorded trace amounts or nothing, confirming that 6 June was not part of a prolonged wet period but a single day of concentrated rainfall intensity.




Source: MetService New Zealand, Past Weather Observations, Hamilton. Accessed June 2026. Available at: https://www.metservice.com/towns-cities/regions/waikato/locations/hamilton/past-weather

## Appendix G – National Adaptation Plan (Ministry for the Environment, 2022)

Aotearoa New Zealand's first National Adaptation Plan was published by the Ministry for the Environment in August 2022. It is the Government's principal statement of how New Zealand will adapt to the locked-in effects of climate change. The Plan identifies four priorities. Priority 2 is titled "Driving climate-resilient development in the right locations" (Chapter 4). The Plan states explicitly:

> *"In some highly exposed areas, the risk from natural hazard and climate impacts may become intolerable. Inundation of buildings and infrastructure will start to occur, leading to direct damage and loss of some facilities like roads or other lifeline services, and public open space."*

The Plan also states that local government should use existing powers under the RMA to drive climate-resilient development in the right places, including by locating development away from areas prone to hazards.

Source: Ministry for the Environment. 2022. Aotearoa New Zealand's first national adaptation plan. Wellington: Ministry for the Environment. Available at: https://environment.govt.nz/assets/publications/MFE-AoG-20664-GF-National-Adaptation-Plan-2022-WEB.pdf

## Appendix H – KiwiRail, Developing land near rail (PC36_Submission_Sarah_Burns_Appendix_H_KiwiRail_Developing_Near_Rail.pdf)

KiwiRail publishes guidance for developers and landowners proposing development adjacent to railway corridors. The guidance is referenced in sections 3 and 5 of this submission in relation to the following matters, each of which is directly relevant to this proposal:

- KiwiRail notes that rail operations occur 24 hours a day and inevitably generate noise and vibration, and that residential development near rail corridors may be inconsistent with ongoing rail operations.
- KiwiRail specifically identifies stormwater discharges and modified overland flow paths that may lead to flooding and scour of the rail embankment and ballast as matters requiring assessment when development is proposed adjacent to a railway corridor.
- KiwiRail identifies activities that may affect the safety or operation of the rail network as requiring assessment and engagement with KiwiRail before development proceeds.

Source: KiwiRail, “Developing land near rail”. Available at: https://www.kiwirail.co.nz/our-business/property/developing-near-rail/

WAIPA 2050
Value our Past - Champion our Future

# Waipa District Growth Strategy



Waipa DISTRICT COUNCIL

Beca

# ADOPTED BY WAIPA DISTRICT COUNCIL 30 JUNE 2009

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Waipa DISTRICT COUNCIL

# TABLE OF CONTENTS


**1 WAIPA 2050 – OUR FUTURE 4**

**2 TĀNGATA WHENUA PERSPECTIVES 13**

2.1 Background 14
2.2 Indigenous Community / Tāngata Whenua Community / Tāngata Whenua 14
2.3 Key themes for growth management 14
2.4 Te Tiriti o Waitangi 14
2.5 Core Values, wāhi tapu and wāhi whakahirahira 15
2.6 Papakāinga 15
2.7 Tāngata Whenua Documents 15
2.8 Partnership, engagement and participation 16
2.9 Action Steps 16

**3 WAIPA NOW – THE STARTING POINT 17**

3.1 District Challenges 18
3.2 Assumptions for Growth Management 19

**4 CONTEXT 20**

4.1 International 21
4.2 Regional 22
4.3 Hamilton Sub-Region 23
4.4 Waipa District 24

**5 WAIPA 2050 PROCESS 26**

5.1 Overview 27
5.2 The Base Case 27
5.3 Growth Scenario Identification 27
5.4 Consultation 29
5.5 Growth Scenario Evaluation 29

**6 FUTURE DEVELOPMENT PATTERNS 31**

6.1 Overview 32
6.2 Rural Environment 34
6.3 Cambridge / Hautapu 36
6.4 Te Awamutu & Kihikihi 41
6.5 Pirongia 49
6.6 Airport / Mystery Creek 51
6.7 Ohaupo 53
6.8 Ngahinapouri 55
6.9 Te Pahu 57
6.10 Rukuhia 59
6.11 Karapiro 61
6.12 Te Miro 63
6.13 Pukeatua 65

**7 IMPLEMENTATION 67**

7.1 Key Implementation Methods 68
7.2 Monitoring 69
7.3 Review 69


**LIST OF FIGURES**


**Figure 1** Estimated World Population Projections 21
**Figure 2** Waipa 2050 Growth Management Framework 25
**Figure 3** District Map 33
**Figure 4** Illustrations of Residential density development 33
**Figure 5** Cambridge Urban Growth Plan 36
**Figure 6** Te Awamutu and Kihikihi Urban Growth Plan 42
**Figure 7** Pirongia Urban Growth Plan 50
**Figure 8** Airport Growth Areas 51
**Figure 9** Ohaupo Village Growth Areas 53
**Figure 10** Ngahinapouri Village Growth Areas 55
**Figure 11** Te Pahu Village Growth Areas 57
**Figure 12** Rukuhia Village Growth Areas 59
**Figure 13** Karapiro Village Growth Areas 61
**Figure 14** Te Miro Village Growth Areas 63
**Figure 15** Pukeatua Village Growth Areas 65

# 1 WAIPA 2050 – OUR FUTURE




## TE WHAKAKOTAHITANGA O TE IWI O WAIPĀ KIA ANGA WHAKAMUA, KIA HAPĀI I TE TAIAO

## UNITING THE PEOPLE OF WAIPĀ FOR PROGRESS WHILE SUSTAINING THE ENVIRONMENT

The vision statement emphasises the importance that the strategy places on the people of Waipa (both present and future generations), working together to sustain the environment and maintain our Home of Champions. It is consistent with the district vision of – Waipa the Home of Champions – a great place to live, work and play. By 2050, an additional 27,000 people are anticipated to be calling Waipa District home.

Waipa 2050 aims to ensure that our District remains a great place to live, work, and play well into the future. It will provide a clear framework outlining what it is we aspire to have in the area, where additional population and employment is to be provided for and when and how this is expected to be done. Underpinning all this is the desire to ensure that, in planning for and managing growth, the character that distinguishes Waipa from elsewhere remains and is enhanced.

**Importantly, in 2050, Waipa will remain the Home of Champions.**

## AS PEOPLE OF WAIPA

- We are proud to live in the Waipa District, we participate in artistic, recreation and cultural activities and we work together to plan for the future;
- Our district is economically secure and provides opportunities for employment and growth;
- We value and protect our unique landscapes and healthy natural environment, while managing growth;
- We have healthy and active lifestyles, with access to a range of health, educational and recreational facilities and services. Housing is affordable and we feel safe; and
- We acknowledge and embrace our cultural heritage and the role it has played in characterising our past and shaping our future.

These themes along with the need to consider environmental issues such as climate change articulate key outcomes that as a community we want for our District.

It is important that when developing a strategy to guide growth management in the District for the next 40 plus years that we continue to refer back to these aspirations and ask ourselves are the policies, activities or actions being considered consistent with the community outcomes we have said we want for ourselves.

Further on in this Strategy we outline the context and process within which Waipa 2050 has been developed. We also highlight the anticipated future development patterns for the District and the actions to be taken to plan for and accommodate these. Essentially the strategy is driven by what we, the people of the District desire Waipa to be like in 2050.

To this end, the characteristics that will contribute towards achieving the stated community outcomes are outlined within the table below. Specific characteristics and outcomes related to tāngata whenua are included in Section 2. These statements identify the anticipated characteristics of land use in the District in 2050 and actions to be taken now to plan and provide for these to be achieved.

**The Waipa District Growth Strategy will support our vision of Waipa as the Home of Champions – setting the framework for us to create an environment which is a great place to live, work and play. It will do this by:**

- **Valuing what makes Waipa a special place and identifying actions or activities to protect and enhance these.**
- **Providing a policy framework which will guide, and where appropriate, encourage future growth in our district.**
- **Defining the pattern for future growth of settlements in the district (as opposed to growth locations being directed predominantly by the market)**
- **Providing certainty to the community and the market about what we want in our district, the level of amenity and where living, working and playing opportunities are to be provided for.**
- **Informing Council's infrastructure planning processes, to help to maximise the efficient timing and scale of infrastructure provision.**

**The vision will be implemented through a range of strategies and plans identified in the following tables and Section 7 of the Strategy.**

| OUR VISIONS – BY 2050 … | CURRENT RISKS & CONSTRAINTS | HOW WILL WE GET THERE? |
|---|---|---|
| **Urban Living is characterised by**<br>· Higher residential density in appropriate locations i.e. such as close to the central part of towns, potentially in combination with mixed use development into existing residential areas. On average, medium density housing occurs in the two main urban areas of Cambridge and Te Awamutu (12-15 dwellings per ha on a gross basis across all new developments).<br>· Greater redevelopment of existing urban areas, with this occurring under the guidance of Town Concept Plans and Structure Plans for new Greenfield areas.<br>· Urban growth in locations identified within Waipa 2050, with zone changes generally following the staged approach envisaged within that document.<br>· Development which has occurred in accordance with good urban design principles consistent with the Urban Design Protocol to which the Waipa District Council is a signatory and in accordance with the visions and Town Concept Plans established for the urban environments.<br>· Residential development at Pirongia Village remaining within the existing defined town boundaries and at densities characteristic of the existing village.<br>· Residential development within the District's other villages (i.e. Ohaupo, Ngahinapouri, etc) occuring in a planned manner and at densities reflective of the existing character and the unserviced nature of these villages.<br>· Appropriate housing (both in terms of volume and range of services) for the elderly being provided in close proximity to essential services for this sector of the community. | · Little redevelopment of urban areas (due, in part, to both market demand and statutory controls).<br>· New Greenfield developments typically of 8 - 10 dwellings per hectare.<br>· No urban design guidelines in place.<br>· More redevelopment occurring in rural areas.<br>· Private plan changes driving the planning of the District to a certain degree.<br>· The proportion of the districts elderly population (over 65) is expected to double over the next 50 years, with current housing stock not able to meet the future demand. | · Strong policy direction in the Regional Policy Statement.<br>· District Plan provisions which direct and control urban development to locations within 'planned' areas.<br>· District Plan provisions which consider housing needs of a changing population including the range of services and housing types appropriate for an ageing population.<br>· Investigating incentives for reduced development impact fees for redevelopment in existing areas.<br>· Providing a framework for new urban growth areas as part of Waipa 2050.<br>· Development of Town Concept Plans for each of Cambridge, Te Awamutu & Kihikihi, Ohaupo and Pirongia together with urban design guidelines for development within these areas.<br>· Consideration of the need for design criteria for the rural villages.<br>· Promotion of conservation measures (i.e. grey water tanks) in the design of new dwellings through statutory (code of practice) and non statutory (general awareness) measures.<br>· Staged provision of zoned land and associated infrastructure (road, water, wastewater, reserves) to accommodate growth and the use of structure planning / town concept plans to provide the framework for new growth cells. |

| OUR VISIONS – BY 2050 … | CURRENT RISKS & CONSTRAINTS | HOW WILL WE GET THERE? |
|---|---|---|
| **Rural Living is characterised by**<br>· Nodal rural lifestyle development within defined locations.<br>· Rural residential land having been planned for as part of the existing rural villages.<br>· A distinctly 'rural' amenity, reflecting the fact the rural area is a 'working' area that underpins local, regional and national economic performance.<br>· Limiting rural residential development to circumstances where significant biodiversity / environmental gains can be made.<br>· Limited service provision to rural residential living (i.e. limited streetlighting and footpaths). | · Little control over the location of rural subdivision.<br>· Reverse sensitivity issues arising from residential living occurring in rural areas. | · Identification of defined locations for rural residential development particularly around existing rural villages.<br>· Identification of situations where rural living could provide opportunities for protecting the natural environment (i.e. through the retirement of agricultural use that may have a greater impact on the receiving environment or through the use of transferable development rights).<br>· Identification in the District Plan of situations / locations where rural living is not suitable.<br>· Recognition (e.g. in the District Plan) that maintenance of the rural environment is imperative and that 'rural lifestyle' development throughout this area impacts on the ability of this area to be used efficiently.<br>· Promotion of conservation measures in the design of new dwellings through statutory (i.e. code of practice) and non statutory (general awareness) measures.<br>· Development of management plans for peat lake areas as a means of identifying areas suitable for rural living in the vicinity of these areas. |

| OUR VISIONS – BY 2050 … | CURRENT RISKS & CONSTRAINTS | HOW WILL WE GET THERE? |
|---|---|---|
| **Working in Waipa means**<br>· The majority of employment is in the primary sector, with manufacturing and retail also important.<br>· Increased levels of employment in the service sector as the population increases.<br>· The primary sector has retained its predominance overall. However, employment growth areas have also been strong in property, business services, retail trade, manufacturing and construction sectors.<br>· Reduced reliance on Hamilton City for employment.<br>· Tertiary education growth occurs at Te Wananga o Aotearoa in Te Awamutu with this site being the centre of this institution.<br>· Increased education needs for pre-school, primary and secondary schooling in the main centres of Cambridge and Te Awamutu based on the increase in populations of these areas.<br>· “Value-add” industries have been established and the clustering of these is emerging around transport nodes (road, rail, air). | · High levels of dependence on Hamilton as a place of employment.<br>· Increasing demand for industrial and commercial activities with little available zoned land (particularly in Cambridge). | · Provision for appropriately zoned land to enable employment opportunities to develop.<br>· Creating a level of certainty through Waipa 2050 as to the location and timing of new employment areas.<br>· Development of an Economic Development and Promotions Strategy. |

| OUR VISIONS – BY 2050 … | CURRENT RISKS & CONSTRAINTS | HOW WILL WE GET THERE? |
|---|---|---|
| **Travelling in Waipa is characterised by**<br>· Reduced car dependence and promotion of active transport modes such as cycling and walking.<br>· Development of key arterial networks, specifically the Cambridge Bypass, Te Awamutu bypass, Southern Links, and strengthened connections between Cambridge and Te Awamutu.<br>· Potential for passenger rail with the capacity for this retained.<br>· Improved level of bus service between main urban centres and Hamilton; Park and Ride at Cambridge and Te Awamutu connecting to frequent commuter bus services. | · There is limited provision for passenger transport.<br>· Key arterials and bypasses have not progressed, with the exception of the Cambridge Bypass and Southern Links. | · Providing opportunities for alternative forms of transport through the appropriate location of new growth areas (both Greenfield and infill) and the provision of guidelines for development within these areas which factor in accommodating public transport and routes / linkages for passive forms of travel.<br>· Providing certainty to those organisations responsible for bus, rail and state highway networks as to the location and level of growth expected within the District so that the appropriate levels of infrastructure can be provided for in a proactive manner.<br>· Through a close working relationship with government transport agencies.<br>· Promotion of alternative forms of travel (i.e. walking, cycling, car pooling, buses, etc) at the local level in co-ordination with other local authorities, regional council and central government.<br>· Transport Strategy in place and being implemented. |

| OUR VISIONS – BY 2050 … | CURRENT RISKS & CONSTRAINTS | HOW WILL WE GET THERE? |
|---|---|---|
| **Hard Infrastructure provision includes**<br>· Reticulated water networks to the urban settlements of Cambridge, Karapiro, Te Awamutu, Pirongia Village, Kihikihi and Ohaupo being maintained and the security of supply to rural areas being enhanced.<br>· Improved water quality meeting drinking water standards.<br>· A District wide 3 waters (Water supply, Wastewater, Stormwater) strategy which provides for the efficient and effective provision of these networks across the District.<br>· Two Wastewater Treatment Plants – one each in Cambridge and Te Awamutu which provide the capacity of the areas they serve with discharges effectively treated to comply with consent requirements.<br>· The potential for sub-regional provision of services where it is economical to do so.<br>· District wide management of onsite low impact stormwater systems such as ponds and swales.<br>· Improved stormwater discharge quality meeting consent requirements.<br>· Secure power supply in the District.<br>· The continued operation of the significant national assets in the District i.e. National Grid and Waikato Hydro System.<br>· Ready access to broad band facilities in the District.<br>· More efficient use of energy in the District.<br>· Existing rail corridors are protected (with the exception of the corridor from Hautapu into Cambridge). | · Water loss and water demand are high (both above the national average).<br>· Recent growth has occurred at the extremities of the reticulation networks.<br>· The large distance between water supplies restricts the ability to economically interconnect the supplies.<br>· There is no 3 waters strategy in place.<br>· The Cambridge WWTP has limited capacity.<br>· Cost of ongoing monitoring and compliance of consents.<br>· No design standards or practices in place with no NZ standards for onsite stormwater system.<br>· The current power supply to Te Awamutu has a level of risk associated with it as it is reliant on a single line to Te Awamutu. | · Providing certainty around the location and sequencing of new growth areas will enable the provision of hard infrastructure to be efficiently and effectively planned for.<br>· Council's Long Term Council Community Plan will identify (and budget) for major infrastructure works needed to accommodate the anticipated growth (at anticipated locations in accordance with defined staging patterns).<br>· Opportunities for out of staging development will be discouraged through strong policy direction.<br>· Development of a 3 Waters Strategy.<br>· A revised Code of Practice with a focus on green engineering and water conservation measures.<br>· Actively promoting improved broad band access in the District.<br>· Reviewing the District Plan provisions such that they do not unduly restrict the continued operation of the existing nationally significant infrastructural assets in the District.<br>· Working with Waipa Networks to improve security of power supply to Te Awamutu.<br>· Mechanisms for promoting increased security of power supply in the District will be investigated through the Environmental Strategy.<br>· Investigate mechanisms for protecting existing rail corridors (with the exception of the corridor from Hautapu into Cambridge) through the District Plan Review. |

| OUR VISIONS – BY 2050 … | CURRENT RISKS & CONSTRAINTS | HOW WILL WE GET THERE? |
|---|---|---|
| **Soft (community) infrastructure provision includes**<br>· Continued accessibility to schools, both within the urban and rural areas, with new schools to be planned for and accommodated where required to support growth.<br>· Continued reliance on Hamilton as a major health care provider with specialist facilities, with community based health provision catered for within Cambridge and Te Awamutu.<br>· Community halls continuing to be located in small rural communities and towns.<br>· Ecological corridors forming an integral part of the conservation/reserve network.<br>· Community reserves upgraded or provided to meet anticipated user needs/ demands<br>· Mystery Creek, Karapiro and the Kihikihi Domain being event sites which service the region and which have become more widely utilised and recognised internationally for the significant events they host.<br>· Increased influence of the tertiary sector (Te Wānanga o Aotearoa).<br>· Cultural Heritage sites being identified and sustainably managed (refer Tāngata Whenua section).<br>· Pools and active areas have been increased to accommodate the increased population. | · Rural residential development near events sites pose issues for the ongoing ability for those to operate with minimal impact.<br>· Ecological corridors have minimal protection. | · Providing certainty around the location and sequencing of new growth areas will enable the provision of soft infrastructure such as reserves, community facilities, schools, health care facilities, etc to be efficiently and effectively planned for by those organisations responsible for these services.<br>· Through a close relationship with those organisations responsible for community based infrastructure.<br>· Identification of ecological corridors and use of the district plan (e.g. transferable development rights) and other incentives to promote preservation and enhancement of these areas.<br>· New community reserves or upgraded ones provided by residential development (through reserve contributions).<br>· Identification and protection of heritage sites as a means of promoting sustainable management and enjoyment of these sites.<br>· Through a close working relationship with Tāngata Whenua (refer to Tāngata Whenua section).<br>· Protection of major events sites and the ability to operate sustainably on these sites through controls in the District Plan. |

| OUR VISIONS – BY 2050 … | CURRENT RISKS & CONSTRAINTS | HOW WILL WE GET THERE? |
|---|---|---|
| **Rural Land Management, Biodiversity and Soil Protection means**<br>· Protection of prime agricultural land and aggregates and other natural resources or features are given importance and these areas are protected from all inappropriate developments.<br>· Biodiversity corridors are identified, established and enhanced, for example, linkages between Maungatautari and other ecologically sensitive areas.<br>· The Peat Lakes between Te Awamutu and Hamilton are susceptible to degradation from incompatible landuse practices. Buffers around Peat lakes have been established to protect these lakes from inappropriate development and landuse practices.<br>· Rural land practices have improved, particularly in relation to riparian margin management and discharges from land to water and the sustainable management of peat land for agricultural purposes. | · Private plan changes and rural residential subdivisions are reducing the availability of prime agricultural land and access to aggregate and mineral resources.<br>· Ecological corridors have minimal protection.<br>· Agricultural activities continue to occur in close proximity to peat lakes and waterways. | · Strong policy direction and tightened subdivision controls around protecting elite soils and access to aggregate and mineral resources and defining the locations within our rural environment where development can and cannot occur (primarily through the District Plan).<br>· Development of an Environment Strategy which will outline the District's strategic response to the protection and, where appropriate, enhancement of the urban and rural environment.<br>· Development of an inventory of approved landuses in areas where it is deemed necessary (i.e. within sensitive receiving environments).<br>· Use of rural residential transferable development rights and other mechanisms in appropriate locations to provide for preservation and enhancement of nature areas/ features.<br>· Strong policy direction in the Regional Policy Statement with regards to protecting the district's biodiversity.<br>· Work with Environment Waikato and the Department of Conservation to promote and support improvements in rural land use practices and with Tāngata Whenua as part of the co-management of the rivers.<br>· Establishment of defined biodiversity corridors in statutory documents and the appropriate management of those corridors.<br>· Investigate the role of the District Plan to encourage better land use practices eg forestry on steep land.<br>· Work with Environment Waikato and the aggregate industry to identify key areas with mineral resource potential. A balance will be required between development around existing villages and the protection of the sand resource. |

# 2 TĀNGATA WHENUA PERSPECTIVES



## 2.1 BACKGROUND

The role of tāngata whenua[1] is an important one in successfully managing the district's growth in a sustainable manner. This importance is reflected in the history of Waipa and the unique relationship that tāngata whenua have with their whenua, awa, moana, maunga, taiao katoa; the land, waterways, ocean, mountains, wider environment and other people in the area as well as the aspirations that tāngata whenua have for the future. The significance of this relationship is reflected in the Te Tiriti o Waitangi (Treaty of Waitangi) and key pieces of legislation such as the Local Government Act and the Resource Management Act. As such tāngata whenua are recognised as partners in this project. Part of the development of the project involved confirmation of the engagement and participation process for tāngata whenua.

Tāngata whenua expressed a number of key themes, outcomes and actions. Not all of the elements relate to growth management and it is proposed that they be considered in a Memorandum of Understanding (MOU) between Council and Tāngata Whenua Groups, other Council plans and documents such as the review of the District Plan and the yet to be developed Environment Strategy.

## 2.2 INDIGENOUS COMMUNITY / TĀNGATA WHENUA COMMUNITY / TĀNGATA WHENUA

The place of indigenous people within the wider community, particularly in their traditional homelands, is an issue of global significance as shown by the United Nation's Human Rights Council adoption of the U.N. Draft Declaration on the Rights of Indigenous Peoples in 2006. In Aotearoa New Zealand, Te Tiriti o Waitangi obligations between the Crown and hapū continue to guide the manner in which tāngata whenua, regional and district councils, and other government agencies exercise their roles and responsibilities.

The outcomes from the settlement of grievances from breaches of Te Tiriti, coupled with ongoing capability and capacity building initiatives at individual, whānau, marae, hapū and iwi level, will further influence the part that tāngata whenua play in the district's growth. This will also be impacted by an expectation that tāngata whenua will continue to strengthen reo/language retention and use along with a desire to be able to choose to live, work and play within the context of tikanga/traditional practices.

## 2.3 KEY THEMES FOR GROWTH MANAGEMENT

Key themes identified by Tāngata Whenua are:

- Ongoing capacity and capability building of tāngata whenua, supported by the settlement of outstanding claims regarding breaches of Te Tiriti o Waitangi, and an increasing population that identifies as Māori/tāngata whenua, means that tāngata whenua consider they will be a leading economic influence in Waipā by 2050.
- This will lead to strengthened, restructured or new tāngata whenua social, political, environmental and economic structures that influence and impact the district. This is particularly so for organisations, such as Iwi authorities, that have been duly mandated by their constituent marae, hapū and/or iwi, have negotiated and settled claims on behalf of their constituents/beneficiaries and are charged with the governance and management of post-settlement assets and resources on behalf of their beneficiaries. For example, at the time of the development of the Growth Strategy Iwi authorities such as Waikato-Tainui had already demonstrated significant successes in this area and will continue to have a growing influence over the economic, social, cultural and environmental well-being of the district
- The place of the district in the national and international community must be optimised and whilst acting locally, tāngata whenua support thinking globally. Branding the district nationally and internationally will enable the district to capitalise on its various strengths.
- The opportunity to acknowledge, protect and enhance the biodiversity and cultural aspects of the district is a critical issue.
- Tāngata whenua support the development of a sustainable transport infrastructure that considers best use of road, rail, air, water, cycle, horse, pedestrian, public and private transport modes.
- Similarly a sustainable community infrastructure, including the ongoing servicing and maintenance of such infrastructure is supported. This includes residential, hospitals, schools, sports facilities, event hosting, recreation, parks and reserves, and general community amenities, etc.
- It is noted that access to or the incorporation of sustainable transport and community infrastructure is a measure of a successful papakāinga[2]
- It is expected that any action steps and outcomes will have appropriate monitoring and evaluation measures in place to assess for ongoing relevance of outcomes, action steps and processes.

## 2.4 TE TIRITI O WAITANGI

Te Tiriti o Waitangi partnership obligations between the Crown and hapū will continue to guide the manner in which tāngata whenua, regional and district councils, and other government agencies exercise their roles and responsibilities. This is an underpinning relationship principle between tāngata whenua of Waipā District and the Waipā District Council.

[1] In the Waipā 2050 strategy 'tāngata whenua' means 'Māori and their whānau, marae, hapū and iwi that whakapapa, or have genealogical connections, back to the land by virtue of first or primary occupation of the land by ancestor(s) through a variety of mechanisms such as maintaining ahi kā roa (long term occupation) or conquest.'

[2] For the purpose of the Waipā 2050 Strategy, 'papakāinga' means tāngata whenua communities, places where tāngata whenua live primarily clustered around marae and other places of significance. In Waipa 2050, 'papakāinga' also means contemporary or ancient marae sites with or without accompanying residences or buildings. The extent of individual papakāinga should be determined in consultation with tāngata whenua and is not necessarily confined to multiple owned Māori land. The definition may also extend to include taura here communities who establish modern/urban 'papakāinga'.

The relationship and context for Te Tiriti has been reflected in the engagement and participation of tāngata whenua in the development of the Waipā 2050 Strategy. This relationship and context will be further reflected in the Waipā 2050 strategy implementation.

The Treaty Settlement process and consequential implementation (for example, the incorporation of integrated river management plans for the Waikato, Waipā & Puniu Rivers and the implementation of the Vision and Strategy for the Waikato River) are likely to impact and influence a wide range of aspirations.

Clarifying roles and responsibilities under Te Tiriti o Waitangi, its articles and principles is an important step for Council and tāngata whenua.

## 2.5 CORE VALUES, WĀHI TAPU AND WĀHI WHAKAHIRAHIRA

The visions and values that tāngata whenua hold are closely aligned with those identified within the vision tables in section 1 and generally sit broadly across many of those aspects covered, be it our living environment, the economy, the way we travel or how our infrastructure is provided or managed.

Core values of tāngata whenua include:

- The unique relationship that tāngata whenua have with their whenua, awa, moana, maunga, taiao katoa: the land, waterways, ocean, mountains, wider environment and other people in the area. This encompasses a physical, mental, emotional, spiritual and metaphysical relationship that may be unique to the tikanga (practices) and kawa (guiding principles) of each marae, hapū or iwi. The practice of kaitiakitanga[3] is but one way that tāngata whenua give effect to this relationship:
- The health and wellbeing of wāhi tapu and wāhi whakahirahira being restored and protected.
- The relationship of tāngata whenua and the District's communities with wāhi tapu and wāhi whakahirahira is restored and protected.
- Success in restoring and protecting the health and well being of such sites includes, but is not limited to the retention, revival and use of historical place names; view lines/shafts to wāhi tapu and wāhi whakahirahira; appropriate buffer zones around wāhi tapu, wāhi whakahirahira and papakāinga; the protection of the peat lakes and their surrounds and an increase in biodiversity.

Section 7 identifies the implementation methods for the strategy. A key implementation method will be the requirement for structure plans for each growth cell area. This section outlines the key matters that will need to be considered as part of a structure plan including early engagement with tāngata whenua.

## 2.6 PAPAKĀINGA

Papakāinga may, by definition, be one of the last places where tāngata whenua can live as tāngata whenua or people of their lands. It is necessary to understand the relationship of tāngata whenua, according to their tikanga and kawa, with their papakāinga including their economic, social, cultural and spiritual relationships. It will also be necessary to allow for the relationship of the wider community with papakāinga including their economic, social, cultural and spiritual relationships.

By 2050 papakāinga will not necessarily be limited to multiple owned Māori Land around a marae complex. It is likely to extend to include communities living in and around marae, wāhi tapu and wāhi whakahirahira on privately owned, general title land. This may also include communities living in other urban or rural residential clusters. Papakāinga are aligned to thoughts around nodal and rural clusters. The access to or inclusion of transport and community infrastructure should be considered a measure of successful papakāinga.

Papakāinga may strengthen and arise from the settlement patterns of taura here[4] who wish to have a place to live, work and play as Māori within the Waipā district.

The demographics of papakāinga will change. For example, it may be that papakāinga populations will become younger with growing opportunities from hapū and iwi economic development encouraging younger people to move back to papakāinga. This will enable tāngata whenua the choice to live, work and play in the environs of papakāinga. This may also encourage the establishment of new papakāinga and marae while putting pressure on the current resources available for papakāinga use. It is important that there is accessibility to papakainga, both existing and proposed and both within the urban and rural areas.

## 2.7 TĀNGATA WHENUA DOCUMENTS

Waipā 2050 seeks to align with current tāngata whenua documents, such as Iwi Management Plans, and has the flexibility to reasonably consider and align with other core documents that, from time to time, may be developed by Tāngata Whenua Groups. This currently includes documents such as Whakatupuranga Waikato-Tainui 2050, Waikato-Tainui's Environmental Strategy, Waikato River Vision and Strategy, He Mahere Taiao – The Maniapoto Iwi Environmental Management Plan 2007, Raukawa Strategic and Environmental Plans and relevant Acts such as the Waikato Raupatu Settlement Act. Tāngata Whenua documents are recognised as part of the context of the relationship between Council and tāngata whenua and Council will have regard to relevant documents in its planning processes.

[3] In Waipā 2050, 'kaitiakitanga' means the responsibility of Tāngata Whenua to ensure that the mauri, or vital life essence, of their taonga is healthy and strong, in accordance with their tikanga (traditional sustainable management practises); and includes the ethic of stewardship.

[4] In the Waipā 2050 Strategy 'taura here' means Māori individuals and whanau who live within the Future Proof area but are tāngata whenua to other areas.

## 2.8 PARTNERSHIP, ENGAGEMENT AND PARTICIPATION

Not only is the role of Tāngata Whenua important in establishing a vision for Waipā, it is also important as a means of implementing, monitoring and reviewing that vision and the development and the implementation of Waipā 2050. Participation of, engagement and partnership with tāngata whenua that is sustainable, culturally safe and proactive is paramount throughout the life of the strategy and beyond.

## 2.9 ACTION STEPS

Tāngata whenua have identified a number of implementation actions. Some of these actions are best directed through the growth strategy while others are best considered through a proposed MOU or a mutually agreed more effective instrument, between Council and tāngata whenua and/or other strategies such as the District Plan. The matters which should be considered within this MOU include:

- Te Tiriti o Waitangi
- Core values, wāhi tapu and wāhi whakahirahira
- Papakāinga
- Tāngata Whenua Documents
- Implementation






# 3 WAIPA NOW – THE STARTING POINT

## 3.1 DISTRICT CHALLENGES

A review of the state of the existing environment identified eleven key challenges facing our District that will have implications for how growth should be provided for and managed in the future. These challenges and a summary of the consequential issues / matters to consider (in no particular order) are presented in the table below. The Base Case Report provides a more detailed assessment of these challenges.

**Table 1: District Challenges**

| DISTRICT CHALLENGES | MATTERS TO CONSIDER |
|---|---|
| An increasing and ageing population and how to best cater for this change. | · Urban form, housing types, housing needs of an ageing population, design, location and affordability. |
| A need to define Waipa's character and celebrate what makes it special and unique. | · Special elements of Waipa and how these special features can be retained, enhanced and embraced. |
| Protecting Waipa's land-based economy. | · Manage location and scale of growth to ensure protection of high quality soils and availability of mineral resources and ensure industry and activities that do not need high quality soils are provided for in appropriate locations. |
| Pressure on Waipa's ecology and environment. | · Opportunities for environmental gains to be made from particular growth scenarios.<br>· Ensure growth does not adversely impact on the natural environment. |
| Definition of employment type and location in terms of where development should occur. | · Provide employment opportunities within the district to make it more sustainable. |
| Need to provide 'hard' infrastructure, but what type, where, and how much it will cost. | · Provide certainty around future growth areas so that roading and services can be adequately planned for. |
| Need to provide community infrastructure (education, health and recreational facilities), but what type, where, and how much it will cost. | · Provide certainty around future growth areas so that community services can be adequately planned for. |
| Maintain and enhance urban amenity, form and character. | · What characteristics make a place great, how do we sustain these. |
| Maintain and where necessary protect rural amenity, form and character. | · A balance between agricultural production, other rural purposes and rural landscape values. |
| Maintain, develop and enhance efficient transport networks. | · Implementation of sustainable transport networks. |
| Protection and enhancement of Waipa's culture and heritage. | · Retain the special Māori and European features that make the district unique. |

## 3.2 ASSUMPTIONS FOR GROWTH MANAGEMENT

The following assumptions have been made on factors that will influence growth and how it is managed.

**Population**

- The population will increase with an additional 27,000 residents by 2050.
- The population will be ageing, with a doubling (to 30%) of the number of residents aged over 65 by 2050.

**Economy**

- Waipa will continue to have a land-based economy and protect its natural resources including soils as well as its landuses e.g. horse studs.
- Commercial demand will increase with population growth.
- No significant areas of additional industrial land are expected to be required (demand for more industrial land is likely to be catered for by growth areas which have already been identified, i.e. Bond Road, Hautapu, Titanium Park).

**Transport**

- The Airport will continue to develop and add value to the Waipa economy.
- There will be an increased use of rail for freight, for example to/from Te Awamutu via the North Island Main Trunk Railway Line and to/from Cambridge (Hautapu).
- The triangle between Auckland, Hamilton and Tauranga will continue to be and become increasingly important.
- Investment in arterial roading networks has occurred, including bypasses of Hamilton City, Te Awamutu and Cambridge; Southern links to the north of the District; arterial connection improvements between Cambridge and Te Awamutu.
- Inter-regional connections are also defined, particularly connection between Taranaki and Bay of Plenty as it traverses through the District (e.g. south and east of Kihikihi).

**Venues and Events**

- Ecotourism – for example Mt Pirongia, Lake Karapiro, Mt Maungatautari.
- Heritage and cultural development.
- Sport & Major events – Mystery Creek (including Fieldays, Parachute Music festival and the base for the WRC Rally), Karapiro (including 2010 World Rowing Cup, Maadi Cup, NZ Schools Triathlon Champs), Kihikihi Domain (including Speedway and Equestrian Centre).

**Water Environment**

- Co-management of the Waikato and Waipa Rivers and their catchments is in place and is an effective management mechanism.
- There will be an increasing need to conserve water and promote and provide for improved water quality in Waipa's lakes, rivers and streams.
- A 3 waters management strategy (water, wastewater, stormwater) will be in place and being implemented. The purpose of the strategy will be to maximise efficient water take and use and increase the quality of discharges.

**Community Infrastructure**

- Community infrastructure upgrades will be required including halls, active and passive reserves (i.e. both sports fields and open space), schools and medical centres.



06

# 4 CONTEXT

This section outlines growth trends and policies that are influencing growth planning and management at an international and regional level to place into context the growth management framework at the District level.

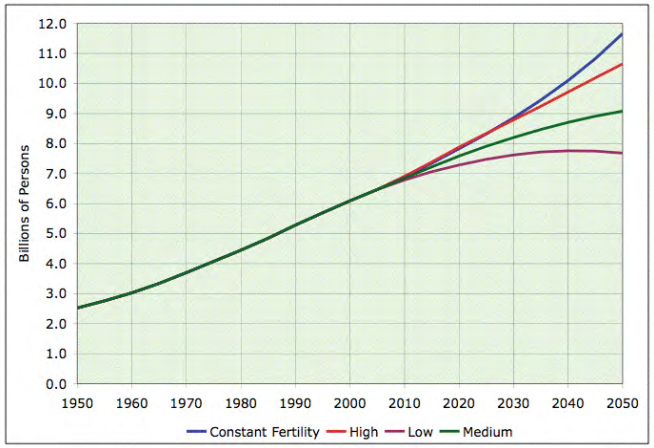
## 4.1 INTERNATIONAL

The global population is projected to grow from 6.1 billion in 2000 to 8.9 billion by 2050, an increase of almost 50%[5]. Despite predictions of decreasing growth rates, the annual increase in the global population will continue to grow by approximately 57 million per year over that 50 year period. Figure 1 outlines this forecasted global growth.

The attempt to project population growth over the coming four decades may seem to be farfetched to some, however, it is necessary as it allows population change to be put into perspective and guides important planning policy decisions. This is true not only for large scale global population projections but equally small local population increases. Unsurprisingly, global growth predictions correspond to the growth anticipated in the Waipa District between now and 2050.

The effects of population growth must be sustainably managed. Issues such as climate change, loss of biodiversity, worsening water quality, pollution and loss of productive soils have created an awareness of the negative implications of global population growth. Global climate change presents a major environmental challenge, both in seeking to reduce greenhouse gas emissions and in seeking to adapt to the effects of climate change. The effect of these long-term changes can be significant and it is therefore essential that climate change is recognised and factored into any long-term planning scenarios. Planning for existing and future settlement patterns needs to minimise greenhouse gas emissions and adapt to the effects of climate change. Ever increasing urban migration trends are adding to these impacts, with the loss of open space, urban sprawl, and escalating infrastructure costs adding to a degraded environment. A number of these trends are also apparent in the Waipa District.

**Figure 1: Estimated World Population Projections**




Global population growth and the implications of this have been addressed at a high level through a number of international policy and strategy documents with a focus on sustainability. The 1987 Bruntland Report alerted the world to the urgency of making progress toward economic development that could be sustained without depleting natural resources or harming the environment. Sustainable development was brought to international attention again in 1992 by Agenda 21. Agenda 21 is a blueprint for sustainability in the 21st century, making a commitment to sustainable development. This was signed by many of the world's governments, including New Zealand. These high level initiatives are produced with the aim of guiding growth decisions at the local level.

Notably, in parts of the Western world, initiatives have been introduced which focus on growth related policy development. Liveable Cities is one such initiative which has been introduced to ensure a high quality of life for current and future generations that is not separate from protecting the natural system. Liveable cities and similar growth management movements are based on key principles which can be attributed to any city or town of any size around the world.

**Key Principles:**

- Mixed land use
- Compact building design
- Housing opportunity and choice
- Variety of transport choice
- Walkable Neighbourhoods
- Distinctive attractive communities with a strong sense of place
- Strengthen existing communities
- Maintaining and enhancing open space, farmland and natural beauty
- Predictable, fair and cost effective decision-making
- Citizen stakeholder participation in development decisions
- Sustainable approach to the provision of infrastructure.

[5] United Nations Department of Economic and Social Affairs/Population Division, 2004.

## 4.2 REGIONAL

The population of the greater Waikato Region (as defined by the political boundaries of Waikato Regional Council) has increased by 7% since 2001, with a 2006 census population of approximately 380,000 people, making up 9.5% of the national population. The region has a number of strategic nationally and regionally important activities which are recognised for the benefits they contribute to the community. Key characteristics of the region include:



**ECONOMIC**

- Dairy & Equine Industries
- International Airport and related services
- Transport and Warehousing
- National Fieldays
- Agricultural Research Centres



**SOCIAL**

- Tertiary Education – Te Wananga O Aotearoa, Waikato University
- Waikato Hospital




**Cultural**

- Waikato River
- Land Wars
- First Landing of the Tainui Waka



**Environmental**

- Waitomo Caves
- Pirongia & Maungatautari Forest Parks
- Lake Taupo
- Coastlines, Rivers (Waipa, Waikato) & Peat Lakes

The previous table lists just some of the many unique attributes found within the Waikato Region. This area has a diverse landscape spreading from the coast to inland mountains. Although management of the region is split into 12 Council areas, it remains crucial to take into account the broader picture when determining growth strategies and policies and the Regional Policy Statement is intended to provide that link. The Waipa 2050 strategy has taken account of the importance of the social, cultural, economic and environmental aspects of the whole region while focusing on the district itself.

## 4.3 HAMILTON SUB-REGION

Future Proof, a combined growth strategy project between five councils (Hamilton City, Waikato, Waipa and Matamata-Piako District's and Environment Waikato) establishes a strategic plan for land use, infrastructure and roading to plan and provide for the future needs of the sub region. The NZ Transport Agency is also involved as a major partner, recognising the importance of coordinating transportation planning with that of land use. The vision for the sub-region is:

**In 2060 the sub region:**

- Has a diverse and vibrant metropolitan centre which is strongly tied to distinctive, thriving towns and rural communities.
- Is the place of choice for those looking for opportunities to live, work, invest and visit.
- Is the place where natural environments, landscapes and heritage are protected and a healthy Waikato River is at the heart of the region's identity
- Has productive partnerships within its communities, including Tāngata Whenua.
- Has affordable and sustainable infrastructure.
- Has sustainable resource use.

The sub-regional growth strategy is guiding the development of growth strategies for Waikato District, Waipa District and Hamilton City. It will also assist Environment Waikato in the development of their Regional Policy Statement and the NZ Transport Agency in the preparation of 5 and 10 year strategic plan for transport projects.

Underpinning Future Proof are a number of guiding principles which have been allocated to a range of strategic themes. These are intended to contribute to the effective management of growth. The strategic themes of Future Proof and commentary on how Waipa 2050 is consistent with these themes are provided in the table below.

**Table 2: Future Proof Key Themes**

| FUTURE PROOF KEY THEMES | WAIPA 2050 RESPONSE |
|---|---|
| Effective Governance, Leadership, Integration and Implementation | The District's Growth Strategy will be implemented through a number of statutory and non statutory documents ensuring effective integration and implementation. The strategy has evolved through a process involving the community, key stakeholders, Tāngata Whenua and interest groups and will continue to evolve through a regular review process. |
| Diverse and Vibrant Metropolitan Centre linked to Thriving Town and Rural Communities and Place of Choice – Live, Work, Invest and Visit | This growth strategy looks to manage growth so that it is directed predominantly towards the District's existing towns and villages. Identification of suitable areas for commercial and industrial growth has also been provided within these areas to provide greater opportunity to thrive and develop in a more sustainable (and less reliant) manner. |
| Protection of Natural Environments, Landscapes and Heritage and a Healthy Waikato River | For the Waikato River and its environs co-management will be a key mechanism to achieve this outcome. Buffer areas and appropriate setbacks along the River margins will be considered through the District Plan process, and biodiversity corridors will incorporate the Waikato River, Waipa River, Puniu River and principal tributaries.<br><br>Changing rural land use practices will aim to improve water quality. Collaborative and joint initiatives will be necessary to achieve this.<br><br>Management Plans will be developed and changes in landuse in sensitive catchments will be controlled.<br><br>Development in the rural environment will be primarily limited to those circumstances where a significant gain can be made to the natural environment. |
| Productive Partnerships | Waipa 2050 recognises the values, principles, aspirations, role, responsibility and place of Tāngata Whenua within the district. Section 2 outlines this in greater detail. |
| Affordable and Sustainable Infrastructure | Infrastructure and associated costs have been a factor considered in developing the preferred growth areas for Cambridge and Te Awamutu. Existing and known future infrastructure and transport corridors have been considered in the identification of new growth areas also. |
| Sustainable Resource Use | New development areas identified through Waipa 2050 have had consideration to known hazard areas and mineral locations (particularly sand). Waipa 2050 also looks to promote a low energy, low carbon sustainable environment. |

## 4.4 WAIPA DISTRICT

By 2050 an additional 27,000 people are anticipated to be calling Waipa District home. Whilst much of this growth is likely to be gradual, the District is expected to grow at a rate above that of the national average, reinforcing what we already know that the District is an attractive place to live. But what does make, and will make the District attractive? A number of reasons are outlined below:

Waipa has iconic landscapes with volcanic mountains, lakes, rivers, rolling farmland, and domed peat lands, all with a rich cultural heritage, which combines to make an attractive place for people to live and work and for tourism.

Waipa is in close proximity to Hamilton which provides people in Waipa with a wide range of employment opportunities.

As more people decide to settle in the District's main centres of Cambridge and Te Awamutu, they attract more services and amenities and are moving towards being more self-sustaining towns.

The local economy provides employment; primarily in the agriculture sector which is the most significant industry in the District. However, much employment is also provided in manufacturing and retail trade. Key growth areas between 2000 and 2007 included manufacturing, construction, retail, accommodation, cafes, restaurants, property and business services and personal services.

Many people are moving to the District for the lifestyle that living in rural areas provides. People of retirement age are also attracted to live in the District.

Tourism is a growing industry nationally: the most important tourist attractions in Waipa include horse breeding and training, agricultural field days, rowing and, more recently, Maungatautari Ecological Island as an eco-tourism destination.

Waipa is well connected – transport within the District is dominated by roads such as State Highways 1, 3, 21 and 39, the North Island Main Trunk Line passes through it and there is an International Airport located in the northern part of the District, south of Hamilton City.

Changing patterns of land use such as providing buffer zones between agricultural activities and waterways and planting of riparian margins; and rural residential lot development may be encouraged where appropriate around peat lakes and riparian margins.

So we know that growth will occur within the District. We know that growth management is being undertaken on a number of levels and that there are a range of tools available for the implementation of growth management measures. Figure 2 below outlines the relationship between Waipa 2050 and those other tools and influences on growth management.



**Figure 2: Waipa 2050 - Growth Management Framework**

## NATIONAL

**Resource Management Act 1991**

**Local Government Amendment Act 2002**

**Land Transport Management Act 2003**

## REGIONAL

**Waikato River Vision and Strategy**

Prepared by the Waikato River Guardians Establishment Committee to identify, amongst other things, key principles for land use planning within the Waikato River catchment, including principles for taking, for using and discharging water to the Waikato River.

**Future Proof**

This strategy sets a framework for the planning and management of growth at the sub regional level (Hamilton City; Waipa, Waikato and Matamata-Piako Districts') over the next 50 plus years.

**Waikato Regional Policy Statement**

The purpose of the RPS is to provide an overview of the resource management issues of the region and the means through which integrated management of the region's natural and physical resources is to be achieved (s.59 RMA 1991). It sets the direction for management of the Waikato region's natural and physical resources over the next ten years – and decisions made on matters like infrastructure for many years beyond.

## LOCAL

**Waipa District Growth Strategy**

This strategy deals with setting the framework for the planning and management of growth in the District over the next 40 plus years.

**Town Concept Plans**

Provide a more detailed structure of the framework and guidelines for development within Cambridge, Te Awamutu and Kihikihi, Ohaupo and Pirongia and direct any zoning changes required in the Waipa District Plan.

**Waipa Environment Strategy**

The Environment Strategy is directly related to the environmental wellbeing component of the community outcomes. Its purpose is to identify key principles for sustainability and to provide strategic direction at a district level. The key principles will relate to national directions on matters such as the Biodiversity Strategy, Climate Change, Urban Design Protocol, heritage and waste management.

**10 Year Plan**

This document describes the District's sustainable development goals, what we are going to do to achieve them, when we are going to do it and how much it is going to cost.

**District Plan**

The District Plan gives effect to the purpose of the Resource Management Act and identifies significant resource issues and the methods for managing these to ensure that development occurs in a sustainable manner.

**Asset Management Plans**

These detail Council's desired levels of service for delivery of its core services (water, roading, wastewater etc.). They outline anticipated maintenance and improvement costs over a 10 year period and measures being taken to monitor achievement.






# 5 WAIPA 2050 PROCESS

## 5.1 OVERVIEW

The diagram below identifies the process that has been followed in the development of Waipa 2050.

**The Base Case (June - August 2008)**



**Growth Scenarios (September 2008)**



**Consultation (October 2008)**



**Growth Scenario Evaluation (November & December 2008)**



**Draft Growth Strategy (March 2009)**



**Consultation (April 2009)**



**Final Growth Strategy (June 2009)**

## 5.2 THE BASE CASE

This phase of the project focused on providing a snapshot of our District as it stood in 2008 in order to identify key issues, constraints and opportunities for growth management in the district.

The Base Case Report was developed from 14 individual profile statements or technical reports covering the following:

- Tourism
- Heritage
- Economy
- Natural Landscape and Character
- Physical Environment
- Social Services
- Urban Growth
- Water
- Wastewater
- Stormwater
- Transportation
- Waste Management and Utilities
- Cultural Heritage
- Strategic Policy

## 5.3 GROWTH SCENARIO IDENTIFICATION

Following on from the development of the Base Case were the development of different growth scenarios to describe how growth could be managed between now and 2050. These scenarios were based at a high level on the scenarios developed for Future Proof; however the detail was explicitly Waipa. In order to compare the scenarios, each were described in terms of what 2050 would be like under each scenario with regards to: urban living, rural living, employment, travelling, hard infrastructure provision, soft community infrastructure provision and biodiversity & soil protection.

This section summarises the 3 growth scenarios that were identified. Each of these scenarios are detailed within a separate report titled “Waipa 2050 Growth Scenario Descriptions” produced in October 2008.

### SCENARIO 1: Business as Usual

This is what the future may look like if we continue to do things much as we do today, reflecting thinking of 10 or even 20 years ago. Much of the residential growth within urban areas is in greenfield locations and typically represents a density of approximately 10 dwellings per hectare. Residential development within rural areas has limited control. As a district, we have a high dependency on cars.



### SCENARIO 2: Managed Growth

This is a future based on the current practices that have developed through recent research and planning. We know that things are changing; we are moving to an ageing population; more energy is required and the costs of providing energy are rising; houses are becoming less affordable and people continue to be concerned about the global effects of increased human activity.

Having more compact urban areas, prudent management of rural land resources and efficient public transport are currently seen as major steps towards achieving a sustainable future. The protection of biodiversity and natural resources is also fundamental. This growth option takes a long term view and tries to anticipate what future needs may be, including an increase in the number of households on a smaller land area in locations where higher densities are able to be supported. Growth in urban areas would be specifically directed to certain locations and infrastructural capacities and locations would be planned, staged and funded.

Growth within the rural environment would be directed where appropriate to our rural villages through limiting the ability to develop within the general rural environment and providing additional opportunities within the existing villages.



### SCENARIO 3: Consolidated Growth

This scenario imagines greater consolidation within Hamilton City with consequently less people in Waipa District. Under this scenario the Waipa population is anticipated to increase by 20,250 by 2050 (not by 27,000 as for Scenarios 1 and 2) and the majority of the population is accommodated within either Cambridge (Scenario 3A) or Te Awamutu (Scenario 3B).

Residential development within urban areas is at higher densities and a greater level of infill development is occurring.

This scenario asks the question whether we are doing enough. The third scenario (Scenarios 3A and 3B) has a greater emphasis on sustainability, doing more to protect land for productive purposes and ensuring that discrete settlements are protected by green belts (with limited development opportunities).



## 5.4 CONSULTATION

The scenarios were consulted widely to gather a broad range of perspectives and opinions on them and what they meant for growth management. This consultation included one on one meetings with key stakeholders; public open days in each of Te Awamutu, Cambridge and Pirongia during October 2008; and the opportunity for the public to provide formal feedback. Tāngata Whenua were also engaged through a series of Hui.

## 5.5 GROWTH SCENARIO EVALUATION

In order to assess the scenarios, evaluation criteria were developed with a focus on key elements or opportunities for promoting, managing or providing for sustainable development in the District and responding to the key issues / challenges for the District.

### 5.5.1 COMMUNITY WORKSHOP

A community workshop was held on 14 November 2008 with a group of key members of the community. The aim of this workshop was to confirm the scenarios, confirm the evaluation criteria to be used, apply a weighting to the criteria and assess the scenarios using the criteria developed.

See table 3 for a summary of the evaluation criteria used.

In addition to the 3 scenarios identified, input was sought as to whether there were any other scenarios that should be considered. The workshop attendees generally agreed with the 3 scenarios, however representatives did suggest 2 alternatives for consideration, these being:

1 Development of a new town;

2 Greater development of the rural villages.

**Table 3: Growth Scenario Assessment Criteria**

| ASSESSMENT MATTER | DESCRIPTION |
|---|---|
| Urban | The impact of development location and scale on urban amenity and character |
| Rural | The impact of development location and scale on rural amenity and character |
| Working | The affect of the growth scenario on employment rates and location of employment |
| Travelling | The ability to maintain, enhance or develop efficient multi-modal transport linkages between settlement areas |
| Hard Infrastructure | The ability of the growth scenario to provide practical and cost effective hard infrastructure |
| Community Infrastructure | The ability of the growth scenario to provide practical and cost effective community infrastructure |
| Cultural/Heritage Environment | The opportunity to protect, enhance and restore the cultural and heritage environment |
| Biodiversity; Soil Protection & Natural Environment | The ability to minimise impact on primary agricultural or mineral soil resources and the natural environment |

These two scenarios were not considered further as they were not deemed to be feasible for the following reasons:

- Cost of new infrastructure (to service a new town in a Greenfield location and to significantly develop an existing unserviced village)
- Unlikelihood of the market to choose to significantly grow in the villages due to a desire to retain the existing character.

### 5.5.2 PUBLIC SUBMISSIONS

From mid October to mid November, feedback was sought from the public on the scenarios identified. In total, 43 submissions were received with a number of these parties also choosing to present their submissions to Council on December 2nd 2008. This feedback tended to support a hybrid of scenarios 2 & 3. Very few people supported the idea of growth being focused in either Cambridge or Te Awamutu. There was also strong feedback from Pirongia residents that Pirongia's growth be managed within the existing well defined village boundary.

### 5.5.3 GROWTH CELLS

As a means of implementing the preferred growth scenarios to understand where our towns and villages could possibly extend to, possible growth directions were developed for Te Awamutu and Cambridge for the October Community Workshop and also made available for public feedback. Feedback was received from these forums on any fatal flaws, or any additional growth areas that should be considered further. In December 2008 (the feedback received provided a degree of comfort with

understanding a preferred scenario – at least for the purposes of proceeding with a draft strategy. An internal Council staff workshop was held to discuss the growth cells. The purpose of the workshop was to consider:

- Which growth cells should be considered as part of the draft growth strategy
- What the principal land use of the cell would be for
- The sequencing (if applicable) that would apply to each area.

A list of assessment matters used are outlined in the following table:

**Table 4: Growth Cell Evaluation Criteria**

| ASSESSMENT MATTER | CRITERIA |
|---|---|
| Living/working | **Residential**<br>The desirability of the growth cell from a new market perspective for residential development, i.e. how attractive is the growth cell likely to be for residential development.<br><br>**Commercial**<br>The desirability of the growth cell from a market perspective for commercial development (offices, retail), i.e. how attractive is the growth cell likely to be for commercial development.<br><br>**Industrial**<br>The desirability of the growth cell from a market perspective for industrial development, i.e. how attractive is the growth cell likely to be for industrial development. |
| Connections | The ability of the growth cell to connect with the existing urban fabric and the proximity of the growth cell to key infrastructure (hard and community). |
| Accessibility | The proximity of the growth cell to key transport connections (existing and future proposed) including arterial road networks, rail corridors and public transport links. |
| Ability for land to Change | The likelihood of the growth cell being developed based on what is known about the current ownership regimes. |
| Protection | The ability to protect land from inappropriate development having consideration to the ecological values of the land, the need to protect high quality soils and the need to protect development from land not suitable to intensification. |
| Affordability | The proximity of the growth cell to key infrastructure (hard and community) and the practicality of being serviced. |

### 5.5.4 EVALUATION CONCLUSION

The outputs from this community workshop, together with the feedback received from the general public and Tāngata Whenua enabled the identification of a preferred growth scenario upon which this growth strategy could be developed. This preferred scenario saw elements from each of the 3 original scenarios being adopted with the preferred scenario generally reflecting the settlement pattern identified in scenario 2 but with the sustainable elements of scenario 3.

The preferred scenario is articulated within section 1 as the District's vision and described further in section 6 in terms of what it means for future development patterns.






# 6 FUTURE DEVELOPMENT PATTERNS

## 6.1 OVERVIEW

By 2050 it is anticipated that the District will be home to an additional 27,000 people. Table 5 below provides a breakdown of where in the District this additional population is to be accommodated. Over the next 40 years it is intended that the vast majority of the population will be accommodated within existing urban areas as Council looks to provide for more consolidation and more control of rural subdivision. It is acknowledged that it will take time for this shift to occur. For this reason the table includes an anticipated additional population range in the urban and rural areas. The lower end of the range represents a range of 80/20 for the additional urban vs rural population. The top end of the range represents a range of 90/10 for the additional urban vs rural population. The district wide map (Figure 3) following table 5 represents that graphically. This map also identifies biodiversity corridors and a Waikato River Corridor. A diagram (Figure 4) is also provided adjacent to the district wide map depicting examples of varying densities. In general terms, average housing density for new dwellings within the 2 main towns is expected to be in the 12-15 dwellings per hectare range whilst unserviced areas will be 2-3 dwellings per hectare.

**Table 5: Waipa District Population 2006-2050**

| AREA | APPROXIMATE CURRENT POPULATION (2006 CENSUS) | APPROXIMATE ADDITIONAL POPULATION 2050 | TOTAL POPULATION 2050 |
|---|---|---|---|
| Cambridge | 13,300 | 11,085 - 12,460 | 24,385 - 25,760 |
| Te Awamutu and Kihikihi | 12,700 | 8285 - 9,340 | 20,985 - 22,040 |
| Pirongia | 1200 | 720 - 800 | 1,920 - 2,000 |
| Ohaupo | 420 | 280 - 320 | 700 - 740 |
| Ngahinapouri | 200 | 360 - 400 | 560 - 600 |
| Te Pahu | 100 | 135 - 150 | 235 - 250 |
| Rukuhia | 100 | 135 - 150 | 235 - 250 |
| Karapiro | 200 | 445 - 500 | 645 - 700 |
| Te Miro | 100 | 85 - 100 | 185 - 200 |
| Pukeatua | 50 | 70 - 80 | 120 - 130 |
| Rural Area (including rural residential outside of the rural villages but including potential growth at Te Mawhai) | 14,630 | 2,700 - 5,400 | 17,330 - 20,030 |
| **Total** | **43,000** | **24,300 - 29,700** | **67,300 - 72,700** |

**Sections 6.2 – 6.13** describe the anticipated character of the District by 2050, being broken down into the general rural environment and specific descriptions for each town and village. In the maps that follow each town or village, the area shown as the current town boundary represents the extent of growth as at 2009. It does not represent zone boundaries or indicate areas that will be serviced. Individual sequencing and infrastructure tables are also provided for each town and village. These tables outline the growth cells, the staging of the growth cells and the infrastructure requirements to serve those cells identified. Where the infrastructure has been identified within the 2009-2019 LTCCP these and their associated costs have been included. Where they have not been identified within the LTCCP, rough order costs have been attached to these items. Those items not identified may be included in subsequent 3 and 10 yearly reviews of the LTCCP or alternatively developer funded. In addition, the tables identify the likely dates within which the growth cells will be developed. These dates are indicative only and have been based on projected growth rates on an annual basis within the associated town or village. The key aspect to the timing of development relates to the staging and sequencing of the growth cells in relation to each other rather than a date on which the growth cells will be released for development.

**Figure 3: District Map**

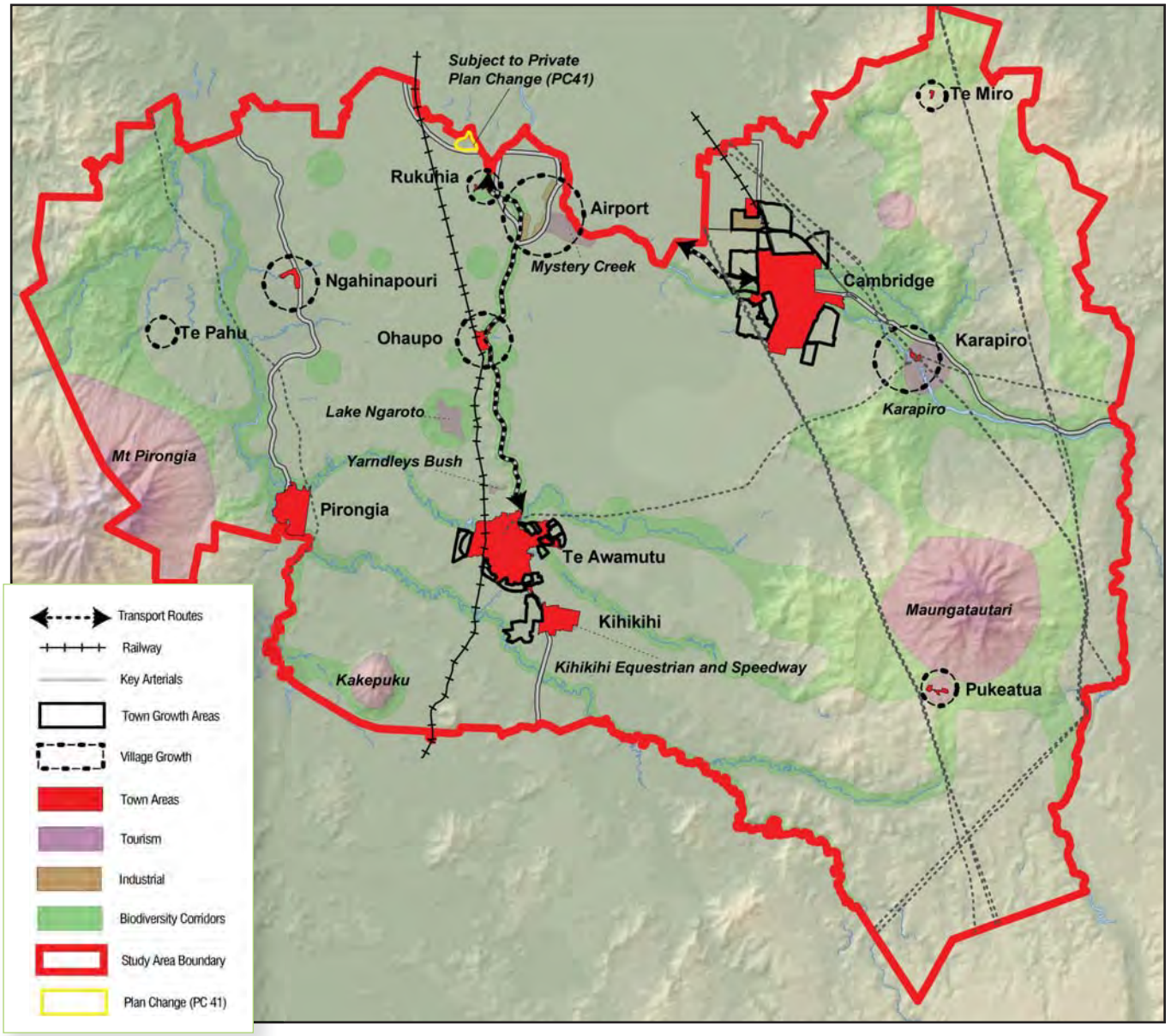
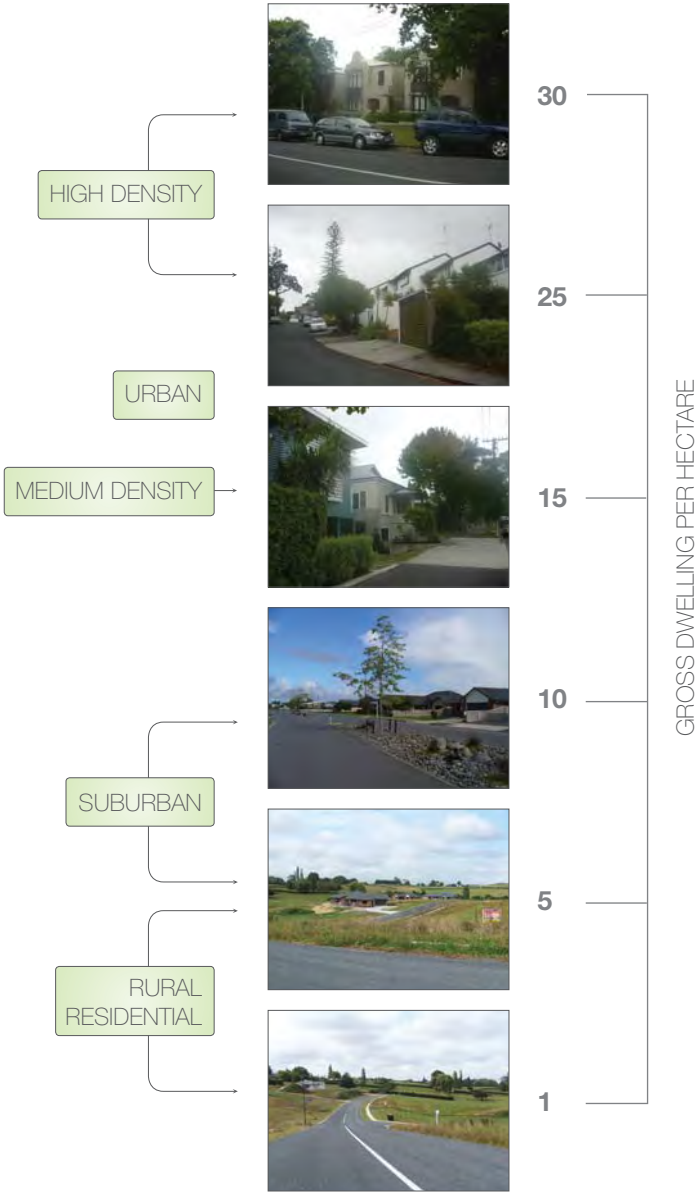



**Figure 4: Illustrations of Residential Density Development**



## 6.2 RURAL ENVIRONMENT

### 6.2.1 VISION

In 2050, the Rural environment remains at the heart of the District's economy and our high quality productive soils are protected. The use of our rural environment has diversified, however, and there are other aspects beyond primary produce that make it a success, including:

- Innovative ideas for locating living environments to protect specific values within our rural environment;
- Preservation of key biodiversity areas and biodiversity corridors; particularly those associated with our volcanic cones and peat lakes;
- Improvement of rural land use practices, particularly in relation to riparian margin management and water quality.

The sections below expand on the key points above to assist with managing growth and development within the rural environment.

### 6.2.2 LIVING ENVIRONMENT

Living opportunities within the rural environment are provided for those persons required to locate within a rural area due to their association with the land i.e. farm owner and workers dwellings.

For those persons who do not have a direct association with the rural environment but who seek to locate outside of the main urban centres, areas of zoned land for rural residential living are provided within or on the margins of the existing towns and rural villages. This includes the proposed rural residential area adjoining Hamilton to the south as promoted through private plan change 41 (Findlay). The plan change is currently subject to appeals to the Environment Court. This growth cell has an area of approximately 150ha and will provide approximately 140 dwellings. Part of the site is likely to be needed for Southern Links and staging of development will need to take this into account.

The provision of appropriately zoned land within the main urban centres and the rural villages will provide a suitable range of living environments to accommodate 90% of the District's forecasted population increase. There will be a desire from the remainder to locate on 'lifestyle blocks' away from existing settlements and for general rural subdivision in order to provide for greater flexibility for rural land use practices.

There are a number of opportunities for developments in the Te Mawhai area. AgResearch Ltd is converting the Tokanui Agricultural Research Farm into a Dairy Research farm facility and also plans to develop an associated research campus. There is also the potential for further development in conjunction with Mangatoatoa Marae once the settlement process has been completed. In respect of the research facility it will be important that the location of any adjacent development is managed and located carefully to avoid potential reverse sensitivity effects.

In order to provide for living choice throughout the District, it is considered appropriate to provide limited opportunities for such development, provided these developments do not compromise the key principles surrounding what makes the District special. In doing so it is also important that there remains flexibility within which the market can operate to determine the specific locations within the District for such developments. Such locations maybe in the vicinity of peat lakes which, in turn, may provide opportunities to retire inappropriate landuses from the lake margins by securing buffer areas around the lake resulting from development in their vicinity. In these instances, it is recommended that peat lake management plans be prepared to better understand the most appropriate way of managing the lakes (and in order to identify the lakes which would benefit most from this form of development).

Whilst a level of flexibility will be provided where environmental gains can be made, it is anticipated that there will be tighter controls on existing mechanisms for subdividing within the rural environment (i.e. long association lots, surplus house lots, etc). Greater emphasis may be placed on the use of transferable rights particularly for promoting development within the rural villages and as a means of protecting areas of significance within the rural environment. The District Plan review process will include an investigation of mechanisms for the use of transferable rights. This may include the setting aside of land within the rural villages as a deferred zoning with the ability to develop within these areas only able through the transferring of titles from areas of significance.

The District Plan will ultimately provide the criteria within which the ability to subdivide and develop within the rural area will be based. This growth strategy will provide the basis from which those controls will be developed.

The key principles for the management of rural living are:

- Protection of high quality soils for productive use;
- Protection of areas of ecological significance (i.e. peat lakes);
- Protection of outstanding natural landscapes;
- Maintenance and enhancement of rural amenity;
- Avoidance of potential reverse sensitivity issues; and
- Managing urban sprawl.



**Rural Residential Living: Forkert Road between Ohaupo and Ngahinapouri.**

### 6.2.3 ECONOMY

By 2050, primary produce and agriculture will remain the main economic source of the District. Pressures from global population increase will only increase the demand for this. As such the retention of large landholdings, primarily for dairy, is protected where possible, whilst suitable opportunities for other viable landuses within the rural environment are provided. The following aspirations for protecting and advancing the rural economy are identified:

1 unless otherwise provided, the rural area is to provide for agricultural pasture based landuses (including the equine industry),

2 sand and aggregate resources throughout the District are mapped and protected from development which would impact on the ability to mine this resource.

3 orchards and horticultural activities (including the selling of these goods on site) are encouraged on existing small landholdings (<10ha) and / or as a buffer between the rural and living environments, with consideration given to potential spray drift issues.

4 rural industry (including farm contractors and the like) are provided for on roads where the level of traffic can be supported and away from existing rural-residential environments.



**Maize harvesting**

### 6.2.4 BIODIVERSITY

In 2050 the Waipa District is rich in biodiversity.

This has been achieved through a number of protection and enhancement initiatives. The following aspirations for protecting the District's biodiversity are identified:

1 The District's biodiversity corridors are identified and mapped;

2 The primary areas (the areas which the corridors connect – i.e. the peat lakes and volcanic cones) are set aside and buffers are provided around them.

3 The secondary areas (the corridors themselves) are managed through joint initiatives between landowners and the local councils including the retirement and riparian planting of land adjacent to waterways.



**Lake Rotomanuka**

### 6.2.5 TOURISM

The District's agricultural & equine base, cultural heritage, natural landscapes and biodiversity play a key role in both attracting tourists to the region and for retaining those that may otherwise have been passing through the District. The key tourist features within the District are:

- National Fieldays & Mystery Creek Events
- Lake Karapiro & associated sports
- Kihikihi Domain (including Speedway and Equestrian Centre)
- Maungatautari Ecological Reserve
- Peat Lakes & Kahikatea Stands
- Cultural Heritage Sites

The following aspirations for protecting and enhancing the District's tourism are identified:

1 Protection of these areas from development which may impact on the features that attract people to them; whilst

2 Providing for suitable facilities and amenities to support the tourist area.

3 Preparation of an Economic Development and Promotions Strategy.



**Lake Karapiro**

## 6.3 CAMBRIDGE / HAUTAPU

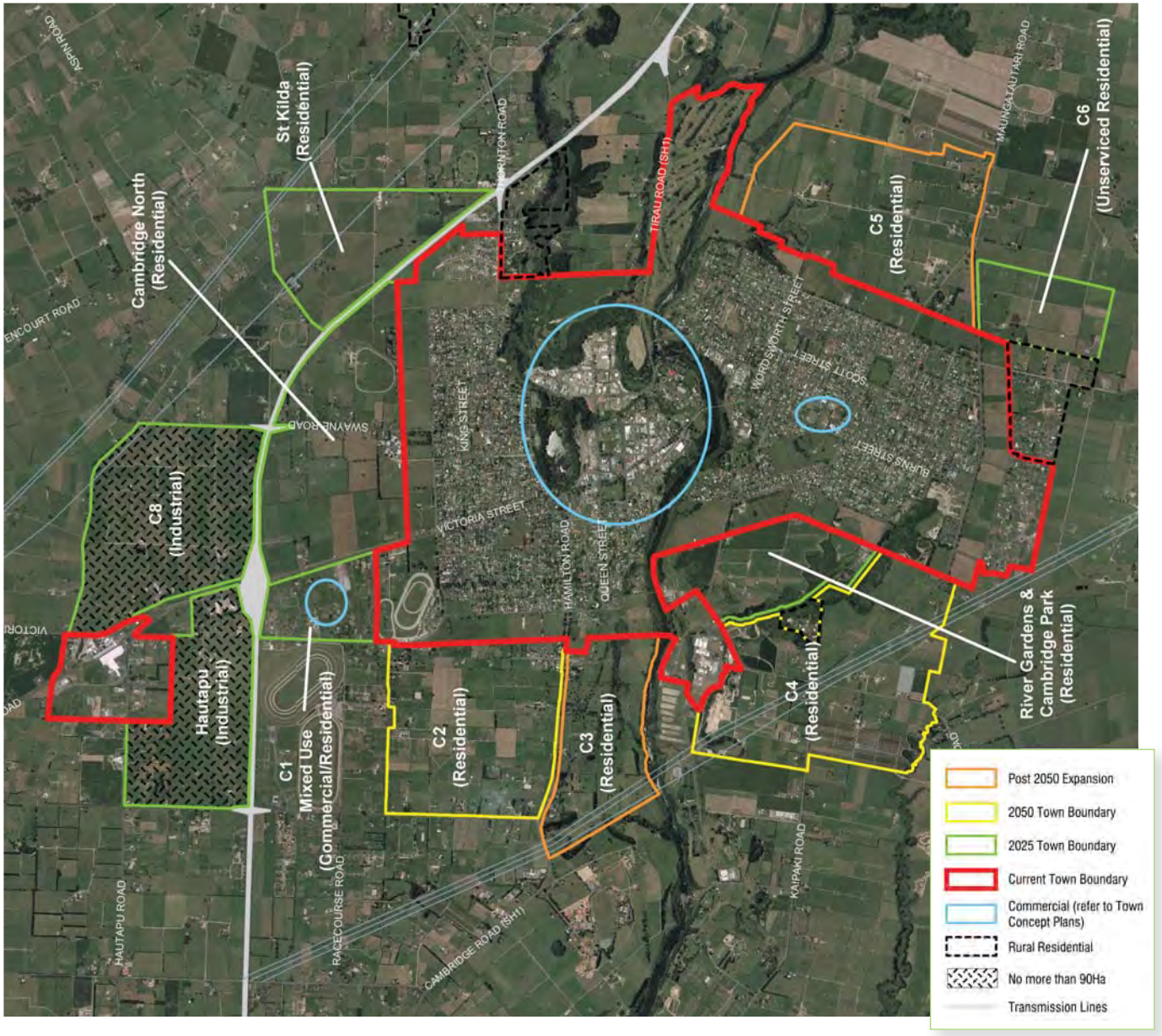
### 6.3.1 VISION

By 2050, Cambridge will be home to approximately 25,460 people, an increase in population by approximately 12,460. To cater for this growth approximately 385ha of new residential land, 40ha of industrial land and 27ha of commercial land (including 5ha of retail with the remaining being primarily office space) is required. The importance of the equine industry to Cambridge has also been considered and a well defined location for the clustering of equine activities is envisaged within close proximity to existing facilities to the north-west of the existing township. In addition, the new greenfield growth cells have been located with the ability for the equine industry to continue to locate and contribute to the character of Cambridge in mind. The Cambridge Golf Club remains an important recreational area for the town. Additional on-site activities and facilities are now available at the golf course including some villa accommodation. The anticipated growth of Cambridge has been planned for and now managed in accordance with a defined town concept plan.



**Cambridge Town Clock**

**Figure 5: Cambridge Urban Growth Plan**



### 6.3.2 RESIDENTIAL

An additional 4,615 households are required to match the population projection. This corelates to a rate of approximately 115 households per annum requiring approximately 9.5ha of development land per year. Whilst the two halves of Cambridge (Leamington and Cambridge) are of a similar size and developments are occurring on both halves, it is expected that growth out to 2050 will not be equally spread between these two areas. Instead growth is expected to be more popular on the northern side of the river, and to a degree this should be provided for. The principal reasons for this are:

- proximity to Hamilton;
- proximity to community services (schooling and meeting the needs of an ageing population) and areas of employment;
- proximity to the Cambridge bypass and potential passenger rail facility at Hautapu.

Despite this, Leamington is still expected to grow and initiatives to cater for this, such as improved commercial and community services and the likelihood of a third river crossing will only assist in providing for this. As such a 60/40 ratio for development between Cambridge North and Leamington is considered appropriate as a broad basis for planning new growth areas and the likely timing of these being developed. This results in demand of approximately 6ha per annum for Cambridge North and 3.5ha per annum for Leamington.

**Infill Development (within the existing Town boundaries)**

Development within the existing town boundaries is currently managed by the minimum lot size requirements of the District Plan. The Town Concept Plan to be developed for Cambridge will give greater consideration to areas within the existing town boundaries which are suitable for redevelopment as well as locations where the existing residential density should be retained (regardless of lot sizes). Essentially the proposed new regime will look to promote intensification provided such development does not impact on the overall character of the township. There are a number of reasons for seeking to promote higher density development where appropriate, notably:

- To provide for a variety of living choices being made available;
- Assist in the regeneration of existing areas;
- Provide greater opportunities for walking and cycling for those residents (being closer to amenities than greenfield developments on the extremities of the urban areas);
- Efficiencies can be gained in servicing infill areas.

There are a number of statutory and non statutory mechanisms available for providing for higher density development within the existing town boundaries. One of these can be in the setting of development contributions that vary on the basis of the nature of the development (i.e. density and location).

**Greenfield Development**

Whilst higher density infill development is expected in some parts of Cambridge, it is considered prudent to provide for adequate greenfield development areas within which the development market can operate. On this basis, land supply for greenfield development will not be restricted as a means of promoting higher density development within the existing urban areas. However the release of greenfield land will be planned so that development occurs in a co-ordinated manner. There are a number of new growth areas already under development and essentially these provide for the initial Stage 1 development. In 6.3.3 below the proposed staging, the new growth areas to be released for development within these stages, their capacity and the preconditions required in order for new growth areas within the next stage to be developed has been identified. Figure 5 depicts the location of the growth cells.

## 6.3.3 SEQUENCING AND INFRASTRUCTURE

| STAGE | GROWTH CELL | CAPACITY (DWELLINGS UNLESS STATED) | PRECONDITIONS AND TIMING FOR RELEASE | INFRASTRUCTURE CONSIDERATIONS | INFRASTRUCTURE ITEM | COST | IDENTIFIED IN 2009 – 2019 LTCCP |
|---|---|---|---|---|---|---|---|
| 1 | General | - | - | Those infrastructure items identified as being required to service all or parts of the Stage 1 development are identified in this row rather than against any specific growth cell. | **Wastewater** | | |
| | | | | | Cambridge WWTP Upgrade | $13.5M | 2012-2014 |
| | | | | | **Water** | | |
| | | | | | Karapiro WTP Upgrade | $6.5M | 2010-2012 |
| | | | | | **Transport** | | |
| | | | | | Cambridge Bypass Intersection | $6M (16% Hautapu, 7% Cambridge North, 7% General District) | 2012 – 2014 |
| 1 | Cambridge North | 910 | This growth cell is zoned for residential development in the Operative District Plan.<br>Ongoing development of the growth cell will be undertaken in response to market demand and as the programmed infrastructure is installed during the period 2009 – 2031. | All infrastructure development has been incorporated into the District Plan subdivision provisions and/or has been progammed for installation in the 2009 – 2019 LTCCP. | - | $16.8M | 2009-19 |
| 1 | Cambridge Park | 300 | This growth cell is zoned for residential development in the Operative District Plan.<br>Ongoing development of the growth cell will be undertaken in response to market demand and as the programmed infrastructure is installed during the period 2009 – 2024. | Most infrastructure development has been incorporated into the District Plan subdivision provisions and/or has been progammed for installation in the 2009 – 2019 LTCCP.<br>Additional infrastructure required beyond the 2009-2019 LTCCP period is noted. | **Transport** | | |
| | | | | | Intersection upgrade (Pope Terrace / Victoria Bridge) | $150K | Not Identified |
| 1 | River Gardens | 136 | This growth cell is zoned for residential development in the Operative District Plan.<br>Ongoing development of the growth cell will be undertaken in response to market demand and as the programmed infrastructure is installed during the period 2009 – 2016. | NA – all infrastructure development has been incorporated into the District Plan subdivision provisions and/or has been progammed for installation in the 2009 – 2019 LTCCP. | - | - | All development completed during 2008-09 |
| 1 | St Kilda | 300 | As at the date of the Final Strategy, the statutory process for this Private Plan Change had not concluded. This growth cell has however been included, solely on the basis that the initial Council decision has been to approve it. If it does proceed, the likely timing of development is during the 2011 – 2020 period. | Infrastructure required to service this area will be managed through a development agreement between the developer (Grantchester Farms) and Council. This agreement will outline the infrastructure required, the timing of installation and the responsibility of who funds the infrastructure. | - | - | Not Identified |

| STAGE | GROWTH CELL | CAPACITY (DWELLINGS UNLESS STATED) | PRECONDITIONS AND TIMING FOR RELEASE | INFRASTRUCTURE CONSIDERATIONS | INFRASTRUCTURE ITEM | COST | IDENTIFIED IN 2009 – 2019 LTCCP |
|---|---|---|---|---|---|---|---|
| 1 | C6 | 60 ha (300) | This growth cell has been identified as a potentially suitable location for larger lot unserviced residential development. Timing of development will be subject to the ability to service the land with a water supply and an assessment of the suitability of the ground conditions for on site wastewater disposal.<br><br>Development of this growth cell is expected during the period 2012 – 2027 | The majority of the infrastructure required to service this growth cell will be subject to a seperate assessment agreed to between the developer and Council. | **Transport** | | |
| | | | | | Shakespeare St / Maungatautari Rd intersection upgrade | $0.5M | Not Identified |
| 1 | Hautapu & C8 | 90ha<br><br>(Industrial) | The Hautapu growth cell is currently the subject of a structure plan and plan change process, which has yet to be released for public submissions.<br><br>A structure plan will be required for either and / or both growth cells before development can occur.<br><br>A combination of both the Hautapu area and C8 has been identified as necessary to satisfy the industrial needs for Cambridge provided that no more than 90 hectares is released such development is likely to occur from 2011 – 2060. | The area is currently unserviced. The structure plan currently being prepared for the Hautapu area provides a detailed analysis of the infrastructure requirements and the costs associated with these. Similar infrastructure for water and wastewater is likely to be required for the C8 growth cell (to be determined as part of a structure plan exercise which will be required for that growth cell), however Stormwater and Transport will be more site specific. That work will assist in the development of a specific development contributions policy for the area. A number of those infrastructure requirements will be undertaken by developers of the land. However there are a number of infrastructure items that are outside the study area and which Council will need to install as part of this development. The majority of these have been | **Water** | | |
| | | | | | Cambridge North Trunk Main | $1.8M | 2012/13 |
| | | | | | Cambridge Reservoir | $1.2M | 2009/10 |
| | | | | | Cambridge Water Storage Upgrades | $1M | 2017/18 |
| | | | | | Hautapu Industrial Zone Link | $1.3M | 2015/16 |
| | | | | | **Wastewater** | | |
| | | | | | Cambridge Sewer Bridge | $1.5M | 2011/12 |
| | | | | | **Transport** | | |
| | | | | | Hautapu Roading Upgrades | $1.8M | 2013 |
| 2 | General | - | - | Those infrastructure items identified as being required to service all or parts of the Stage 2 developments are identified in this row rather than against any specific growth cell. | **Transport** | | |
| | | | | | 3rd Bridge - identification and designation of corridor only. | $0.5M | Not Identified |
| 2 | C2 | 160ha (1920) | This growth cell has been identified as the major new growth cell for residential growth on the northern side of the Waikato River (beyond those already consented developments). Development of this area will require:<br><br>· A traffic solution to be identified (possibly through the greenbelt)<br><br>· 80% completion of Cambridge North before commencing C2;<br><br>· Release of 50ha land areas (approximate) as stages (10 yearly parcels) with the stages to be released from southeast to northwest;<br><br>This land is expected to be developed in stages (as depicted via a structure plan to be prepared prior to development occurring) over the period 2026 – 2056. | Development of this area will occur beyond the initial 10 year period covered by the LTCCP. As such there has been no provision for infrastructure within the LTCCP. An indication of the likely infrastructure requirements and their rough order of costs in 2009 ($) is provided. | **Transport** | | |
| | | | | | Collector network to C2 | $2M | Not Identified |
| | | | | | Connection to SH1 (after Cambridge bypass) | $1M | Not Identified |
| | | | | | Passenger Transport Node (1 per 50ha) | $200K x 3 | Not Identified |
| | | | | | **Wastewater** | | |
| | | | | | Pump stations | $325K | Not Identified |
| | | | | | Main trunk to Cambridge WWTP | $212K | Not Identified |
| | | | | | Rising main from the C2 pump station to the new trunk sewer | $430K | Not Identified |
| | | | | | **Water** | | |
| | | | | | Reticulation main from reservoir to C2 | $680K | Not Identified |

| STAGE | GROWTH CELL | CAPACITY (DWELLINGS UNLESS STATED) | PRECONDITIONS AND TIMING FOR RELEASE | INFRASTRUCTURE CONSIDERATIONS | INFRASTRUCTURE ITEM | COST | IDENTIFIED IN 2009 – 2019 LTCCP |
|---|---|---|---|---|---|---|---|
| 2 | C4 | 210ha (2520) | This growth cell has been identified as the major new growth cell for residential growth on the Leamington side of the river (beyond those already consented developments). Development of this area will require:<br>· Avoiding development underneath the existing Pylons;<br>· A realignment of Lamb Street to connect with the Cambridge – Te Awamutu Road;<br>· 80% completion of Cambridge Park & River Gardens combined before commencing C4.<br>This land is expected to be developed in stages (as depicted via a structure plan to be prepared prior to development occurring) over the period 2022 – 2079. | Development of this area will occur beyond the initial 10 year period covered by the LTCCP. As such there has been no provision for infrastructure within the LTCCP. An indication of the likely infrastructure requirements and their rough order cost in 2009 ($) is provided. | **Transport** | | |
| | | | | | Intersection upgrade (Pope Terrace / Victoria Bridge). NB this is likely to have been upgraded as part of Stage 1 development. | $150K | Not Identified |
| | | | | | Intersection upgrade (Kaipaki / Lamb / Cambridge Roads) | $0.5M | Not Identified |
| | | | | | Road upgrade – Kaipaki Rd / Cambridge Rd (0.5km) | $2.5M | Not Identified |
| | | | | | Pedestrian & cycle links (2km) | $300K | Not Identified |
| | | | | | Passenger Transport Node (1 per 50ha) | $200K x 3 | Not Identified |
| | | | | | **Wastewater** | | |
| | | | | | Pump stations | $300K | Not Identified |
| | | | | | Trunk main connection to WWTP | $210K | Not Identified |
| | | | | | Rising main from C4 pump station to new trunk sewer | $430K | Not Identified |
| | | | | | **Water** | | |
| | | | | | Reticulation main from the reservoir to C4 | $280K | Not Identified |
| | | | | | Directional drilled pipeline crossing under the Waikato River | $1.2M | Not Identified |
| | | | | | Bulk main from Karapiro WTP to storage reservoir | $3.3M | Not Identified |
| 3 | General | - | - | There has been no identified infrastructure for Stage 3 growth cells which cannot be directly attributed to a growth cell. | - | - | - |
| 3 | C3 | 30ha (360) | This growth cell has been identified as the next developable area beyond C2, however it is likely that this will not be required until beyond 2050. Development of this area will require:<br>· 80% completion of C2;<br>· Riverbank erosion setbacks applied;<br>· Avoiding development underneath the existing Pylons. | Development of this area will occur beyond the initial 10 year period covered by the LTCCP. As such there has been no provision for infrastructure within the LTCCP. An indication of the likely infrastructure requirements and their rough order cost in 2009 ($) is provided. Water and wastewater infrastructure is considered to be sufficient as a result of C2, which would have factored in the future growth of C3. | **Transport** | | |
| | | | | | Greenbelt collector road connection. | $2.5M | Not Identified |
| | | | | | Cycle and Pedestrian links (0.5km) | $75K | Not Identified |
| 3 | C5 | 175 ha (2100) | This growth cell has been identified as the next developable area beyond C4, however it is likely that this will not be required until well beyond 2050. Development of this area will require:<br>· 80% completion of C4<br>Allowance made along the eastern boundary for an arterial road and 3rd river crossing | Development of this area will occur beyond the initial 10 year period covered by the LTCCP. As such there has been no provision for infrastructure within the LTCCP. An indication of the likely infrastructure requirements and their rough order cost in 2009 ($) is provided. Water and wastewater infrastructure is considered to be sufficient as a result of C4, which would have factored in the future growth of C5. | **Transport** | | |
| | | | | | Greenbelt collector road connection. | $2.5M | Not Identified |
| | | | | | Cycle and pedestrian links (1km) | $150K | Not Identified |


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### 6.3.4 RURAL RESIDENTIAL

There is potential for a small extension of the Maungakawa/ Fencourt Road rural residential area which will be investigated at the time of the District Plan review.

### 6.3.5 INDUSTRY

The Hautapu Industrial Area (approx 87ha net area) and Growth Cell C8 are both considered potentially suitable for Industrial development. The Future Proof Strategy identifies the Hautapu area as a strategic node of approximately 90ha in area. For this reason either one cell or a reduced area in both cells is likely to be developed. There is the potential in this area for the establishment of a road / rail interchange and a rail station with a passenger terminal with associated parking.

### 6.3.6 COMMERCIAL

There is demand for additional commercial land within Cambridge. Options to provide for this demand include: the existing Town Centre, Leamington and a proposed new growth cell C1. This matter is proposed to be investigated further through the Cambridge Town Concept Plan and the Future Proof Office and Retail Strategy that will be completed by October 2009. These documents will define the capacity of the existing town centre, options for extension of the town centre, suitable sites for redevelopment and the proposed mix of development in C1. Waipa 2050 will be updated to reflect the outcomes of this work as part of a future review.

### 6.3.7 RECREATION

Waipa's actively maintained reserves provision is 7.2 hectares per 1,000 residents. Additional land will be acquired in specific locations to meet local recreation needs. This will normally be met through the purchase of land or acquired through subdivision. The planning for recreation and community based facilities needs consideration as part of the development of individual Town Concept and / or Structure Plans.

## 6.4 TE AWAMUTU & KIHIKIHI

### 6.4.1 VISION

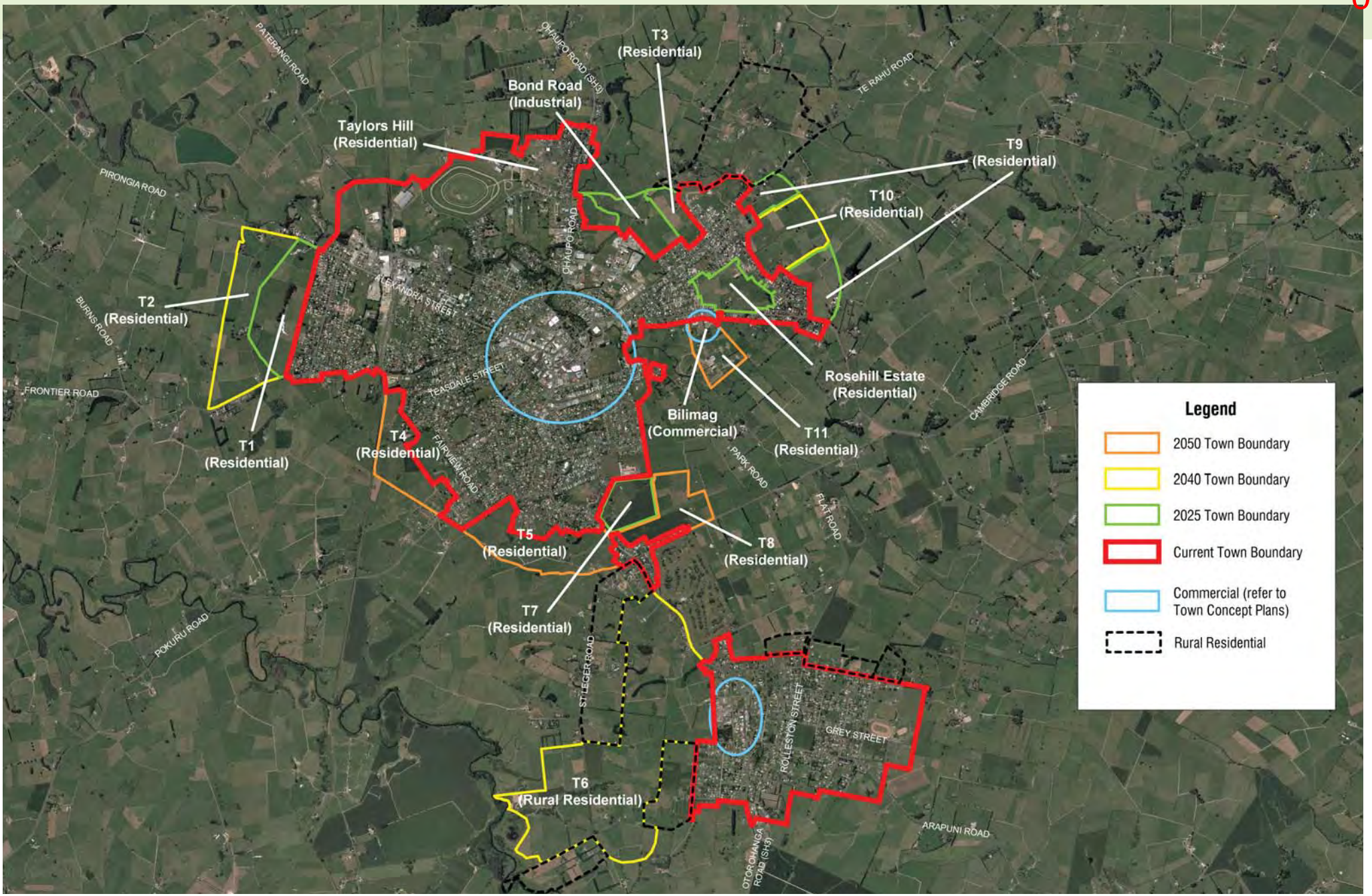
By 2050, the area encompassing both Te Awamutu and Kihikihi will be home to approximately 22,040 people an increase in population of approximately 9,340.

To cater for this growth approximately 290ha of new residential land, 20ha of industrial land and 16ha of commercial land (including 5ha of retail with the remaining being primarily office space) is required. The importance of the equine industry to Te Awamutu has also been considered and a well defined location for the clustering of equine activities is envisaged in close proximity to existing facilities on Racecourse Road. The anticipated growth has been managed in accordance with a defined town concept plan, which provides for the vast majority of the growth within Te Awamutu. The identity of Kihikhi will be retained with development occurring in accordance with the Te Awamutu and Kihikihi Town Concept Plan. Growth within Kihikihi will be located within the current town boundaries.



**Alexandra Street**

**Figure 6: Te Awamutu and Kihikihi Urban Growth Plan**



### 6.4.2 RESIDENTIAL

An additional 3,459 households are anticipated to be required to meet the expected population growth. This correlates to a rate of approximately 86 households per annum requiring approximately 7ha of new developable land per year.

**Infill Development (within the existing Town boundaries)**

Development within the existing town boundaries is currently managed by the minimum lot size requirements of the District Plan. The Town Concept Plan to be developed for Te Awamutu and Kihikihi will give greater consideration to higher density development and, in particular, will look at locations within the townships that are suitable for intensified development and locations where no high density should occur. Essentially the proposed new regime will look to promote higher density development and development in general within the existing defined town boundaries **provided** such development does not impact on the overall character of the township. There are a number of reasons for seeking to promote higher density development where appropriate, notably:

- Provide for a variety of living choices being made available;
- Assist in the regeneration of existing areas;
- Provide greater opportunities for walking and cycling for those residents (being closer to amenities than greenfield developments on the extremities of the urban areas);
- Efficiencies can be gained in servicing infill areas.

There are a number of statutory and non statutory mechanisms available for providing for higher density development within the existing town boundaries. One of these can be in the setting of development contributions that vary on the basis of the nature of the development (i.e. density and location).

For the Kihikihi community it is expected that all new development will be by way of development on existing sections due to the limited capacity of the wastewater scheme that is in place for that community.

**Greenfield Development**

Whilst higher density development is expected, it is considered prudent to provide for adequate greenfield development areas within which the development market can operate. On this basis, land supply for greenfield development will not be restricted as a means of promoting higher density development within existing urban areas, however, the release of land will be planned so that development occurs in a co-ordinated manner. There are some areas already under development (Taylors Hill, Rosehill & Fairview Estates) or in the planning phase (Picquet Hill and parts of T1, T3 and T7) and essentially these provide for the intial Stage 1 development. In 6.4.3 the proposed staging, the new growth areas to be released for development within these stages, their capacity and the triggers required in order for new growth areas within the next stage to be developed has been identified. Figure 6 depicts the location of the new growth cells.

## 6.4.3 SEQUENCING AND INFRASTRUCTURE TABLES

| STAGE | GROWTH CELL | CAPACITY (DWELLINGS UNLESS STATED) | PRECONDITIONS AND TIMING FOR RELEASE | INFRASTRUCTURE CONSIDERATIONS | INFRASTRUCTURE ITEM | COST | IDENTIFIED IN 2009 – 2019 LTCCP |
|---|---|---|---|---|---|---|---|
| 1 | General | – | – | Those infrastructure items identified as being required to service all or parts of the Stage 1 development are identified in this row rather than against any specific growth cell. | **Transport** | | |
| | | | | | Te Awamutu town centre parking facilities/upgrade | $0.5M | Not Identified |
| 1 | Rosehill Estate, Fairview Estate, Taylors Hill | 300 | These growth cells are zoned for residential development in the Operative District Plan.<br>Ongoing development of these growth cells will be undertaken in response to market demand and is expected during the 2009 – 2019 period. | NA – all infrastructure development has been incorporated into the District Plan subdivision provisions and/or has been progammed for installation in the 2009 – 2019 LTCCP. | - | - | - |
| 1 | T9 (Picquet Hill – Stage 1) | 17ha (170) | This growth cell is subject to a plan change and structure plan which is under appeal. This will need to be resolved in order for the development to proceed. The stage 1 area is expected to be developed in the 2010 – 2020 period. | NA – all infrastructure development has been progammed for installation in the 2009 – 2019 LTCCP. This has been noted in the following columns. | **Wastewater** | | |
| | | | | | Upgrades identified in Plan Change | $1.7M | 2010 - 2014 |
| | | | | | Water | | |
| | | | | | Upgrades identified in Plan Change | $2.2M | 2010 - 2014 |
| 1 | Bond Road | 19ha Industrial | This growth cell is subject to a plan change and structure plan which has not yet been decided upon. This will need to be resolved in order for the development to proceed. Subject to that matter being resolved it is considered that uptake of the land will be during 2011 – 2050. | NA – all infrastructure development has been progammed for installation in the 2009 – 2019 LTCCP. This has been noted in the following columns. | **Transport** | | |
| | | | | | SH3 Intersection Upgrades with Benson & Bond Roads | $370K | 2010/11 – 2014/15 |
| | | | | | Contribution to SH3 upgrade | $1.4M | 2018/19 |
| | | | | | **Water** | | |
| | | | | | Capacity upgrades | $950K | 2009/10-2011/12 |
| | | | | | **Wastewater** | | |
| | | | | | Pumpstation and capacity upgrades | $770K | 2009/10-2011/12 |
| | | | | | **Stormwater** | | |
| | | | | | Stormwater Management | $390K | 2011/12-2012/13 |
| 1 | T3 | 10ha (120) | Upon completion of infrastructure required to service the Bond Road industrial and Picquet Hill Growth Cells.<br>This area is expected to be developed within the 2012 – 2019 period. | Infrastructure to service this growth cell will be developed in conjunction with the services required to service the Bond Road industrial and Picquet Hill Growth Cells | - | - | - |

| STAGE | GROWTH CELL | CAPACITY (DWELLINGS UNLESS STATED) | PRECONDITIONS AND TIMING FOR RELEASE | INFRASTRUCTURE CONSIDERATIONS | INFRASTRUCTURE ITEM | COST | IDENTIFIED IN 2009 – 2019 LTCCP |
|---|---|---|---|---|---|---|---|
| 1 | T7 | 18ha (180) | The following matters will be required to be completed / addressed prior to development occurring:<br>· Development directly onto SH3 shall not be provided and there shall be an access through to Swarbrick Drive.<br>· Modelling of the water and wastewater network to consider the capacity within the existing infrastructure to service this initial area.<br>Development of this area is expected between 2012 and 2024.<br>Development within this growth cell could potentially be the location for a second power supply into Te Awamutu. | Infrastructure to service this area has not been provided nor identified within the 10 year period covered by the LTCCP. | - | - | - |
| 1 | T1 | 35ha (420) | This growth cell has been identified as the first stage of the major new growth cell for residential growth in Te Awamutu (beyond those already consented or being consented developments). Development of this area will specifically require:<br>· Modelling of the water and wastewater network to consider the capacity within the existing infrastructure to service this initial area.<br>Uptake of this area is expected over the period 2012 - 2036. | This growth cell was initially considered as part of an overall growth area which included T2. A number of upgrades were identified as being required to service that overall area with these noted in the following columns. T1 is now being identified as a possible stage 1 development. As such not all of these infrastructure upgrades may be deemed to be required (i.e. some could be deferred until T2 is released). This will need to be considered at the time of assessing any plan change for T1. | **Transport** | | |
| | | | | | Frontier Road (1.5km) upgrade and realignment | $4M | Not Identified |
| | | | | | **Wastewater** | | |
| | | | | | Pump Station | $220K | Not Identified |
| | | | | | Trunk main to Te Awamutu WWTP | $352K | Not Identified |
| | | | | | Rising main from pump station to the new trunk main | $250K | Not Identified |
| | | | | | **Water** | | |
| | | | | | Reticulation main to this growth cell | $266K | Not Identified |
| | | | | | New treated water reservoir (2300m3) | $2.2M | Not Identified |
| 2 | General | - | - | Those infrastructure items identified as being required to service all or parts of the Stage 2 developments are identified in this row rather than against any specific growth cell. | **Transport** | | |
| | | | | | Te Awamutu Park and Ride/ Station facility | $1.5M | Not Identified |
| | | | | | **Wastewater** | | |
| | | | | | Upgrade to the Te Awamutu WWTP | $7M | Not Identified |
| 2 | T10 (Picquet Hill – Stage 2) | 20ha (200) | This growth cell is subject to a plan change and structure plan which is under appeal. This will need to be resolved in order for the development to proceed. The stage 2 area is identified as a deferred residential area under that plan change and is expected to be developed following the stage 1 area (T9) over the period 2020 – 2030. | - | - | - | - |

| STAGE | GROWTH CELL | CAPACITY (DWELLINGS UNLESS STATED) | PRECONDITIONS AND TIMING FOR RELEASE | INFRASTRUCTURE CONSIDERATIONS | INFRASTRUCTURE ITEM | COST | IDENTIFIED IN 2009 – 2019 LTCCP |
|---|---|---|---|---|---|---|---|
| 2 | T2 | 50ha (600) | This growth cell has been identified as stage 2 of the major new growth cell for residential growth in Te Awamutu. Development of this area will require:<br>· 80% completion of growth cell T1.<br>· Realignment of Frontier Road between the growth cell and the urban boundary;<br>· New water source and intake to be identified.<br>Uptake of this area is expected over the period 2030 – 2050. | Development of this area will occur beyond the initial 10 year period covered by the LTCCP. As such there has been no provision for infrastructure within the LTCCP. An indication of the likely infrastructure requirements and their rough order cost in 2009 ($) is provided. Some of these may have already been provided at the time of the stage 1 development (T1) in this area. | **Transport** | | |
| | | | | | Frontier Road (1.5km) upgrade and realignment | $4M | Not Identified |
| | | | | | **Wastewater** | | |
| | | | | | Pump Station | $220K | Not Identified |
| | | | | | Trunk main to Te Awamutu the WWTP | $352K | Not Identified |
| | | | | | Rising main from pump station to the new trunk main | $250K | Not Identified |
| | | | | | **Water** | | |
| | | | | | Reticulation main to the growth cell | $266K | Not Identified |
| | | | | | New treated water reservoir (2300m3) | $2.2M | Not Identified |
| 2 | T6 | 180ha (540) | This growth cell has been identified as a location for non serviced (water only) rural residential development providing an alternative form of living choice to other greenfield developments in Te Awamutu. Development of this growth cell is expected over the period 2012– 2039 and will be subject to a concept plan / structure plan that identifies how more intensive development could occur in the future if required. The following matters will be required to be completed / addressed prior to development occurring:<br>· 80% completion of the existing St Leger Road rural residential area;<br>· A traffic solution for access to the State highway. | This area is not intended to be serviced with a reticulated wastewater network. The proximity to reticulated water does enable water connections to be viable however. None of the required infrastructure has been identified in the LTCCP, however the upgrades required have been identified with rough order costs as follows. | **Transport** | | |
| | | | | | Intersection upgrade at Golf Road/Western Arterial/SH3 – realignment of St Leger Road to Western arterial tie in | $1.5M | Not Identified |
| | | | | | Certainty about / designation of alignment for Te Awamutu /Kihikihi bypass | $0.5M (fees) | Not Identified |
| | | | | | **Water** | | |
| | | | | | Reticulation main to T6 | $212K | Not Identified |

| STAGE | GROWTH CELL | CAPACITY (DWELLINGS UNLESS STATED) | PRECONDITIONS AND TIMING FOR RELEASE | INFRASTRUCTURE CONSIDERATIONS | INFRASTRUCTURE ITEM | COST | IDENTIFIED IN 2009 – 2019 LTCCP |
|---|---|---|---|---|---|---|---|
| 3 | General | - | - | There has been no identified infrastructure for Stage 3 growth cells which cannot be directly attributed to a growth cell. | - | - | - |
| 3 | T5 | 40ha (480) | This growth cell is considered the next developable area beyond T2 and is expected to be developed beyond 2045. The following matters will be required to be completed / addressed prior to development occurring:<br>· The western arterial will form the southern boundary;<br>· Appropriate location to connect to the existing roading network to be determined;<br>· 80% completion of T2 required before commencing T5.<br>Development within this growth cell could potentially be the location for a second power supply into Te Awamutu. | Development of this area will occur beyond the initial 10 year period covered by the LTCCP. As such there has been no provision for infrastructure within the LTCCP. An indication of the likely infrastructure requirements and their rough order cost in 2009 ($) is provided. | **Transport** | | |
| | | | | | New road connection | $2.5M | Not Identified |
| | | | | | Pedestrian link to schools (0.5km) | $75K | Not Identified |
| | | | | | **Wastewater** | | |
| | | | | | Trunk main from T5 connection point to the Te Awamutu WWTP | $350K | Not Identified |
| | | | | | Pump Stations | $200K | Not Identified |
| | | | | | Rising main from pump station to the T5/T7 connection point | $81K | Not Identified |
| | | | | | **Water** | | |
| | | | | | Reticulation main from T5 to T7 | $330K | Not Identified |
| 3 | T4 | 30ha (360) | This growth cell is considered the next developable area beyond T5 and is expected to be developed beyond 2050. The following matters will be required to be completed / addressed prior to development occurring:<br>· Appropriate location to connect to the existing roading network to be determined;<br>· 80% completion of T5 before commencing T4.<br>Development within this growth cell could potentially be the location for a second power supply into Te Awamutu. | Development of this area will occur beyond the initial 10 year period covered by the LTCCP. As such there has been no provision for infrastructure within the LTCCP. An indication of the likely infrastructure requirements and their rough order cost in 2009 ($) is provided. | **Transport** | | |
| | | | | | New road connections | $1.2M | Not Identified |
| | | | | | Wastewater | | |
| | | | | | Pump stations | $180K | Not Identified |
| | | | | | Rising main from T4 pump station to T2 rising main | $90K | Not Identified |

| STAGE | GROWTH CELL | CAPACITY (DWELLINGS UNLESS STATED) | PRECONDITIONS AND TIMING FOR RELEASE | INFRASTRUCTURE CONSIDERATIONS | INFRASTRUCTURE ITEM | COST | IDENTIFIED IN 2009 – 2019 LTCCP |
|---|---|---|---|---|---|---|---|
| 3 | T8 | 18ha (180) | The following matters will be required to be completed / addressed prior to the development of growth cell T8 occurring:<br>· Development directly onto SH3 shall not be provided and there shall be an access through to Swarbrick Drive via T7<br>· A flood hazard assessment will be required outlining the suitability of the land for development. The funding source for this study needs to be clarified as Council has not identified any budget to carry out this work<br>· 80% completion of stage 2 areas required before T8 commences<br>· Development of this area is expected between 2040 and 2050.<br>Development within this growth cell could potentially be the location for a second power supply into Te Awamutu. | Infrastructure to service this area has not been provided nor identified within the 10 year period covered by the LTCCP. | - | - | - |
| 3 | T11 | 10ha (120) | The following matters will be required to be completed / addressed prior to the development of growth cell T11 occurring:<br>· A flood hazard assessment will be required outlining the suitability of the land for development. The funding source for this study needs to be clarified as Council has not identified any budget to carry out this work<br>· 80% completion of Stage 2 areas required before T11 commences.<br>Development of this area is expected between 2040 and 2050. | - | - | - | - |

### 6.4.4 RURAL RESIDENTIAL

Specific provision for Rural Residential is identified within growth cell T6. This location is considered suitable for this land use as it expands on the existing rural residential area on St Leger Road and provides for urban growth between Te Awamutu and Kihikihi where other land use practices may otherwise not be appropriate.

### 6.4.5 INDUSTRY

Industrial land at Te Awamutu is currently provided for at Bond Road and Paterangi Road (and around the Dairy Factory). In order to provide for the necessary 20ha of additional industrial land, the following is recommended.

- Release of approximately 19ha of additional land at Bond Road (plan change currently progressing for this)
- Extension of the Paterangi Road industrial area toward the refuse centre.

No new growth areas for industry are considered to be necessary beyond these two areas, however, it is important that additional non-industrial growth areas have consideration to the locations of Industry so that the potential for reverse sensitivity effects can be minimised.

### 6.4.6 COMMERCIAL

An additional 16ha of commerical land (office and retail) has been identified as being required within Te Awamutu to service the needs of the town out to 2050.

The 'Bilimag' retail based commercial area has been planned for Cambridge Road and has now progressed through the Court process. This will cater for the majority of the additional retail floor space required (and will cater for the current shortfall in retail floor space within the town), whilst opportunities for further development on land already zoned for commercial activities within and surrounding the town centre (within the general zone) will provide for sufficient opportunities for the remaining required commercial land. Development in these areas may, however, require the displacement of existing activites to alternative locations and will likely require more intensive commercial developments than those which have previously been developed. Mixed use development will assist in achieving this. Areas suitable for such activities (high density commercial and mixed use developments) should be outlined within the town concept plan prepared for the town.

Subject to the above, no additional commercial land areas are anticipated to be needed.

### 6.4.7 RECREATION

Waipa's actively maintained reserves provision is 7.2 hectares per 1,000 residents. Additional land will be acquired in specific locations to meet local recreation needs. This will normally be met through the purchase of land or acquired through subdivision.

The planning for recreation and community based facilities needs consideration as part of the development of individual Town Concept and / or Structure Plans.

## 6.5 PIRONGIA

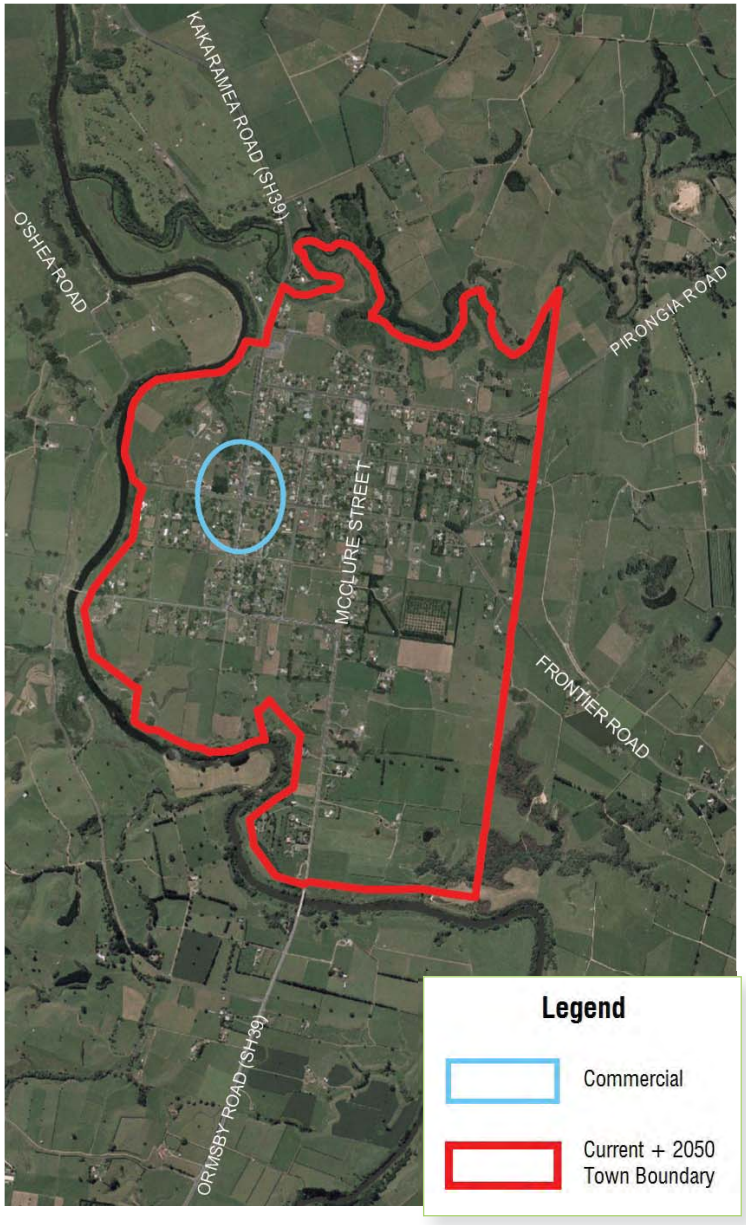
### 6.5.1 VISION

By 2050, Pirongia will be home to approximately 2,000 people an increase in population by approximately 800. The well defined town boundaries, created by the Waipa River to the west and south, the gully and stream to the north and the town belt to the east remain as the urban limits to the village. As such, all new growth is located within these boundaries and depicted on Figure 7.

The village remains unserviced with regards to sewage and stormwater and has a metered water supply. Lot sizes are no less than 2,000m$^2$ in order to provide for the onsite sewage disposal and stormwater management requirements whilst retaining the low density character of the village. There are controls on the maximum size of allotments to ensure efficiencies in the use of the land and to enable the scarce land resource within the defined urban boundaries to be developed to its potential.

The commercial area is located along State Highway 39, including an additional area to meet demand, and there is greater focus and ability to access the Waipa River from this location. New commercial development will be primarily for local purposes with commercial development also happening in association with tourism and increased demands from visitors. Industry within the village is avoided, however, cottage related (home based) industry is encouraged in a manner which retains the character and amenity of a village settting.

**Figure 7: Pirongia Urban Growth Plan**




### 6.5.2 RESIDENTIAL

A specific Pirongia Residential Zone is established on the provision that lot sizes are a minimum of 2000m$^2$ with this area located solely within the existing urban boundaries. The zone will require either a maximum lot size to also be imposed or a structure plan be prepared to identify how further development can occur, thus ensuring that the scarce land resource is developed to its potential.

### 6.5.3 INDUSTRY

No specific industrial zone is to be provided, however the provision of cottage industries is to be considered within the town boundary provided these can be undertaken in a manner which retains the character and amenity of a village setting.

### 6.5.4 COMMERCIAL

There is a need for approximately 5000m$^2$ of additional commercial/retail space within Pirongia by 2050. There is an existing commercial area and it is considered appropriate that this future space is located adjacent to that area, potentially on the western side of the State highway to provide opportunities to create improved town linkages to the Waipa River.

### 6.5.5 RECREATION

The existing reserves provide adequate space for active and passive recreation. The locations of these however are not in close proximity to development in the southeast of the village. As such it is recommended that an area for passive recreation be provided in this general location with this to be considered through the Pirongia Town Concept Plan.



**Pirongia Village Centre**

### 6.5.6 SEQUENCING & INFRASTRUCTURE

It is considered that there is no need to provide for the staging of growth areas within Pirongia.

All growth in Pirongia has been identified as being within the current town boundaries. The village will remain unserviced in regards to wastewater and will have a metered water supply. No Transport Infrastructure has been identified for Pirongia.

**Water Infrastructure**

- Raw water source and treatment is included within the infrastructure requirements identified for Te Awamutu.
- A new storage reservoir will be required.
- The existing bulk mains are considered to have sufficient capacity and additional reticulation mains will be supplied by developers of new growth areas.

## 6.6 AIRPORT / MYSTERY CREEK

### 6.6.1 VISION

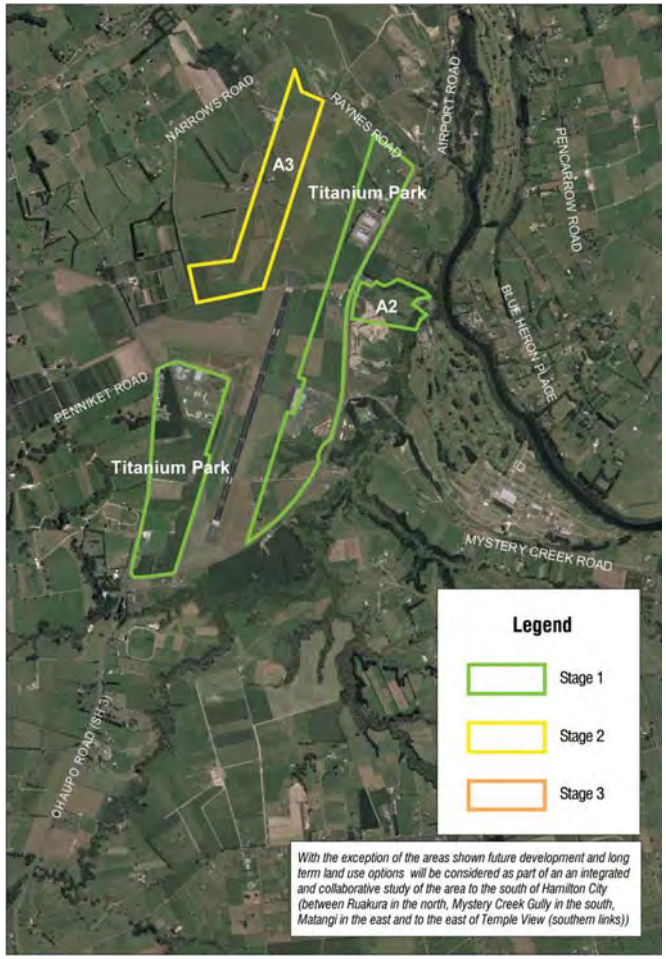
The Airport locality is a vital part of the Regional economy providing an equally strong port for freight and passenger travel. Airport facilities have been developed and expanded to take advantage of opportunities for international travel and freight services. Titanium Park, the business park capitalising on opportunities provided by the Airport is thriving and the Mystery Creek area retains its status as the District's premier location for holding major events and supports the infrastructure provided by the Airport.

The area supports those activities which are likely to generate adverse effects on living environments due to their high noise and traffic generation and, on that basis, additional residential developments are avoided in the vicinity of the Airport. It is recognised that there may be demand for additional visitor accommodation. This would only be considered within the identified growth cells and where issues around reverse sensitivity can be adequately addressed. The reverse sensitivity effects associated with visitor accommodation are considered to be less than those associated with permanent residential living.




**Hamilton International Airport**

**Figure 8: Airport Growth Areas**




### 6.6.2 GROWTH MANAGEMENT

The takeup of development within Titanium Park is unknown and there are types of developments that may lend themselves to being located near the Airport but not necessarily within the Titanium Park business park. It is considered appropriate to provide for these activities (likely to be transport based, rural industry) in close proximity to the Airport, on land that is readily accessible to the State Highway network, may have links to the Mystery Creek area, is considered unsuitable for agriculture use due to previous landuses and / or land fragmentation and which is adjacent to areas not averse to industrial based activities.

Because of the Airport's proximity and importance to Hamilton City and Waikato District, it is imperative that future development at the Airport is planned for at a subregional level. The establishment of activities sensitive to Airport operations, particularly residential activities, also needs to be managed to avoid reverse sensitivity effects. In addition land at either end of the runway is of particular strategic significance given its potential to be utilised for future Airport activities and expansion.

A Future Proof action is to consider future planning in and around the Airport through a Southern (Rukuhia) Study. The Study is programmed to be completed by October 2009. The growth cells identified in Figure 8 are not subject to the Study. All remaining development is to be determined on the basis of the Study. The Future Proof Strategy identifies the Airport as a strategic node for industrial development with an area of approximately 220 ha. The growth cells identified in below are less than the area identified in the Future Proof Strategy.

The growth areas and sequencing in 6.6.3 is based on Waipa District's current view of what requirements there are in the vicinity of the Airport. This may be altered as a result of the impending Southern (Rukuhia) Study.

## 6.6.3 SEQUENCING AND INFRASTRUCTURE

| STAGE | GROWTH CELL | CAPACITY (DWELLINGS UNLESS STATED) | PRECONDITIONS AND TIMING FOR RELEASE | INFRASTRUCTURE CONSIDERATIONS | INFRASTRUCTURE ITEM | COST | IDENTIFIED IN 2009 – 2019 LTCCP |
|---|---|---|---|---|---|---|---|
| 1 | Titanium Park | 117ha | Titanium Park has recently been made partly operative in the Operative District Plan with 2 appeals being resolved at present. The plan change has an initial staging of 8ha, with development beyond this requiring the prior establishment of necessary infrastructure including major roading infrastructure. | Infrastructure required to service this area is to be managed through a development agreement between the developer (WRAL) and Council. This agreement outlines the infrastructure required, the timing of installation and the responsibiltiy of who funds the infrastructure. The major items have been noted. | **Transport** | | |
| | | | | | Lochiel Road roundabout (for >8ha development off Airport Road) | $0.75 (developer funded) | - |
| | | | | | SH3 intersection upgrade (for development off SH3) | $0.75M - $3M (for grade separation) (developer funded) | - |
| | | | | | SH3/SH21 intersection upgrade (grade separation) | $3M (for grade separation) (developer funded) | - |
| | | | | | **Wastewater** | | |
| | | | | | Wastewater pipeline to Cambridge WWTP & contribution to WWTP upgrade | No costings (developer funded) | - |
| 1 | A2 (Ashton Land) | 8ha (net area) | An 8ha net area of land adjacent to the proposed roundabout on Airport Road has been considered to be suitable for development; subject to:<br>· The Airport Road / Lochiel Road roundabout being completed;<br>· Access being directed onto that roundabout from the realigned Lochiel Road;<br>· Or as an alternative to the 2 points above, the approval of the relevant road controlling authorities is obtained;<br>· Developments being compatible with an Airport environment. | Nil (upgraded connections for Titanium Park should be adequate) | - | - | - |
| 2 | A3 (Montgomerie Airside Land) | 40ha | A 40ha area of land adjacent to the Airport Runway and accessed from Raynes Road is identified as a possible location for Airport related activities that would benefit from being in proximity to and having direct access to the operational areas of the Airport. | Nil (upgraded connections for Titanium Park should be adequate) | - | - | - |

## 6.7 OHAUPO

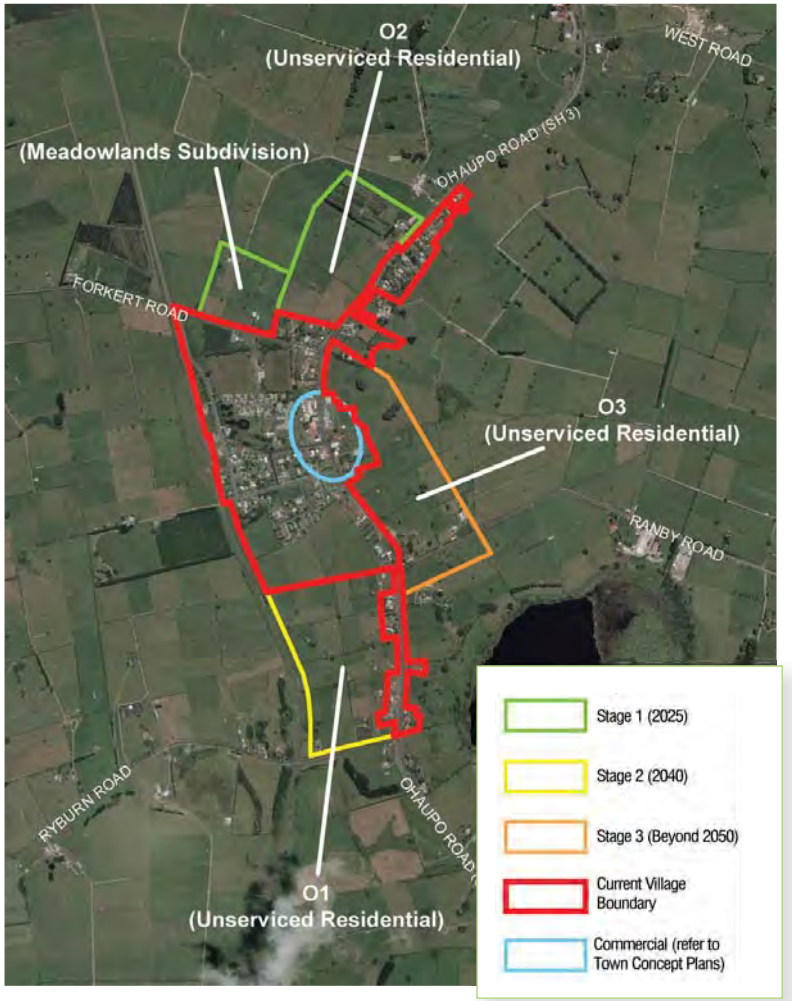
### 6.7.1 VISION

By 2050 the village of Ohaupo will have nearly doubled, accommodating an additional 320 residents in 120 new households at locations depicted in Figure 9. The village will remain unserviced in terms of wastewater; however the existing water supply will be sufficient to serve these new households. Development density will be approximately 3 dwellings per hectare (lot sizes of approximately 2,500m$^2$) due to the servicing needs and a desire to retain a low density of development consistent with the current character of the village. Planning for the Ohaupo Bypass is well advanced and, as such, development to the east of the current SH3 alignment has been anticipated. Additional commercial land is required to service the growth of the village. New commercial development will be primarily for local purposes with commercial development also happening in association with tourism and an increased demand from visitors.



**Ohaupo Main Street (SH3)**

**Figure 9: Ohaupo Village Growth Areas**




### 6.7.2 GROWTH MANAGEMENT

To accommodate future population growth in Ohaupo it is recommended that:

- The 35ha of existing undeveloped rural residential land (O1 & O2) be provided to allow for densities of approximately 3 dwellings per hectare.
- An additional 5ha of land (O3) be provided to allow for densities of approximately 3 dwellings per hectare.
- An additional 20ha of land (O4) be provided to allow for densities of approximately 3 dwellings per hectare.
- Any additional demand for commercial development will be focused within the existing commercial area.

The District Plan will provide mechanisms for the use of transferable rights which may include the setting aside of land within Ohaupo as a deferred zoning with the ability to develop within these areas only able through the transferring of titles from areas of significance.

## 6.7.3 SEQUENCING & INFRASTRUCTURE

| STAGE | GROWTH CELL | CAPACITY (DWELLINGS UNLESS | PRECONDITIONS AND TIMING FOR RELEASE | INFRASTRUCTURE CONSIDERATIONS | INFRASTRUCTURE ITEM | COST | IDENTIFIED IN 2009 – 2019 LTCCP |
|---|---|---|---|---|---|---|---|
| 1 | Meadowlands Subdivision | 10 | This subdivision together with the Bohemian Place subdivision is considered to have sufficient capacity for development from 2009 – 2017. | The infrastructure for this subdivision is in place. | - | - | - |
| 1 | O2 | 11ha (33) | This growth cell is considered to be the next logical growth area for Ohaupo beyond the existing subdivisions (although not dependant on their completion) and is expected to be sufficient for the period from 2012 out to 2030. Growth will be encouraged in this growth cell as opposed to the general rural environment.The following matters should be considered prior to development occurring.<br>· Traffic solution for accessing O2 (Forkert Road vs SH3).<br>· Soil testing of the former orchard land to confirm suitability for residential development.<br>· Suitability to utilise on site disposal methods for wastewater.<br>· Capacity testing of the water supply for Ohaupo. | There is no provision in the LTCCP for the required infrastructure upgrades and those that have been identified to date are not considered to be required within the initial 10 year period (2009-2019). A rough order of costs in 2009 ($) is provided however. | **Transport** | | |
| | | | | | State highway intersection improvements | $0.25M | Not Identified |
| 2 | O1 | 18ha (54) | This growth cell is considered to be the next logical growth area beyond the O2 growth cell and is expected to be sufficient for the period from 2024 out to 2046. Growth will be encouraged in this growth cell as opposed to the general rural environment.The following matters should be considered prior to development occurring.<br>· 80% completion of growth cell O2 before this growth cell commences<br>· Cell O1 to link with both Charles Edwards Street and Ryburn Road | There is no provision in the LTCCP for the required infrastructure upgrades and those that have been identified are not considered to be required within the initial 10 year period (2009-2019). A rough order of costs in 2009 ($) is provided however. | **Transport** | | |
| | | | | | State highway intersection improvements | $0.25M | Not Identified |
| 3 | O3 | 20ha (60) | This growth cell is considered to be the next logical growth area beyond the O1 & O2 growth cells and is not expected to be required until approximately 2042. Growth will be encouraged in this growth cell as opposed to the general rural environment. The following matters should be considered prior to development occurring.<br>· Development to incorporate the current Kahikatea Stands into reserve areas.<br>· Completion of the Ohaupo Bypass required prior to commencemnt of O4; or<br>· 90% development of existing zoned land has occurred. | There is no provision in the LTCCP for the required infrastructure upgrades and those that have been identified are not considered to be required within the initial 10 year period (2009-2019). A rough order of costs in 2009 ($) is provided however. | **Transport** | | |
| | | | | | State highway intersection improvements | $0.75M | Not Identified |

## 6.8 NGAHINAPOURI

### 6.8.1 VISION

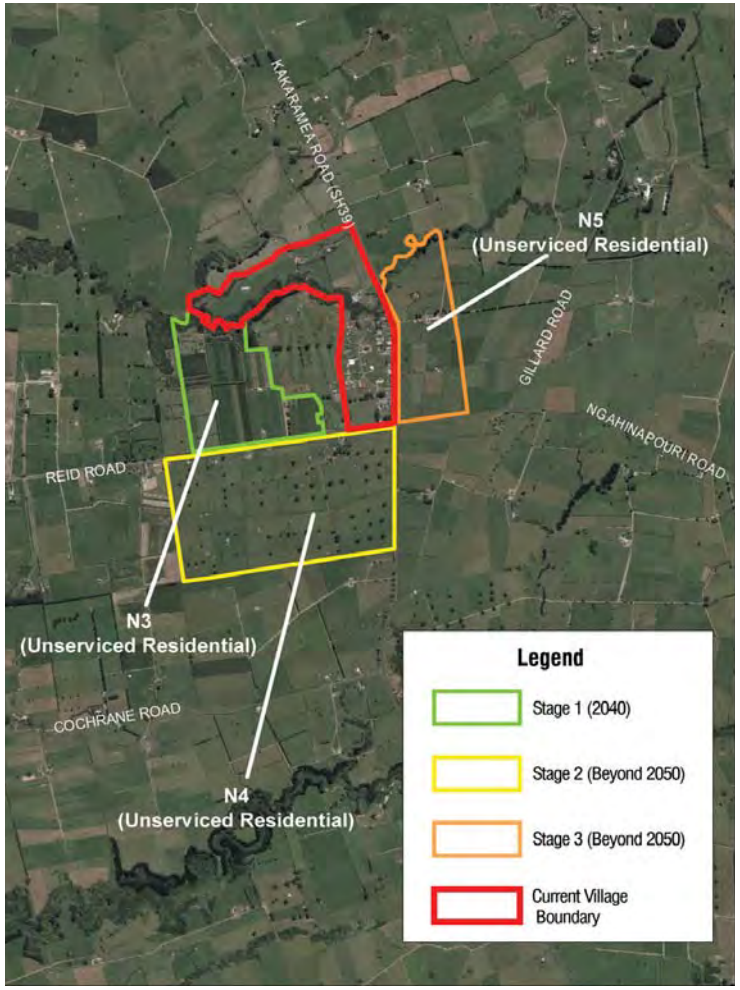
By 2050, Ngahinapouri will be accommodating an additional 400 residents in 150 new households at locations depicted in Figure 10. The village will remain unserviced in terms of wastewater and water supply. Development density will be between 2 or 3 dwellings per hectare (lot sizes of approximately 2,500m$^2$ – 5,000m$^2$) due to the need to dispose of wastewater on site, together with a general desire to retain a low density of development consistent with the current character of the village. The village has developed around the amenity provided by the local golf course and has remained compact rather than creeping along the State Highway.

The growth of the village has resulted in the need for a local convenience commercial area which also provides for the needs of State Highway traffic users as the only centre between Hamilton and Pirongia. The location of this area is probably best suited to growth cell N4 near the intersection of Reid Road with SH39. Such a development may also provide opportunities to realign the location of where Reid Road intersects with SH39 to assist with the expansion of the primary school which may be necessary as a



**Ngahinapouri Hall**

**Figure 10: Ngahinapouri Village Growth Areas**




### 6.8.2 GROWTH MANAGEMENT

To accommodate the future population growth in Ngahinapouri it is recommended that:

- An additional 29ha of land be provided to allow for densities of approximately 3 dwellings per hectare (N3)
- An additional 85ha of land be provided to allow for densities of approximately 3 dwellings per hectare (N4 and N5)
- An additional 1ha of land (within N4) to be provided to allow for general commercial activities.

The District Plan will provide mechanisms for the use of transferable rights which may include the setting aside of land within Ngahinapouri as a deferred zoning with the ability to develop within these areas only through the transferring of titles from areas of significance.

## 6.8.3 SEQUENCING & INFRASTRUCTURE

| STAGE | GROWTH CELL | CAPACITY (DWELLINGS UNLESS STATED) | PRECONDITIONS AND TIMING FOR RELEASE | INFRASTRUCTURE CONSIDERATIONS | INFRASTRUCTURE ITEM | COST | IDENTIFIED IN 2009 – 2019 LTCCP |
|---|---|---|---|---|---|---|---|
| 1 | N3 | 29ha (87) | This area is the growth cell to be developed beyond the existing developments within the current town boundary which have some remaining capacity.<br>Growth will be encouraged in this growth cell as opposed to the general rural environment.<br>The development of this land is expected in the period 2012 - 2039. | There is no provision in the LTCCP for the required infrastructure upgrades and those that have been identified are not considered to be required within the initial 10 year period (2009-2019). A rough order of costs in 2009 ($) is provided however. | **Transport** | | |
| | | | | | Reid Road Footpath/ cyclepath connections (1km) | $150K | Not Identified |
| 2 | N4 | 60ha (180) | This area is the growth cell to be developed beyond N3. Growth will be encouraged in this growth cell as opposed to the general rural environment. The following matters should be considered prior to this development occurring.<br>· 80% completion of N3 before N4 commences.<br>· Provision for local convenience commerical premises within this growth cell.<br>· Realignment of Reid Road to cater for a possible extension to the Ngahinapouri School.<br>· The outcomes of a drainage assessment required to be prepared for this growth cell.<br>The development of this land is expected in the period 2030 - 2083. | Development of this area will occur beyond the initial 10 year period covered by the LTCCP. As such there has been no provision for infrastructure within the LTCCP. An indication of the likely infrastructure requirements and their rough order cost in 2009 ($) is provided. | **Transport** | | |
| | | | | | Cycle / Pedestrian connections to Duncan Road | $150K | Not Identified |
| | | | | | Reid Road Footpath/ cyclepath connections (1km). NB these may have been provided as part of Stage 1 development | $150K | Not Identified |
| | | | | | Passenger Transport Node (parking for 25 cars) | $75K | Not Identified |
| 3 | N5 | 25ha (75) | This area is the growth cell to be developed beyond the N4 growth cell. Growth will be encouraged in this growth cell as opposed to the general rural environment. The following matters should be considered prior to this development occurring.<br>· Traffic solution for providing an alternative to accessing the State highway directly is required.<br>· 80% completion of N4 before N5 commences.<br>The development of this land is not expected to by required until beyond 2050. | Development of this area will occur beyond the initial 10 year period covered by the LTCCP. As such there has been no provision for infrastructure within the LTCCP. An indication of the likely infrastructure requirements and their rough order cost in 2009 ($) is provided. | **Transport** | | |
| | | | | | Footpath/cyclepath connections (1km) | $150K | Not Identified |

## 6.9 TE PAHU

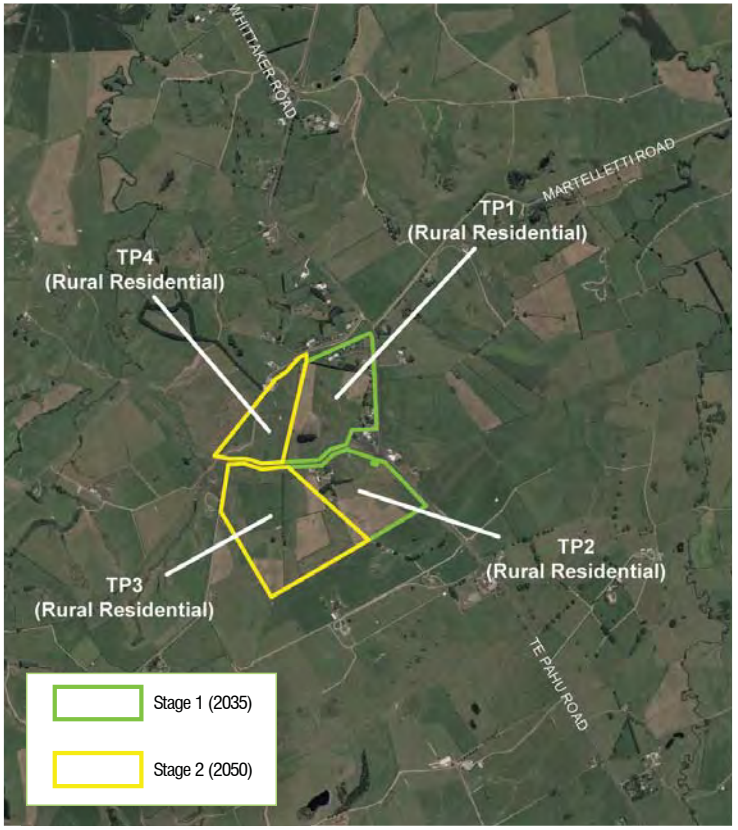
### 6.9.1 VISION

By 2050, Te Pahu has developed as a small rural village with an additional 150 residents locating in the vicinity of the amenities provided by the school and community hall. Development will be encouraged into the village rather than being scattered throughout the Te Pahu area as has previously occurred. The area will remain unserviced in terms of both wastewater and water supply. Development density will be approximately 2 dwellings per hectare (lot sizes of approximately 5,000m$^2$) due to the need to dispose of sewage on site and a desire to retain a lower density of development in this locality in keeping with the existing environment. Location and staging of anticipated development is shown in Figure 11.




**Te Pahu PreSchool**

**Figure 11: Te Pahu Village Growth Areas**




### 6.9.2 GROWTH MANAGEMENT

To accomodate growth in Te Pahu:

- The existing zoned land will provide for expected growth over the next 20 years.
- An additional 18ha will be released to the west of the existing zoned land to accommodate growth out to 2050.

The District Plan will provide mechanisms for the use of transferable rights, which may include the setting aside of land within Te Pahu as a deferred zoning with the ability to develop within these areas only through the transferring of titles from areas of significance.

## 6.9.2 SEQUENCING & INFRASTRUCTURE

| STAGE | GROWTH CELL | CAPACITY (DWELLINGS UNLESS STATED) | PRECONDITIONS AND TIMING FOR RELEASE | INFRASTRUCTURE CONSIDERATIONS | INFRASTRUCTURE ITEM | COST | IDENTIFIED IN 2009 – 2019 LTCCP |
|---|---|---|---|---|---|---|---|
| 1 | General | - | - | Those infrastructure items identified as being required to service all or parts of the stage 1 development are identified in this row rather than against any specific growth cell. | **Transport** | | |
| | | | | | Passenger Transport Node | $75K | Not identified (beyond 2019) |
| | | | | | Te Pahu Road Footpath / Cyclepath connections (1km) | $150K | Not identified (beyond 2019) |
| 1 | TP1 | 8ha (16) | This area is already zoned for rural residential development. Uptake of this land is expected over the period 2009 – 2034.<br>Growth will be encouraged in this growth cell as opposed to the general rural environment. | - | - | - | - |
| 1 | TP2 | 8ha (16) | This area is already zoned for rural residential development. Uptake of this land is expected over the period 2009 – 2034.<br>Growth will be encouraged in this growth cell as opposed to the general rural environment. | - | - | - | - |
| 2 | General | - | - | Those infrastructure items identified as being required to service all or parts of the Stage 2 developments are identified in this row rather than against any specific growth cell. | **Transport** | | |
| | | | | | Limeworks Loop Road Footpath / Cyclepath connections (1km) | $150K | Not identified |
| 2 | TP3 | 12ha (24) | This area is identified for rural residential development. Uptake of this land is expected over the period 2028 – 2060.<br>Growth will be encouraged in this growth cell as opposed to the general rural environment.<br>This growth cell will not be released until 80% of the stage 1 growth cells are developed. | - | - | - | - |
| 2 | TP4 | 6ha (12) | This area is identified for rural residential development. Uptake of this land is expected over the period 2028 – 2040.<br>Growth will be encouraged in this growth cell as opposed to the general rural environment.<br>This growth cell will not be released until 80% of the stage 1 growth cells are developed. | - | - | - | - |

## 6.10 RUKUHIA

### 6.10.1 VISION

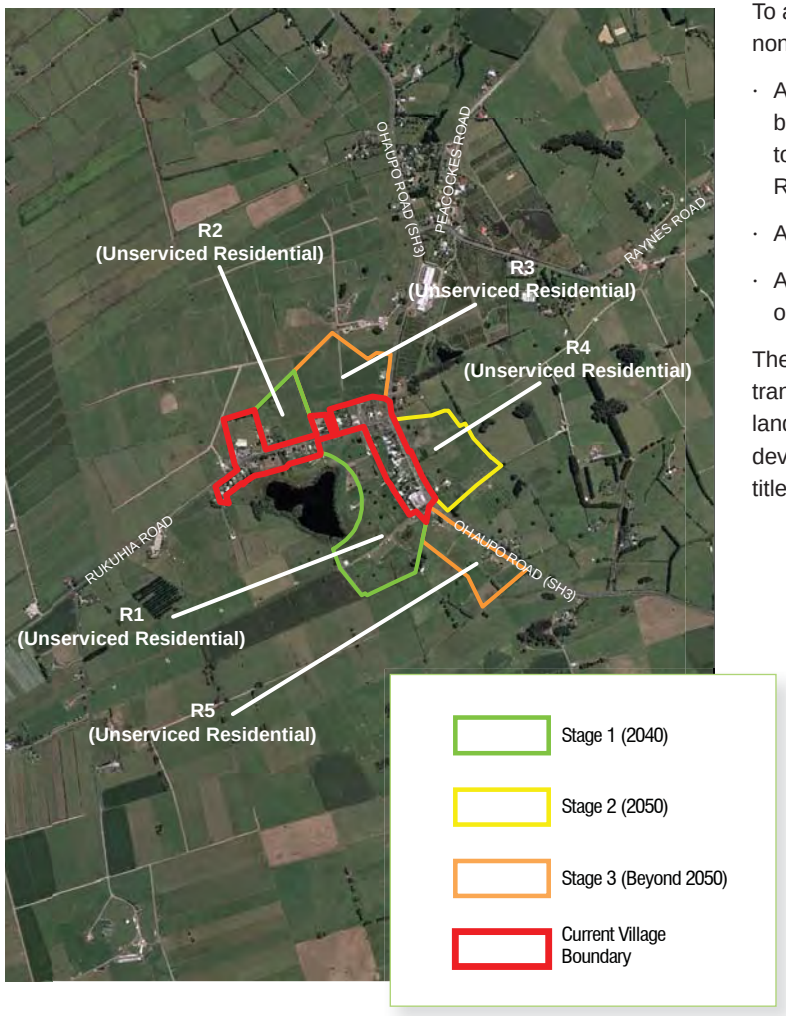
By 2050, the village of Rukuhia will be home to an additional 150 residents, in 65 new households. The village is now much closer to Hamilton which has grown southward through the Peacockes growth cell which accommodates approximately 20,000 people. The Southern Links roading network provides the separation between Hamilton City and the village and provides for suitable access both to the north and south by way of a link road connecting to Rukuhia Road from this new arterial. The construction of Southern Links has also removed the majority of vehicle movements from Ohaupo Road which runs through Rukuhia which is now no longer a State Highway. This has provided opportunities to develop on both sides of Ohaupo Road as shown in Figure 12. Development prior to the construction of Southern Links has been accommodated around Lake Cameron and Rukuhia School.

The village will remain unserviced in terms of both wastewater and water supply and development density will be approximately 3 dwellings a hectare (lot sizes of approximately 2,500m$^2$) due to the need to dispose of sewage on site, to retain the rural character of the area and to provide an alternative form of living for residents near Hamilton City.



**Lake Cameron - Rukuhia**

**Figure 12: Rukuhia Village Growth Areas**




### 6.10.2 GROWTH MANAGEMENT

To accommmodate this future growth it is proposed land for non serviced low density residential living as follows:

- Approximately 18ha of land, some of which is located between Lake Cameron and SH3 and some adjacent to the school. Both these areas are located off Rukuhia Road;
- Approximately 11ha of land to the north of Rukuhia Road;
- Approximately 8ha of land to the east of Ohaupo Road on completion of Southern Links in this location.

The District Plan will provide mechanisms for the use of transferable rights which may include the setting aside of land within Rukuhia as a deferred zoning with the ability to develop within these areas only through the transferring of titles from areas of significance.

## 6.10.3 SEQUENCING & INFRASTRUCTURE

| STAGE | GROWTH CELL | CAPACITY (DWELLINGS UNLESS STATED) | PRECONDITIONS AND TIMING FOR RELEASE | INFRASTRUCTURE CONSIDERATIONS | INFRASTRUCTURE ITEM | COST | IDENTIFIED IN 2009 – 2019 LTCCP |
|---|---|---|---|---|---|---|---|
| 1 | General | - | - | Those infrastructure items identified as being required to service all or parts of the Stage 1 development are identified in this row rather than against any specific growth cell. A rough order of costs in 2009 ($) is provided however. | **Transport** | | |
| | | | | | Passenger Transport Node | $75K | Not identified (beyond 2019) |
| | | | | | Rukuhia Road/SH3 intersection improvements | $250K | Not identified (beyond 2019) |
| 1 | R1 | 12ha (36) | Development of this growth cell is expected for rural residential development. Uptake is expected over the period 2010 – 2040. Growth will be encouraged in this growth cell as opposed to the general rural environment. | - | - | - | - |
| 1 | R2 | 4ha (12) | Development of this growth cell is expected for rural residential development. Uptake is expected over the period 2010 – 2020. Growth will be encouraged in this growth cell as opposed to the general rural environment. | - | - | - | - |
| 2 | R4 | 8ha (24) | Development of this growth cell is expected for rural residential development. Uptake is expected over the period 2028 – 2055. Growth will be encouraged in this growth cell as opposed to the general rural environment. Release of the land will be dependant on:<br>· Southern Links being constructed.<br>· 80% development of growth cells R1 & R2 combined. | Southern Links is required to be constructed for this growth cell to be viable (versus R3). The construction of Southern Links is dependant on NZTA funding and programming. | - | - | - |
| 3 | R3 | 7ha (21) | Development of this growth cell is expected for rural residential development. Uptake is expected over the period 2047 – 2072. Growth will be encouraged in this growth cell as opposed to the general rural environment. Release of the land will be dependant on:<br>· 80% development of growth cell R4.<br>· A State highway intersection upgrade if Southern Links has not been constructed.<br>NB: This growth cell will be progressed ahead of R4 if Southern Links has not been constructed once 80% of growth cells R1 & R2 has occurred. | - | **Transport** | | |
| | | | | | State highway intersection | $0.75M | Not Identified |
| 3 | R5 | 6ha (18) | Development of this growth cell is expected for rural residential development. Uptake is expected over the period 2047 – 2070. Growth will be encouraged in this growth cell as opposed to the general rural environment. Release of the land will be dependant on:<br>· Southern Links being constructed<br>· 80% development of growth cell R4. | - | - | - | - |

## 6.11 KARAPIRO

### 6.11.1 VISION

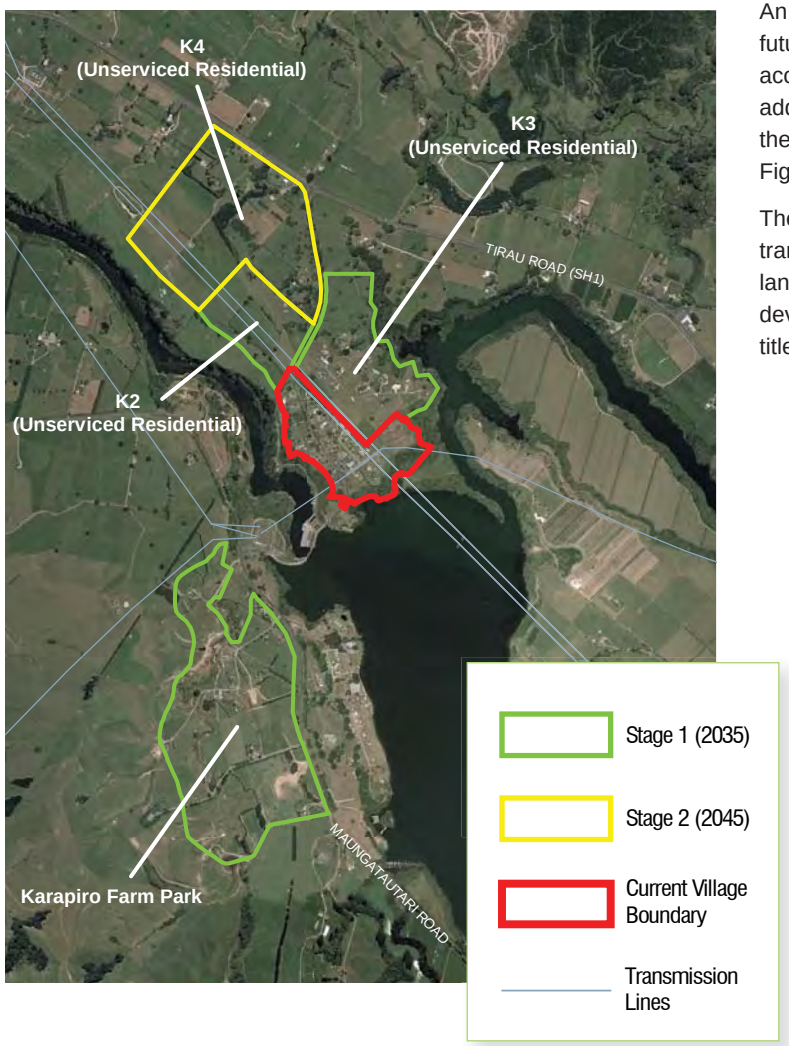
By 2050, the village of Karapiro has grown to accommodate an additional 500 residents. The village remains a hub for recreation activities based around the sporting activities provided for on the lake and surrounds and is generally considered a desirable location to live and visit. The infrastructure put in place for the 2010 Rowing World Championships has served future events well and a small convenience commercial area has been established in the vicinity of the existing commercial centre in the original village to service the day to day needs of the village and the peaks that occur from visitors to the area.

The existing village remains serviced, however, new growth outside the village boundary will not and densities of 3 dwellings per hectare (lot sizes of approximately 2,500m$^2$) in these new growth areas reflect this. The historic values and amenity of the main road through the original village are retained through the development of a special character area, which controls development within this area in accordance with specifically developed design guidelines.



**Karapiro Dam**

**Figure 13: Karapiro Village Growth Areas**




### 6.11.2 GROWTH MANAGEMENT

An additional 220 dwellings will be required to house future population growth. The majority of this can be accommodated through existing zoned land, with an additional residential area proposed to the north-west of the village once the existing area is exhausted as shown in Figure 13.

The District Plan will provide mechanisms for the use of transferable rights which may include the setting aside of land within Karapiro as a deferred zoning with the ability to develop within these areas only through the transferring of titles from areas of significance.

## 6.11.3 SEQUENCING & INFRASTRUCTURE

| STAGE | GROWTH CELL | CAPACITY (DWELLINGS UNLESS STATED) | PRECONDITIONS AND TIMING FOR RELEASE | INFRASTRUCTURE CONSIDERATIONS | INFRASTRUCTURE ITEM | COST | IDENTIFIED IN 2009 – 2019 LTCCP |
|---|---|---|---|---|---|---|---|
| 1 | General | - | - | Those infrastructure items identified as being required to service all or parts of the Stage 1 development are identified in this row rather than against any specific growth cell. A rough order of costs in 2009 ($) is provided however. | **Transport** | | |
| | | | | | State highway intersection upgrade | $75K<br>(not to be considered for DC's) | Not identified (beyond 2019) |
| | | | | | Shakespeare St / Maungatautari Rd intersection upgrade (refer C6) | $0.5M | Not Identified |
| 1 | Karapiro Farm Park | 24 | This area is already zoned for rural residential development and is provided for as a Farm Park. Uptake of this land is expected over the period 2009 – 2024.<br>Growth will be encouraged in this growth cell as opposed to the general rural environment.<br>There will be a need to consider any potential reverse sensitivity issues relating to residential development in the vicinity of the Karapiro Dam. | - | - | - | - |
| 1 | K2 | 10ha (30) | This area is already zoned for rural residential development. Uptake of this land is expected over the period 2009 – 2026.<br>Growth will be encouraged in this growth cell as opposed to the general rural environment. | - | - | - | - |
| 1 | K3 | 17ha (51) | This area is already zoned for rural residential development. Uptake of this land is expected over the period 2009 – 2033.<br>Growth will be encouraged in this growth cell as opposed to the general rural environment. | - | - | - | - |
| 2 | K4 | 30ha (90) | This area is identified for rural residential development beyond those areas already zoned. Uptake of this land is expected over the period 2030 – 2045.<br>Growth will be encouraged in this growth cell as opposed to the general rural environment.<br>The following matters should be considered prior to this development occurring.<br>· A traffic solution for providing an alternative to accessing the State highway directly.<br>· 80% completion of Stage 1 growth cells.<br>· Avoiding development under the existing pylons. | - | - | - | - |

## 6.12 TE MIRO

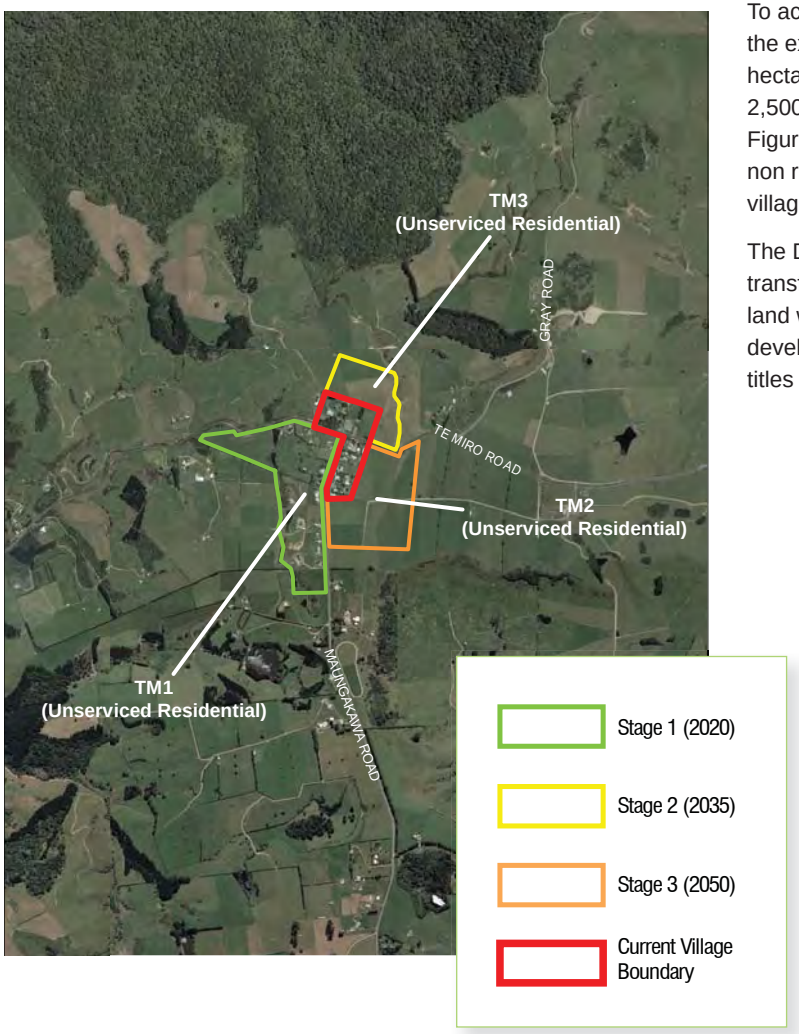
### 6.12.1 VISION

By 2050, Te Miro will be home to an additional 100 residents. The village will remain unserviced and development density will be between 2 to 3 dwellings per hectare due to the servicing needs and a desire to retain a low density of development. The school is the focal point of the village and new growth areas have been located in proximity to reflect this. The result is a compact community based village.




**Te Miro School**

**Figure 14: Te Miro Village Growth Areas**




### 6.12.2 GROWTH MANAGEMENT

To accommodate the additional 40 dwellings to support the expected population growth requires an additional 15 hectares of developable land (lot sizes of approximately 2,500m$^2$ – 5,000m$^2$). Location of this land is depicted in Figure 14. There is not considered to be a need for any non residential activities beyond what is located within the village.

The District Plan will provide mechanisms for the use of transferable rights which may include the setting aside of land within Te Miro as a deferred zoning with the ability to develop within these areas only through the transferring of titles from areas of significance.

## 6.12.3 SEQUENCING & INFRASTRUCTURE

| STAGE | GROWTH CELL | CAPACITY (DWELLINGS UNLESS STATED) | PRECONDITIONS AND TIMING FOR RELEASE | INFRASTRUCTURE CONSIDERATIONS | INFRASTRUCTURE ITEM | COST | IDENTIFIED IN 2009 – 2019 LTCCP |
|---|---|---|---|---|---|---|---|
| 1 | TM1 | 5ha (12) | Much of this area is already zoned for rural residential development. Uptake of this land is expected over the period 2009 – 2021.<br>Growth will be encouraged in this growth cell as opposed to the general rural environment. | - | - | - | - |
| 2 | TM3 | 5ha (12) | This area is identified for rural residential development. Uptake of this land is expected over the period 2017 – 2035.<br>Growth will be encouraged in this growth cell as opposed to the general rural environment.<br>Release of the land will be dependant on 80% development of TM1. | - | - | - | - |
| 3 | TM2 | 10ha (25) | This area is identified for rural residential development. Uptake of this land is expected over the period 2027 – beyond 2050.<br>Growth will be encouraged in this growth cell as opposed to the general rural environment.<br>Release of the land will be dependant on 80% development of TM3. | - | - | - | - |

## 6.13 PUKEATUA

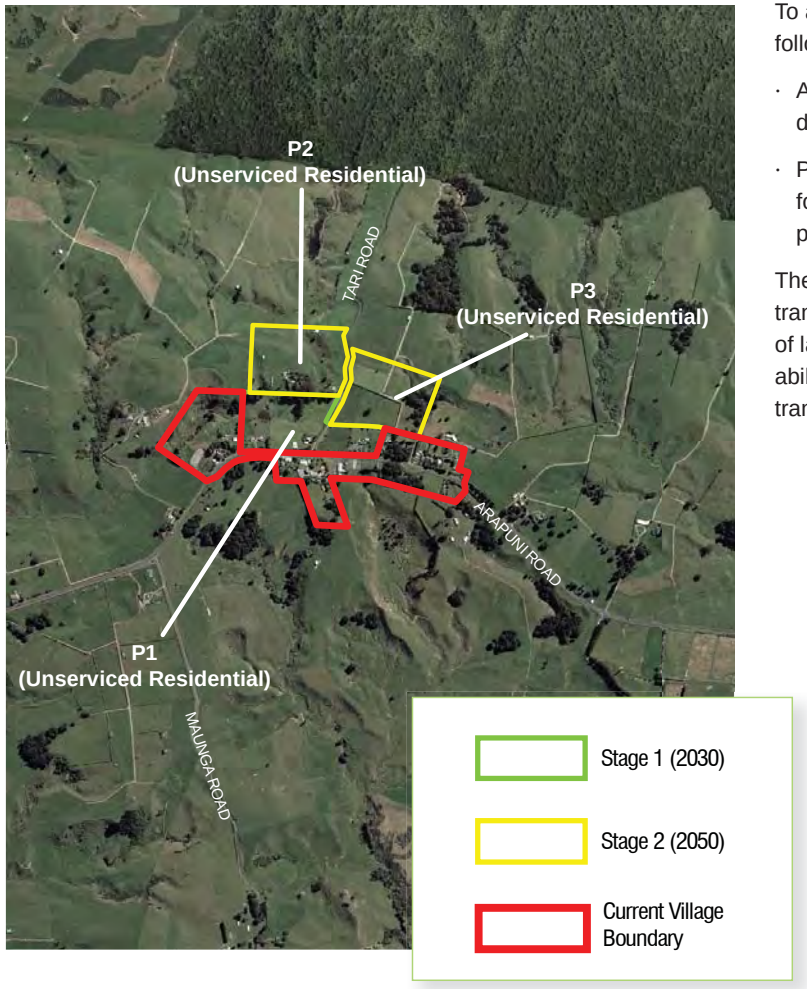
### 6.13.1 VISION

By 2050 the village of Pukeatua is home to an additional 80 permanent residents. The village remains unserviced and development densities of 2-3 dwellings per hectare (lot sizes of approximately 2,500m$^2$ – 5,000m$^2$) reflect both this and the desire to not provide intensive development due to the landscape values of Maungatautari. As such, a buffer between the village and the bush line is provided. The popularity of Maungatautari has led to a small amount of growth in the village through tourism and as such B&B's and tourist based facilities (information centre, café, gift shop) are provided for and developed.




**Pukeatua Peak**

**Figure 15: Pukeatua Village Growth Areas**




### 6.13.2 GROWTH MANAGEMENT

To accommodate the anticipated growth in Pukeatua, the following is provided and shown in Figure 15:

- An additional 10ha of of land providing for average densities of 2-3 dwellings per hectare (P2 & P3)
- Provision within existing and proposed zoned land for home based tourist accommodation and small provision for tourist based commercial facilities.

The District Plan will provide mechanisms for the use of transferable rights which may include the setting aside of land within Pukeatua as a deferred zoning with the ability to develop within these areas only through the transferring of titles from areas of significance.

## 6.13.3 SEQUENCING & INFRASTRUCTURE

| STAGE | GROWTH CELL | CAPACITY (DWELLINGS UNLESS STATED) | PRECONDITIONS AND TIMING FOR RELEASE | INFRASTRUCTURE CONSIDERATIONS | INFRASTRUCTURE ITEM | COST | IDENTIFIED IN 2009 – 2019 LTCCP |
|---|---|---|---|---|---|---|---|
| 1 | P1 | 6ha (15) | This area is identified for rural residential development. Uptake of this land is expected over the period 2009 – 2033.<br>Growth will be encouraged in this growth cell as opposed to the general rural environment.<br>Opportunities for tourism based facilities to develop exist in this location. | - | - | - | - |
| 2 | P3 | 5ha (12) | This area is identified for rural residential development. Uptake of this land is expected over the period 2025 – 2053.<br>Growth will be encouraged in this growth cell as opposed to the general rural environment.<br>Release of this growth cell will be dependant on 80% development of P1. | Development of this area will occur beyond the initial 10 year period covered by the LTCCP. As such there has been no provision for infrastructure within the LTCCP. An indication of the likely infrastructure requirements and their rough order cost in 2009 ($) is provided. | **Transport** | | |
| | | | | | Arapuni Rd / Tari Road intersection upgrade | $50K | Not Identified |
| 2 | P2 | 5ha (12) | This area is identified for rural residential development. Uptake of this land is expected over the period 2025 – 2053.<br>Growth will be encouraged in this growth cell as opposed to the general rural environment.<br>Release of this growth cell will be dependant on 80% development of P3. | - | - | - | - |

# 7 IMPLEMENTATION



## 7.1 KEY IMPLEMENTATION METHODS

Waipa 2050 provides the overarching vision for growth within the District driven by the expected population increase of 27,000 and the desire to remain a Home of Champions. The implementation of Waipa 2050 will be through a number of methods, primarily within documents which are either existing and therefore need amending to reflect the 40 year plan or are to be developed as a result of Waipa 2050. This includes the development of a Memorandum of Understanding with Tāngata Whenua which will be given effect to through Waipa 2050 and other implementation tools as agreed with Tāngata Whenua.

A summary of each of these methods and the aspects of Waipa 2050 that they will implement are provided below. This documentation is also captured in the summary table after section 7.1.8.

### 7.1.1 TOWN CONCEPT PLANS

Town Concept Plans will be prepared for Cambridge, Te Awamutu / Kihikihi, Pirongia and Ohaupo.

The Town Concept Plans will set a vision and provide a structure plan for each town. They will assess how the growth strategy can be achieved while seeking to maintain important elements of character and amenity. They will cover:

- connectivity
- street hierarchy
- open space network
- scale and massing of buildings
- public domain interface
- significant sites, views / vistas / landmarks / public art
- streetscape / safety & amenity improvements
- cycleways & walkways
- built form character, and
- possible identification of catalyst projects.

The outputs from the Town Concept Plans will be incorporated into the District Plan. They will provide key direction for the zoning pattern, density requirements and other plan requirements such as streetscape. They will also provide key directions for public spaces and the creation of future linkages such as cycleways and walkways.

The Town Concept Plans are being prepared in 2009.

### 7.1.2 DISTRICT PLAN

The District Plan will be the implementation tool of many of the development aspects of Waipa 2050 including the Town Concept Plans. The District Plan will:

- Identify the key district issues relating to resource management and the methods for managing these
- Identify strong policy direction in regards to the need to adhere to the long term planning vision provided by Waipa 2050
- Identify the location for various landuses that are envisaged to be required for development in the next 15 years based on the demand identified within Waipa 2050
- Outline the development controls that apply to that land, including any identified design guidelines that result from the Town Concept Plans.

### 7.1.3 STRUCTURE PLANS

Whilst the Town Concept Plans will provide the overall structure plan for the towns, there is a likelihood that there will be a need for site specific structure plans as each growth cell is developed. These structure plans will provide the detail within which the Town Concept Plans will be implemented. Where the Town Concept Plans are being prepared, they will identify the predominant issues that will require addressing within the structure plans and, as a result of the overall Town Concept Plans being in place, it is envisaged that the structure planning process in areas where they are being prepared, will not be as exhaustive as occurs currently. The matters that will need to be covered within the structure plans include:

- Results of consultation of tāngata whenua including the identification of values / sites / areas of significance
- Roading layout
- Pedestrian & cycle network
- Infrastructure provision & costs
- Landuses & proposed development controls
- Technical assessments to assist with understanding, managing & mitigating effects (i.e. geotechnical, archaeological, landscape / visual, traffic)

Structure plans will also be a tool used in the rural villages and within the general rural environment.

### 7.1.4 ENVIRONMENT STRATEGY

The Environment Strategy is directly related to the environmental wellbeing component of the Community Outcomes.

Its purpose is to identify key principles for sustainability and to provide strategic direction at a district level. The key principles will relate to national directions on matters such as the Biodiversity Strategy, Climate Change, Urban Design Protocol, heritage and waste management. Involvement of iwi in identifying the principles and the related strategic direction will be essential. The Strategy is intended to be high level and will cover both the towns and the rural area of the District.

The key principles will be applied to the current environments of the District and the way they are presently managed. This process will assist in identifying values and issues and will

provide the basis for identifying strategic directions and actions. The issues that are identified through this process will also assist in confirming the resource management issues for the District Plan.

The proposed actions will provide direction on management options / delivery mechanisms through funding, regulation, or other non-regulatory means. Some of the actions that will be identified will link to existing Council plans and strategies and the directions within them will remain relevant. In other cases reviews to existing strategies will be recommended. Other actions will assist the Council in identifying priority issues for funding in future 10 year plans as well as providing regulatory direction for the District Plan. It is also intended that the Environment Strategy will assist in identifying roles and responsibilities of agencies in environmental issues.

The strategy will therefore provide the Council and the community with key strategic directions including on the environment aspects of the Growth Strategy. (These matters will not be covered in the Town Concept Plans). It will assist the Council and the community in moving towards a more sustainable future.

It is proposed to develop the Environment Strategy by the end of 2009.

### 7.1.5 OTHER STRATEGIES

The following 'other strategies' have been identified as being required.

- 3 Waters Strategy
- Urban Design Strategy
- Economic Development and Promotions Strategy
- Integrated Transport Strategy

### 7.1.6 10 YEAR PLAN (LTCCP)

The 10 Year Plan will provide for the infrastructure required to service the growth areas identified within Waipa 2050, with the infrastructure planned and programmed based on the sequencing provided for within Waipa 2050. The required infrastructure and associated timing for when this is required to be in place is outlined within the tables in section 6 of Waipa 2050.

The required infrastructure and any associated works will also need to be factored into the asset management plans to be reviewed and prepared prior to the LTCCP.

### 7.1.7 CODE OF PRACTICE FOR SUBDIVISION & DEVELOPMENT

Detail around infrastructure design requirements will be incorporated into the Code of Practice. In particular, some aspects and outcomes of the Town Concept Plans, Environment Strategy and other identified strategies (i.e. the 3 Waters Strategy) will be implemented through the Code of Practice.

### 7.1.8 PARTNERSHIP

Waipa 2050 will not only be implemented through the development of strategies and documents internally within Waipa District Council, it will also be implemented through a close relationship with those organisations, groups and individuals that have a role to play in managing growth within the District. These include

- Tāngata Whenua
- Community Service Providers (Ministry of Education, DHB)
- Transport Providers (NZTA, NZ Rail, Waikato Regional Airport Ltd)
- Utility Providers
- Development Community (Chamber of Commerce)
- Adjoining Local Authorities

## 7.2 MONITORING

Monitoring of the drivers behind Waipa 2050 should be undertaken on a regular basis with the measures identified and reported within the District's State of the Environment Reports. The key areas where measures will be required to assist in the review of Waipa 2050 relate to:

- Population Growth
- Residential Development (number, type, location, land area, density and rate of take of new households)
- Commercial Development (number, type, location, land area and rate of take of new commercial developments)
- Industrial Development (number, type, location, land area and rate of take of new industrial developments)
- Infrastructure efficiency & effectiveness – measures to relate particularly to capacity
- External infrastructure (i.e. State Highway, Rail, Power, Gas, Telecommunications)

## 7.3 REVIEW

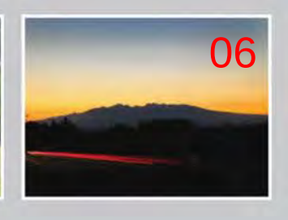
It is proposed that the effectiveness of Waipa 2050 be reviewed every 3 years with a full review undertaken every 10 years to coincide with reviews of the subregional growth strategy. On that basis it is recommended that a full review of Waipa 2050 next be undertaken in 2019, with an initial review in 2012 (with that review focussing on any external matters that may impact on the ability to implement Waipa 2050).

**Table 6: Summary of Implementation Framework**

| DOCUMENT | ASPECTS TO BE IMPLEMENTED | INITIATED | COMPLETED | REVIEWED |
|---|---|---|---|---|
| Town Concept Plans | The Town Concept Plans will set a vision and provide a structure plan for the whole of each town. They will assess how the growth strategy can be achieved while seeking to maintain important elements of character and amenity. | 2009 | 2009 | 10 yearly |
| District Plan | The District Plan will:<br>· Identify the key district issues relating to resource management and the methods for managing these.<br>· Identify strong policy direction in regards to the need to adhere to the long term planning vision provided by Waipa 2050.<br>· Identify the zoning of land that is envisaged to be required for development in the next 15 years based on the demand identified within Waipa 2050.<br>· Outline the development controls that apply to that land, including any identified design guidelines that result from the Town Concept Plans. | 2009 | 2011 | 10 Yearly |
| Environment Strategy | Identification of key principles for sustainability and to provide strategic direction at a district level. The key principles will relate to national directions on matters such as the Biodiversity Strategy, Climate Change, Urban Design Protocol, heritage and waste management. | 2009 | 2009 | 5 Yearly |
| Other Strategies | Other implementation aspects of Waipa 2050 not covered elsewhere. Examples of such strategies inlcude.<br>· 3 Waters Strategy<br>· Urban Design Strategy<br>· Economic Development and Promotions Strategy<br>· Transport Strategy<br>These strategies will sit beneath the Waipa 2050 and the Environment Strategy. | 2009 | 2011 | 5 Yearly |
| 10 Year Plans (LTCCP) | The 10 Year Plan will provide for the infrastructure required to service the growth areas identified within Waipa 2050, with the infrastructure planned and programmed based on the sequencing provided for within Waipa 2050.<br>The required infrastructure and any associated works will also need to be factored into the asset management plans to be reviewed and prepared prior to the LTCCP. | 2008 | 2009 | 3 Yearly |
| Code of Practice for Subdivision and Development | The Code of Practice will implement any required changes to infrastructure design to be required in subdivision and development in general. These changes may stem from urban design guidelines identified within the Town Concept Plans and / or other inititiatives arising from the Environmental Strategy and / or 3 Waters Strategy. | 2009 | 2009 | 5 Yearly |
| Memorandum of Understanding or similar with Tāngata Whenua. | The Memorandum of Understanding or similar agreement seeks to provide an initial, high level understanding of the relationship between Tāngata Whenua and Council. It also seeks to capture high level principles, values and aspirations of Tāngata Whenua along with priority actions to be undertaken. | 2009 | 2009 | As agreed within the MOU |

06




# OHAUPO TOWN CONCEPT PLAN

*Final Report*

June 2010

Waipa DISTRICT COUNCIL

WAIPA 2050
Value our Past - Champion our Future

# ADOPTED BY WAIPA DISTRICT COUNCIL 29 JUNE 2010

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# CONTENTS




Figure 1: Aerial of Ohaupo, showing Lake Rotomanuka and the 2050 Town Boundary


1 INTRODUCTION ..... 1

2 REPORT STRUCTURE ..... 2

2.1 Process for Preparing the Draft Town Concept Plan ..... 2

2.2 Analysis Report Summary ..... 2

2.3 Hierarchy of Objectives, Principles and Strategies ..... 3

2.4 References ..... 3

3 OHAUPO CHARACTER DESCRIPTION ..... 4

3.1 Existing Character ..... 4

3.2 Desired Future Character ..... 6

4 OBJECTIVES AND PRINCIPLES ..... 9

5 URBAN FRAMEWORK ..... 10

5.1 Ohaupo Framework Plans ..... 10

5.2 Town Centre ..... 16

5.3 Public domain character ..... 17

5.4 Building type matrix ..... 21

6 URBAN LIVING AND SUSTAINABILITY ..... 22

# 1 INTRODUCTION

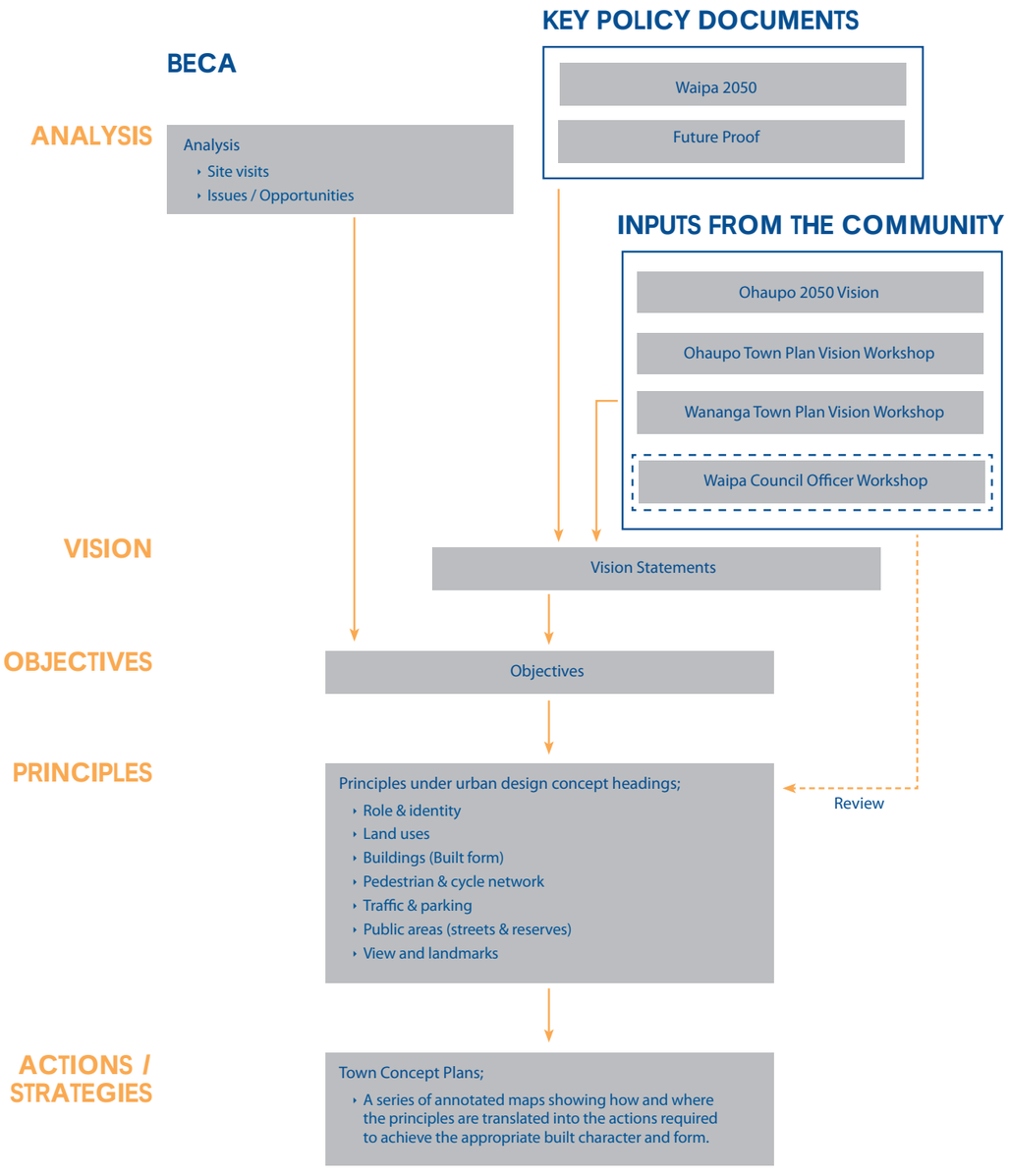



Figure 1.1: Ohaupo Town Concept Plan development process

Good urban design is central to promoting environmentally sustainable development, facilitating growth of urban areas that interact positively with their local environment. Future growth of Ohaupo has the potential to contribute to the making of a great place for people to live and visit in the Waipa District. Waipa District Council's Growth Strategy (Waipa 2050) has established a strong vision for the District and its urban areas that, with the aid of the right design tools, will see Ohaupo grow positively into the future. One of those tools is this Town Concept Plan.

The purpose of the Ohaupo Town Concept Plan (the Plan) is to assist with the development and implementation of the Council's vision for the Waipa District, being the Home of Champions - a great place to live, work and play. As part of this, Council seeks to provide for the sustainable future growth of Ohaupo, such that it provides for the social, cultural and economic wellbeing of the community, while protecting the existing environment for future residents and visitors to the town to enjoy.

Integral to the preparation of the Plan has been engagement with local community, Waipa District Council's elected members and staff, wider stakeholders and New Zealand Transport Agency (NZTA). The input from each group has helped shape the outcomes of the Plan and the future of Ohaupo and wider Waipa communities.

Following on from initial consultation and analysis, the Plan seeks to define and enhance the town's relationship with its immediate physical environment, including relationships to the surrounding lakes such as Lake Rotomanuka, vistas to Mount Pirongia and Maungatautari and the relationship with the dominant ridgeline. This Plan seeks to achieve this by providing relevant objectives, principles and strategies that respond to these inherent qualities of the town. With the assistance of framework plans, the Plan integrates physical and social infrastructure into the overall framework for future growth. Responding to a variety of matters (such as the need for greater access to open space and community facilities; better management of roads and traffic; and providing for economic growth that has regard to the built character of the town) have formed a fundamental part of the framework plans for the town.

The outcomes sought within this Plan will form the basis for future statutory and non-statutory methods of controlling and shaping future growth of Ohaupo, looking ahead to 2050. Along with the District Plan, it is anticipated that this Plan will assist the Council, community groups and other organisations to move towards a holistic and common vision for Ohaupo.

# 2 REPORT STRUCTURE

## 2.1 Process for Preparing the Town Concept Plan

The preparation of this Plan is derived from an iterative approach following on from the preparation of Waipa 2050 and associated technical profile statement reports. Waipa 2050 identifies a strong vision around matters relating to urban and rural living, employment, movement, infrastructure and the protection of the environment. This Plan builds upon the Waipa 2050 vision and seeks to provide a framework for how Ohaupo may contribute to achieving this vision through sustainable future growth.

Preparation of the Ohaupo Town Concept Plan was broken down into five steps, broadly summarised as:

Step 1: Data Collection and Analysis: The review and analysis of the plan area and preliminary strategic concepts. During this fieldwork period, streets were driven and walked and photographs taken recording observations and features of interest. These observations then formed an analysis report, highlighting key characteristics of Ohaupo, the existing issues and potential opportunities.

Step 2: Consultation with community and key stakeholders: To ensure that observations were in line with those of the community (and to introduce local communities to the Waipa 2050 Town Concept Plans), a series of community visioning workshops were undertaken throughout the District. These workshops incorporated a cross section of the community, from Council staff and iwi representatives to residents and college students. The workshops identified: community likes and dislikes; key issues, needs and challenges, and helped to determine a desired future character or 'vision' for Ohaupo.

Step 3: Preparation of draft objectives and principles: To provide direction to the ongoing preparation of the Town Concept Plan, draft objectives and principles were prepared, responding to initial analysis and consultation undertaken.

Step 4: Preparation of urban framework plans: Building upon the objectives and principles, draft framework plans for Ohaupo were developed. The framework plans draw upon the Ministry for Environment's New Zealand Urban Design Protocol and People, Places, Spaces publications and have regard to best practice urban design principles, including:

- Legibility and identity - To promote environments that are easily understood by their users, and that display a strong local identity and appropriate visual character. This facilitates an enhanced usage, enjoyment and pride in local places.
- Consolidation and dispersal - To promote higher-intensity development around existing or new nodes and lower density on the periphery. This allows local communities, businesses and public transport to be strengthened and resource efficiencies achieved, while reducing environmental impacts on peripheral areas.
- Integration and connectivity - To promote development that is integrated and connected with the surrounding environment and community. This facilitates ease of access, economy of movement and improved social interaction.
- Diversity and adaptability - To promote choice through the provision of a mix of land use activities and residential densities, thus promoting healthy social and cultural growth.
- Ecological responsiveness - To promote urban environments that are responsive to natural features, ecosystems, water quality, reduced energy usage and waste production, and balance the spatial needs to achieve this with those required for urbanisation. This facilitates improved ecological outcomes.

Step 5: Preparation of the Ohaupo Town Concept Plan: The final stage of the process was to bring the objectives, principles and framework plans together as a single document, supported by a concise set of strategies to assist in its implementation.

## 2.2 Analysis Report Summary

The Ohaupo Analysis Report provides the foundation for this Town Concept Plan. Town analysis and community consultation has enabled informed and focused design decisions to be made, significantly influencing strategic, conceptual and design outcomes. Several issues and opportunities within Ohaupo were identified during the town analysis process. These included:

- Streetscaping and traffic calming along the State Highway 3, to:
  - minimize the barrier presented by State Highway 3 and the associated pedestrian difficulties and safety concerns
  - overcome the isolation of Ohaupo School and lack of safe connections between the school and town / residential areas through streetscaping and traffic calming measures
  - mitigate safety concerns associated with the location of parking adjacent to State Highway 3
- Poor awareness of existing high quality neighbourhood parks and playgrounds could be overcome through clear pedestrian and cycle links and improved signage.
- Focusing future residential development along the western side of State Highway 3 to enable ease of connectivity to local amenities.

Views, vistas, history and heritage were identified as important existing features to be retained and enhanced where possible.

Following visioning workshops with the community, the following statements are considered to reflect characteristics that locals wish to place emphasis on:

- Open space and the natural environment
- Attractive streetscaping, retention of existing facades and local character
- Additional opportunities and amenities to contribute to a thriving town

- Celebrating local history
- Provision of amenities, services, facilities and opportunities
- A relaxed rural town for people of all ages
- An intimate place not overshadowed by traffic thoroughfare.

## 2.3 Hierarchy of Objectives, Principles and Strategies

The Ohaupo Town Concept Plan is based on a series of objectives, principles and strategies, each of which has been included to assist in achieving the overall vision for sustainable growth of Ohaupo.

### Objectives

The Plan contains urban design objectives set out to respond to the issues and opportunities identified within the initial analysis carried out for Ohaupo. Each objective sets out what needs to be undertaken to assist in achieving sustainable future growth within Ohaupo. Specifically, the urban design objectives in this Plan relate to:

- Role and identity
- Land uses
- Buildings (built form)
- Pedestrian and cycle network
- Traffic and parking
- Public areas (streets and reserves)
- Views and landmarks

### Principles

The principles in this Plan outline the courses of action that will be used to achieve the intent of the objectives. Wherever possible, the principles are implemented through the framework plans for the town and within the strategies for future growth.

### Strategies

The strategies in the report outline the means by which the principles will be achieved.

## 2.4 References

The following documents have been referenced during the preparation of the Ohaupo Town Concept Plan:


- Ministry for the Environment. March 2005. New Zealand Urban Design Protocol.
- Ministry for the Environment. March 2002. People + Places + Spaces – A design guide for urban New Zealand.
- Waipa District Council. 10-Year Plan- 2009-2019.
- Waipa District Council. Annual Plan - 2008/2009.
- Waipa District Council. Waipa 2050: District Growth Strategy.
- Waipa District Council. 2008/2009. State of Waipa District Report.
- Waipa District Council. 2008. Waipa District Cycling and Walking Strategy.
- Waipa District Council. Waipa District Plan – Heritage Inventory Record Forms.
- Waipa District Council. 1997. Operative Waipa District Plan.

# 3 OHAUPO CHARACTER DESCRIPTION

## 3.1 Existing Character

Ohaupo is a small rural settlement 17 kilometres south of Hamilton. The town has formed along State Highway 3 and has extended itself to the west where it is bound by the main trunk railway line. The topography of Ohaupo has resulted in the commercial area of town growing on either side of State Highway 3 along the ridgeline, while the majority of the residential area sits to the west of the highway and on the slope down towards the railway line.

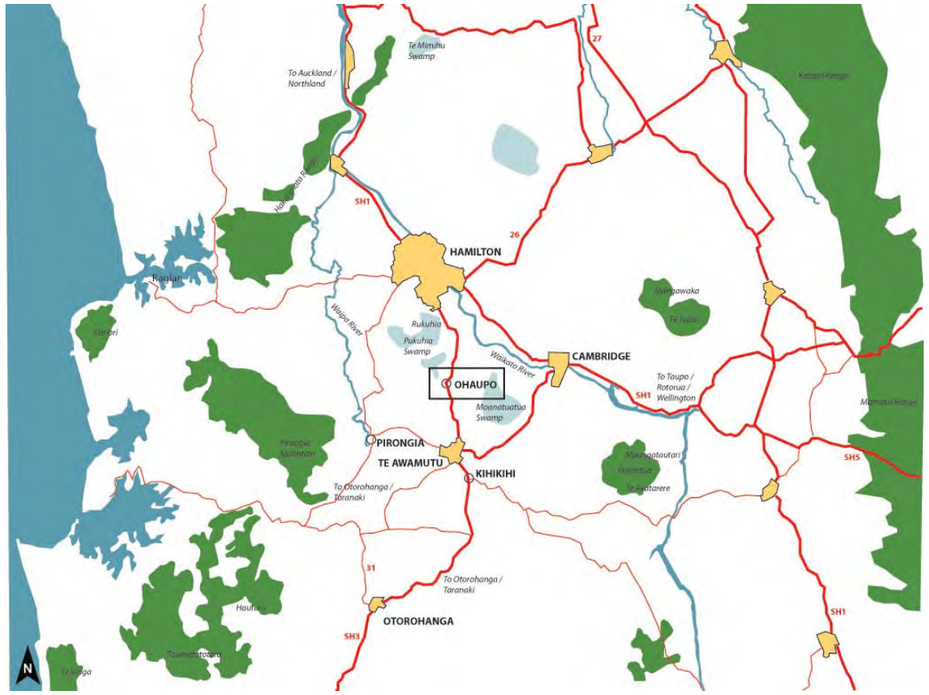



Figure 2: Ohaupo location map

There are a number of small businesses located along State Highway 3 on the drive into Ohaupo from both the north and south. Ohaupo's village consists of a mix of uses including a local convenience store, café, gift shop, antiques, hairdresser, takeaways, retirement care facility, butcher, auto repairs, caravan park and hotel / restaurant. There are also a number of vacant buildings in the commercial area. Existing businesses are within short walking distance from each other, creating a village feel to the town. Residential lot sizes are generally large with a lots of 1000m$^2$ located closer to the State Highway (the town centre) and large lots (2,500m$^2$ +) located in surrounding areas. Such low density residential living contributes to the rural village feel of Ohaupo.

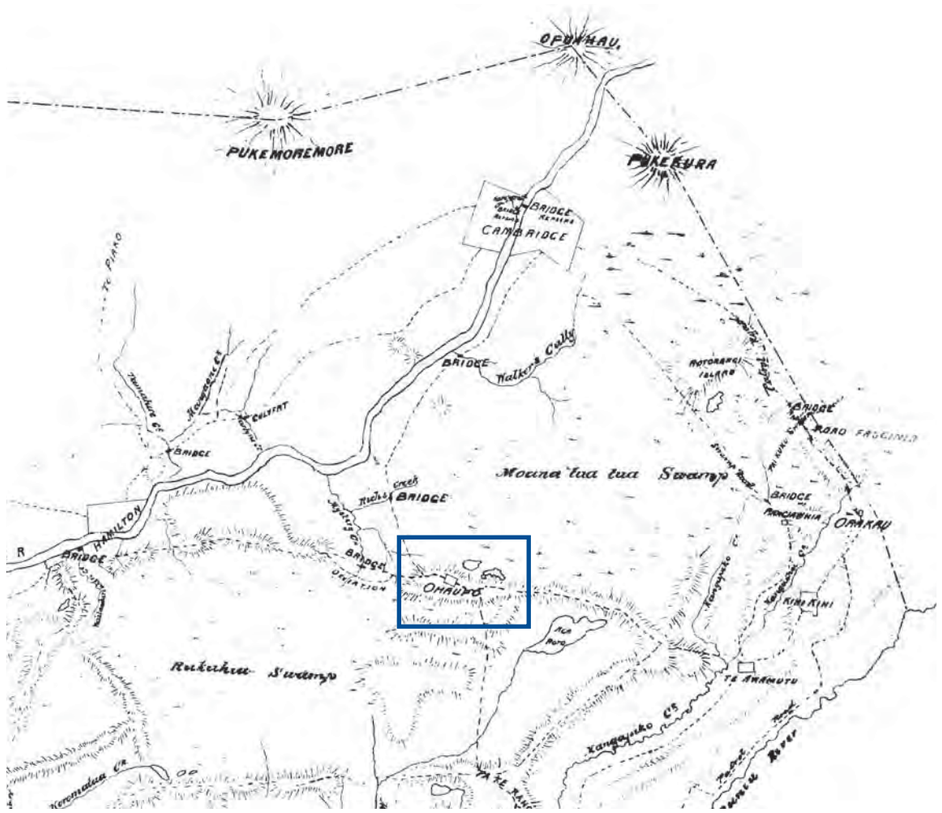



Figure 3: 1875 Sketch map of the Waipa District (provided with the authority of the University of Waikato, subject to copyright). This map shows the historic location of Ohaupo along a ridge overlooking significant swamp land and undulating topography. These elements still underpin the character of Ohaupo today.

# 3 OHAUPO CHARACTER DESCRIPTION

Ohaupo has a small range of parks, reserves and recreational facilities comprising of the rugby grounds on Forkert Road (also serves as a dog walking area), the Department of Conservation Wildlife Reserve to the south of the town, and the Ohaupo Bowling Club. A small park is also present next to the renovated church. There is a lack of streetscaping and overall character and as such, there is little coherence or amenity in what could otherwise be a very attractive town.

Located to the southeast of the town is Lake Rotomanuka. Lake Rotomanuka is administered by the Department of Conservation as a wildlife management reserve and lies on the edge of the Moanatuatua peat bog (most of which has now been drained).




Figure 4: Views to the surrounding landscape in Ohaupo.



Figure 5: State Highway 3 through Ohaupo

# 3 OHAUPO CHARACTER DESCRIPTION

## 3.2 Desired Future Character

Ohaupo is well placed to provide for the ongoing sustainable growth of the community around a vibrant local centre, with strong physical and visual connections to the surrounding rural environment.

The potential exists to establish a more consolidated town centre over time providing for a greater variety of uses within an attractive environment. Integral to the success of the town centre will be minimising conflict with traffic and enabling safe street crossing. Traffic calming measures such as traffic islands and signs are desired both north and south of the entrances to the village as an alternative method of slowing traffic through Ohaupo. Developing a strong identity to the town through appropriate streetscaping and buildings, particularly along the State Highway 3 corridor, will enhance the image of the town and attract more passing travellers to stop in the area and enjoy the amenities it has to offer. It is anticipated that the growth of visitor opportunities will develop alongside the growth of the town centre and local business opportunities.

Future development will allow for sustainable growth that delineates the boundary between the town and surrounding rural environment, and provides for strong links between the two areas. Predominantly large lot, low density residential living opportunities will be provided within the town boundaries, providing for strong links to the surrounding environment, allowing people to enjoy a high amenity lifestyle and ensuring the values associated with it are not eroded.

Future residential development should ensure strong connectivity between residential living areas. East / west access should be facilitated between State Highway 3 and the railway line, thus reducing the distance to travel between local areas and the need for vehicle travel. Ohaupo School, the first school in the Waikato, is located approximately 2km from the town centre and growing residential area. As the town grows, safe access to schooling must be ensured.

Opening up access to the surrounding environment will enhance recreation and sporting activities for local residents and visitors to the area. Opportunities exist to develop walking and cycling routes that acknowledge and bring people closer to the natural heritage in and around the town, such as Lake Rotomanuka. Additional playground areas may also benefit the community, providing an area for young families to interact and a recreation facility easily accessible from residential and retail areas via walking and cycle routes.




Figure 6: Existing view along State Highway 3 looking towards K Cees Place heritage building and adjacent unoccupied building




Figure 7: Conceptual image of State Highway 3 with provision of a pedestrian crossing. The location of such a crossing will need to be carefully considered. This image represents a concept only.

# 4 OBJECTIVES AND PRINCIPLES

To achieve the desired character outcomes for Ohaupo, and in response to consultation undertaken during the initial stages of the process, the following objectives and principles have been prepared to assist in guiding the future growth of the town and, subsequently, form the basis for the framework plans and strategies in this Plan:

## Objective 1 – Role and Identity

Continue to build on and enhance Ohaupo's distinctive heritage character and image as a vibrant community located on a ridgeline overlooking farmland and adjacent to Lake Rotomanuka.

### Principles

1.1 Identify appropriate areas for future development that provide opportunity for growth without compromising the character and image of the town. In these areas it will be important to provide pedestrian and cycle connections in order to promote increased use of active transport modes.

1.2 Enhance Ohaupo's relationship with surrounding lakes and waterways, including nearby peat lakes and Lake Rotomanuka, through greater physical and visual connectivity.

1.3 Acknowledge Maori history within Ohaupo through the provision of Maori art, carvings and place names within public areas.

1.4 Establish a well defined urban edge, and protect the Ohaupo's rich rural hinterland from inappropriate development and land use.

1.5 Identify and provide for local community services and amenities, such as recreational facilities, boutique shopping, cafes and farmers markets that provide for social and cultural wellbeing and attract visitors to the area.

1.6 Enhance community identity through the provision of a meaningful, community meeting place.

1.7 Acknowledge early European history and its ties to the existing farming community.

## Objective 2 – Land Use

Provide for appropriate land uses that enhance the economic wellbeing of Ohaupo and contribute to the town's cultural and social wellbeing.

### Principles

2.1 Ensure that land use within Ohaupo takes in to consideration the town characteristics significant to the community (outlined in Section 2.2) and its character areas.

2.2 Support land use within Ohaupo for quality visitor activities and facilities.

2.3 Identify areas for future commercial development that will strengthen the commercial heart of Ohaupo and provide potential for local services, for example, chemist or service station activities.

2.4 Support the provision of places for younger members of the population, including recreation parks, a range of sporting activities, shops and places to eat.

2.5 Encourage Low Impact Urban Design and Development (LIUDD) initiatives on development sites.

2.6 Support the relocation of the bowling club to the community precinct area.

# 4 OBJECTIVES AND PRINCIPLES

### Objective 3 – Buildings (built form)

Provide built form that incorporates sensitive design appropriate to the character and image of Ohaupo, while minimising impacts on the local service infrastructure.

#### Principles

3.1 Require built form to contribute positively to the character and image of Ohaupo.

3.2 Ensure that future housing and street layout is sympathetic with the existing character of Ohaupo.

3.3 Identify main street sites for future infill and development, to enhance the overall character of the town.

3.4 Locate and scale buildings to protect and enhance views within Ohaupo, including views to significant built features within the town.

3.5 On large lots, and where lots are consolidated, ensure that the scale, massing and proportions of new development reflect the original subdivision and are consistent with the vision for the town.

3.6 Seek to provide for development types that minimise the impacts on service infrastructure while providing the potential for the town to grow. This includes the creation of design guidelines related to minimising water runoff, correct orientation of buildings for maximised solar gain, and storage of roof water.

3.7 Investigate the potential for rural-residential development around Lake Rotomanuka.



Figure 8: Unoccupied lot along the main road (within the commercial centre) that could be better utilised / converted into a suitable commercial development.

### Objective 4 – Pedestrian and Cycle Network

Enhance and extend connectivity throughout Ohaupo by providing improved opportunities for pedestrians and cyclists to move safely and comfortably within and around the town.

#### Principles

4.1 Make provision for safe crossing points within the town and provide for pedestrian and cycle movement away from the State Highway.

4.2 Provide enhanced connections and signs leading to the peat lakes and Lake Rotomanuka.

4.3 Consider measures to slow traffic to increase the ability and confidence of people to walk and cycle.



Figure 9: Existing informal pedestrian crossing across the State Highway north of Ohaupo town centre. Traffic calming measures should be undertaken throughout Ohaupo to create safe pedestrian crossings for all people.

### Objective 5 – Traffic and Parking

Provide for appropriate traffic flow and parking requirements while having regard to the need to promote a pedestrian and cycle friendly environment.

#### Principles

5.1. Improve road efficiency through the provision of improved signs and parking facilities, with particular emphasis on reducing conflict with State Highway 3 traffic.

5.2. Implement measures to minimise severance and traffic speeds associated with State Highway 3.

### Objective 6 – Public Space, Streets and Reserves

Maintain and enhance public spaces, streets and reserves, including the qualities that reinforce Ohaupo's streetscape character.

#### Principles

6.1. Identify and enhance access to and information about significant natural, Maori and other heritage features within the town, including nearby peat lakes and Lake Rotomanuka.

6.2. Retain and protect significant trees along Ohaupo's main street and seek to reinforce both sides of the street through appropriate landscape treatment.

6.3. Provide continuous awnings over the footpath for weather protection and require awnings on new development areas.

6.4. Prepare and implement a park strategy that aims to provide the community with excellent access and connectivity to a variety of public open spaces throughout Ohaupo.

6.5. Ensure development contributes positively to street amenity by providing adequate space for landscaping and tree planting (where appropriate) alongside necessary services.

6.6. Provide for an adequate berm width and service separation to enable street trees to grow to their full potential where street trees have been indicated as part of a desired streetscape.

### Objective 7 – Views and Landmarks

Protect and enhance vistas and street views that celebrate significant buildings and features, and reinforce visual connections to wider rural and natural landscape features.

#### Principles

7.1. Protect and enhance important street views and rural vistas from Ohaupo.

7.2. Protect and enhance significant buildings and other structures within and around the town.

7.3. Provide visual connections to the peat lakes.

7.4. Incorporate appropriate street trees to reinforce view corridors.




Figure 10: Flowering gum tree located along the State Highway.

# 5 URBAN FRAMEWORK

## 5.1 Ohaupo Framework Plans

Building upon the above objectives and principles, the following framework plans outline key strategies for achieving the desired outcomes and community aspirations for Ohaupo.

### 5.1.1 Gateways, Views and Vistas

Prominent views and vistas are present throughout the town and these will be protected and enhanced where possible. Views promote an environment legible to users and often support a strong sense of local identity within the community. Streets are understood and negotiable through clear visual cues, which help to improve ease of connectivity and promote community integration. Street vistas will be enhanced via appropriate landscaping and land use, framing the view and increasing viewer appreciation. New developments will be carefully designed to ensure that they are sensitive and responsive to surrounding views and vistas. Prominent vistas (as illustrated on Framework Plan 1) will have associated view-shafts that are considered to be significant and should be protected and enhanced.

Town gateways are another way in which to promote legibility and create a strong sense of identity. Gateways provide an opportunity to emphasise town characteristics and display a distinct sense of place. Gateways should respond not only to vehicles passing through, but also to pedestrians and cyclists, taking into account the differences in perception experienced at differing speeds. Gateways will be enhanced and created through appropriate streetscaping, forming an obvious entry or exit point to the town.



Figure 11: Tree lined vista looking west down Forkert Road



Views to rural land surrounding Ohaupo from SH3 (4)



Views to Mount Pirongia north of Forkert Road, looking south east along SH3 (5)



Views to Mount Pirongia down Great Collins Street (6)



Views to Mount Maungatautari, looking north east opposite Great Collins Street along SH3 (7)






Views to Lake Rotomanuka, south of Ryburn Road along SH3 (8)

Figure 12: Vistas to be protected and enhanced (as per Framework Plan 1)

## Framework Plan 1: Gateways, Views and Vistas

1 . Encourage appropriate landscaping or signage to indicate entry to the town from Hamilton.

2. Introduce landscaping and/ or signage to indicate entry to town from Te Awamutu and provide definition to vistas of Lake Rotomanuka.

3. Through appropriate streetscaping and traffic measures including speed management, indicate entry and enhance pedestrian crossing point within the town centre.

4. Retain pockets of rural views/ vistas to support and enhance Ohaupo's rural image.

5. Reinforce the vistas out to Mount Pirongia in the west.

6. Reinforce the vistas out to Mount Pirongia in the west.

7. Reinforce the vistas out to Mount Maungatautari in the east.

8. Reinforce the vistas out to Lake Rotomanuka to the east.



### 5.1.2 Enhancing Connectivity / Strategic Links

Connectivity and community integration facilitate ease of access, economy of movement and can help to improve social interaction. Provision of clear connections within the town centre will help to link places of interest, such as: local amenities, retail, schools, places of work and recreational areas. Signage in key locations will promote way-finding within the town and increase overall legibility. Green spaces will be well integrated within the town to encourage active recreation within the community and networks of safe and attractive walking and cycling routes will also be provided. Provision of these routes promotes choice and diversity, potentially reducing adverse impacts associated with vehicle emissions as other transport modes become increasingly viable. Safe pedestrian crossing points further encourages walking within the town and will be incorporated into new developments and provided elsewhere where necessary. This helps to ensure that new developments are well connected to existing networks (vehicle, pedestrian and cycle), encouraging effective community integration. Measures to promote speed management will assist in providing confidence to people to use active modes (pedestrian, cycle).

Strategic links should be made not only within the town centre, but also to smaller nodes, surrounding residential areas, and to neighbouring towns and nearby attractions. Bus links will help to encourage these links and promote connectivity within Waipa, integrating large and small towns and creating a tightly knit District.

## Framework Plan 2: Connectivity

Road designs throughout Ohaupo will need to consider mechanisms to manage traffic speed to promote an environment that is consistent with the rural character of the village.

1. Create a safe crossing point over State Highway 3 at a location to suit both retail and New Zealand Transport Agency safety requirements and be created at grade to enable disabled access. Reinforce the change of road character at this crossing point through the appropriate streetscaping and traffic measures.

2. Create a secondary street network following the contours of the area with connections up to the main arterial. Additional pedestrian and cycle links to be provided up to the ridge.

3. Provide connections to Lake Rotomanuka.

4. Encourage a secondary street network (including safe and legible pedestrian and cycle links) following the contours of the area and connecting Ryburn Road with Charles Edwards Street.

5. Encourage a secondary street network (including safe and legible pedestrian and cycle links) following the contours of the area with a connection to the main arterial from Forkert Road.

6. Create off-street parking to enhance resident / visitor safety when accessing the village centre and allow safe parking for employees of the village shops.

7. Encourage walkway treatment for the pedestrian footpath between Ohaupo School and village to ensure student safety is maximized.

Note: There is a need to re-assess the effect on State Highway 3 connections from additional traffic.




2050 Town Boundary
State Highway
Open / Public Space
Lake
Strategic Pedestrian / Cycle Route
Strategic Roading Route

### 5.1.2 Future Land Use

A consolidated town centre will enhance ease of connectivity through reduced travel distances and creation of a compact destination for both locals and visitors. By concentrating the majority of development, services and amenities within the town centre, the town will become increasingly walkable enabling commuter diversity. It is proposed to extend the town centre towards Te Awamutu on the western side. This will enable access to be obtained from side streets as opposed to the State Highway. Such an extension on the western side will also support residential development on this side of the State Highway.

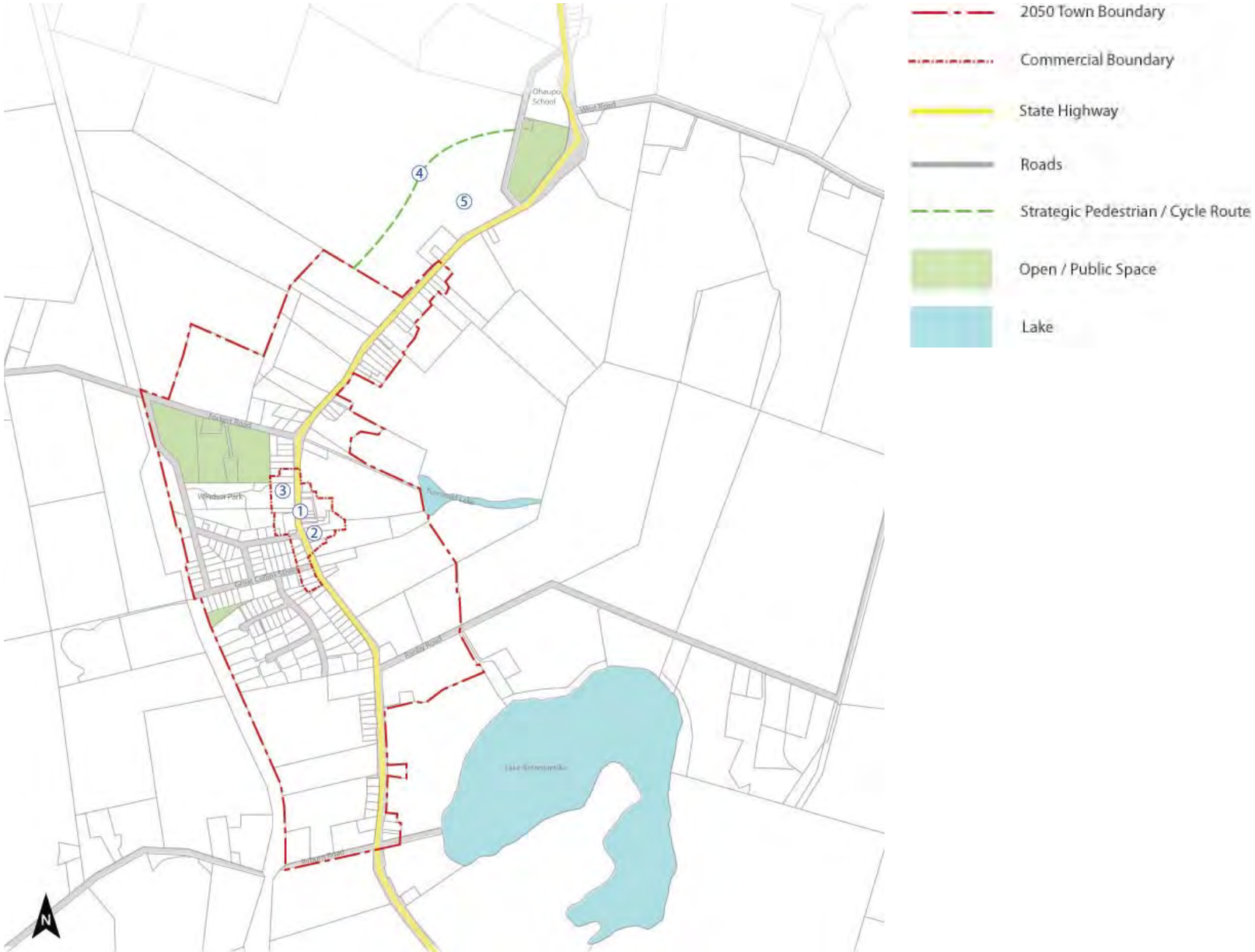
Enabling people to move freely within and around their community, while undertaking their day to day activities, is integral to building a community that responds to the basic needs and desires of its people. The provision of excellent infrastructure at all levels – sports and recreation grounds, open space, pedestrian and cycle routes, safe roads, enhanced education facilities, and quality childcare – will assist Ohaupo in becoming an even better place to live.

A range of living opportunities should be provided within any town, allowing for diversity in the community. Currently, residential lot sizes of approximately 1000m$^2$ are provided in close vicinity to the town centre, and future residential lots (minimum 2,500m$^2$) will provide for the low density living desired by the community, fitting with existing character and providing adequate area for on-site disposal of wastewater.

A diverse range of activities for locals and visitors of all ages need to be provided throughout the town, and should include a range of local recreation opportunities, these may include passive open spaces for walking and cycling, or active space such as sports pitches, mountain biking, and playgrounds that cater for both children and their parents. Open spaces should provide the opportunity for people to meet with one another and be safe to use. Open space also has the potential to add to biodiversity and amenity values of the town, and, designed in the right way, can contribute to environmental and cultural values. To reduce maintenance costs large areas of open space can be returned to a natural state.

## Framework Plan 3: Land Use

1. Intensified commercial: Retail precinct, establish a defined and legible edge to retail area with provision for a convenience store, chemist and other small format stores.
2. Reinforce the existing strip retail by providing for an intensive node of retail which will fill in the gaps in the streetscape.
3. Provide for a community precinct where a farmers market can take place and the community can meet.
4. Provide an alternative pedestrian and cycle route from Ohaupo School to the residential area which avoids State Highway 3 and increases safety for students by removing the need to cross the State Highway.
5. Signal this area as a future growth cell / natural reserve to extend the town boundary northwards, better integrating the school with the rest of the town.



# 5 URBAN FRAMEWORK

## 5.2 Town centre

1. Provide for a consolidated commercial core: This area shall provide for all commercial activities within the town and may also include community services and amenities. Appropriate local commercial and community activities may include: butchers, chemist / pharmacy, café, restaurants, take away food, post office, video library, bakery and arts and crafts shops.

2. Provide for an Ohaupo community area: This area could incorporate part of the Rugby Fields with connections to the main street through the northern part of the Caravan Park. Within this area, an area of open space may act as a community focal point, where farmers markets and local gatherings could occur. This area may also accomodate the Bowling Club in the future.

3. Protect and enhance the character of the main street (between Forkert Road and Great Collins Street): Any development fronting the street will need to have regard to contributing to a holistic streetscape strategy for the character of the area, taking into account historic buildings. It is envisaged that the Council, with the assistance of the Ohaupo community, will develop specific design guidelines for this area of Ohaupo Main Street with reference to relevant New Zealand Transport Agency guidelines.

4. Protect and enhance the town hall as a specific community building: Provide for the ongoing protection and restoration of the Ohaupo Town Hall. The Town Hall could act as an alternative community activity space / farmer's market area if weather is bad. The hall can act as a further community focal point for the wider benefit of the community.

5. Provide for off-street car parking within the commercial core: Off street parking with indirect access onto the State Highway shall be provided as the town commercial centre continues to grow. The car park shall incorporate permeable surface materials and sustainable drainage methods to minimise storm water runoff. The car park could be located within the southern part of the Caravan Park and accessed from Great Burke Street behind the Tavern.

6. Lake access and parking: Creating access to the lake from existing roads should be achieved. This would provide a safe access point to the lake, off State Highway 3, and accessed from Ranby Road.

7. Appropriate development and use of the main street: Ensure the main street is appropriately developed, with un-used or vacant lots redeveloped for future use. There are currently a couple of vacant lots located to the east of the highway between Forkert and Great Burke Street in the commercial core. These lots could be used for additional commercial or retail space, contributing to village identity (or as an alternate parking location to the one identified in 5 – see Framework Plan 2).

### Framework Plan 4: Town Centre



## 5.3 Public domain character

Building upon the above strategies, this section sets out to provide further guidance on matters relating to public domain character in Ohaupo.

### 5.3.1 Town centre streets

Ohaupo's main street is the place where people will meet one another and, notably, is the first place that visitors to the town see when they arrive. For many, the narrow band of village is the only part of Ohaupo they see as they drive through it. It is proposed that the strip of State Highway 3 from Forkert Road to Great Burke St becomes an area where streetscaping and traffic calming are applied as it will form the main street for the village. Accordingly, the main street will need to meet the following qualities:

- Be designed as places for people to walk with leisure – streets through should be clear and safe to walk with clear separation from traffic
- Provide for book ends to the town centre area, through the use of appropriate streetscaping and planting;
- Ensure safe and legible connections from the village centre to the main residential area of Ohaupo (west of State Highway 3) Ohaupo Rugby Grounds, Ohaupo School and Lake Rotomanuka.
- Minimise additional on-street car parking by providing for areas of planting along the road side and off-street car parking at the centre of the town.
- Use planting and buildings to define the streets character by maintaining consistent form, spacing and height;
- Provide for qualities that engage the eye, such as detailed street furniture and street art, along with high quality architecture;
- Provide for commercial facades that are transparent (as far as appropriate), allowing people on the street to engage with activities undertaken within buildings; and
- Provide for accessibility - wheelchairs, mobility scooters, parents with pushchairs.




Figure 13: Rugby Grounds located on Forkert Road.

### 5.3.2 Open space and pedestrian and cycle routes

Although the main street is set upon a narrow ridge, there is no shortage of open space and potential for green links to the east and west of the Ohaupo village. Lake Rotomanuka is a significant feature which should be fully taken advantage of.

Lake Rotomanuka should be enhanced to attract visitors and locals alike. It is recommended clear connections are made to the lake from the village centre and parking areas are provided to ensure the area is easily accessible. The paper road opposite Ryburn Road could be utilised for cycle and pedestrian connections and creating a reserve/ open space adjacent to the lake may encourage recreation activities in the area and bring people closer to the natural heritage of Ohaupo. A connection could also be made from Ranby Road to the lake (as identified in the plan on page 13).

The Lake and surrounding area have the potential to become a significant local and visitor attraction. Having regard to those open spaces (including a potential future reserve area opposite Lake Rotomanuka (west of the highway), and enhancement of connections to the existing sports grounds), open space should always seek to offer the following qualities:

- Allow for a variety of passive and/or active recreational activity;
- Provide for a range of users including children, teenagers and adults;
- Provide for individual users and social gatherings (such as a BBQ area at the lakeside);
- Provide for seating and, where appropriate, toilet and changing facilities;
- Be of benefit to wider biodiversity values, by assisting to connect and extend adjoining habitat areas and green spaces;
- Preserving and enhancing habitat areas;
- Assist in the implementation of sustainable drainage;
- Be integrated with walkways and cycle routes (particularly those outlined in the above framework plans);
- Wherever possible, be overlooked by adjacent streets, dwellings and walkways, to enhance passive surveillance and, subsequently, encourage use; and
- Be physically accessible to all residents and visitors.

Proposed pedestrian and cycle routes have been identified to increase connections within and around Ohaupo. These routes are not only channels for circulation, they also have the potential to be integral as part of the wider open space network, linking together the town centre with areas such as the Lake Rotomanuka, residential areas, Rugby grounds and further afield to Ohaupo School.



Figure 14: Photograph of existing lakeside use (at Lake Ngaroto), which could be used as a model for future development of Lake Rotomanuka

Accordingly, wherever possible, development should seek to establish and/or enhance the network of pedestrian and cycleways throughout Ohaupo, avoiding the State Highway where possible. The development routes, particularly for walking, should adhere to the following principles:

- Low and/or see through fences should be provided for along property boundaries adjacent to identified routes;
- All routes should be attractively designed so as to attract users;
- Routes along high fences or to the rear of buildings should be avoided;
- Clear signs should be provided for along all routes; and
- Wherever possible, paths should be designed so as provide adequate width for pedestrians and cyclists to pass one another safely and comfortably.
- Fencing, hedges and densely planted frontages should not be allowed where there is the potential to impede identified views and vistas.

### 5.3.3 Parking

While vehicle parking is essential, it should be provided in such a manner that it does not diminish local amenity or dominate the frontage of buildings. Within the town centre commercial area it is recommended that public car parking be provided off State Highway 3 where possible. Ohaupo contains a number of vacant sections which may be utilised for off-street parking.

Where street parking is provided, it should seek to form part of the overall streetscape amenity strategy and incorporate planting to minimise visual impacts; and should be only be established in the most appropriate and safe areas.

Typically car parking in residential areas should be provided off street; to the side of the dwelling. This approach allows the appropriate scale and character of the street to be maintained. Garages or parking in front of the building line has the potential to undermine the relationship between dwellings and the street.

### 5.3.4 Sustainable drainage systems

Low impact urban design, incorporating sustainable drainage systems will be encouraged throughout all new development in Ohaupo. Where viable these will incorporate the following methods:

#### Minimise water run-off

The principle in this case is that each development area should endeavour where possible to minimise the volume of storm water to be discharged to the main storm water system. This can be implemented in two ways as follows:

#### Permeable paving surfaces:

Permeable surfaces such as gravel, grass-cretes or permeable paving systems can be used on driveways, parking places and pathways to allow storm water to percolate directly into the underlying sub-soil. These systems work on the principle of ground infiltration of storm water thus reducing the pressure on the main storm water drainage system. In addition rain water can be collected from roofs and used for watering gardens or flushing toilets. Accordingly, the following guidelines should be applied to all development where possible:

- Design parking areas, paths and walkways, and garden areas to maximise water soaking into the ground.
- Collect water in water tanks from all roofs
- Provide for green roofs on new developments, including within the town centre commercial area.





Figure 15: Example of permeable paving surface

### Swales

Swales are drainage channels which are designed to locally attenuate storm water run-off from impervious surfaces such as the local residential road network, parking areas and small residential areas. Storm water is conveyed to the swale which typically runs alongside the road network; water is periodically stored within the swale and allowed to infiltrate into the underlying soil.

The use of swales for local attenuation of storm water is a method already incorporated in Ohaupo and is successful in reducing the storm water load to the main drainage system. Continued use of swales is recommended throughout Ohaupo for the following reasons:

- Potential storm water velocity will be reduced.
- Pollutants can be removed by infiltration.
- Vegetation / planting of the swale will contribute to local biodiversity.

Wherever appropriate, swales should be planted with native riparian vegetations, assisting to enhance in local amenity and biodiversity values.



Figure 16: Example of a roadside swale.

### 5.3.5 Street lighting

Lighting of streets in urban areas is important to maintain safe environments for people living in and visiting the area and can enhance character. However, lighting of the urban environment can have adverse impacts on local biodiversity and amenity values. Ohaupo is fortunate to benefit from clear, beautiful skies during the night. Many towns suffer from 'sky glow' where ambient light emissions are significant and air dust particles are illuminated, detracting from clear skies and views of the stars. Accordingly, to ensure that both safety and amenity can be maintained, the following guidelines should be adhered to for street lighting:

- All high level pole mounted and wall mounted fittings should illuminate downwards.
- The illumination or floodlighting of buildings is to be restricted to buildings of local cultural or historical importance.
- Backlit signage should be avoided.
- Neon should not be used externally except where considered a part of the heritage of Protected Structures.
- All street lighting units should have a 100% cut off (having a deep shade for the lamp and having no spill over above 180 degrees).
- Within the town centre, lamps on pole-mounted streetlights should be set at a level no higher than 4 metres from street level.

## 5.4 Building type matrix

The following matrix provides a guide to building types based on proposed densities for Ohaupo. Within the commercial area, a mixture of one and two storey buildings is anticipated edging the street with frontages in the range of 8 to 12 metres in width to support a fine urban grain. Verandahs are encouraged.

All residential sites are to be developed with a minimum lot size of 2,500m$^2$, keeping with existing character, remaining in line with the Waipa 2050 Growth Strategy, and ensuring that wastewater and stormwater effects are minimised.

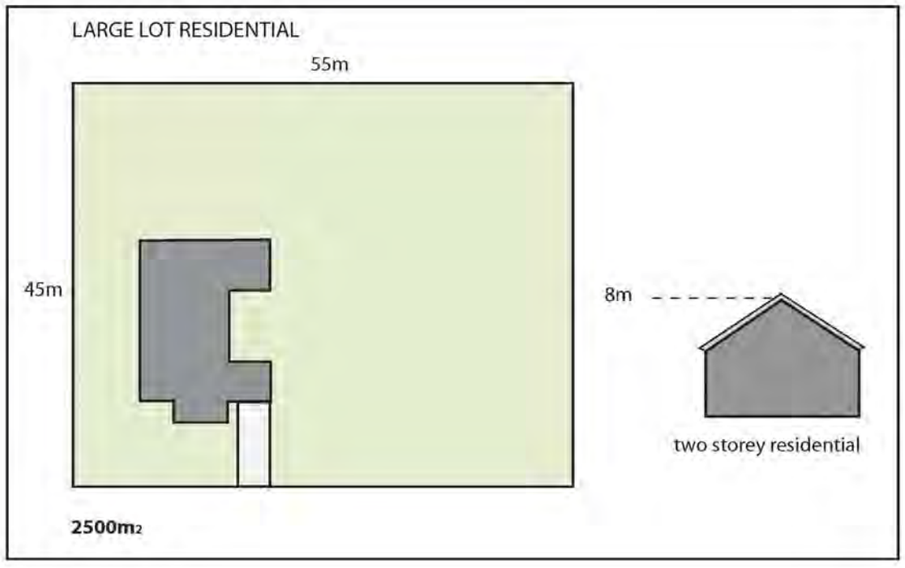



Figure 17: Typical residential lots with a minimum of 2,500m$^2$.

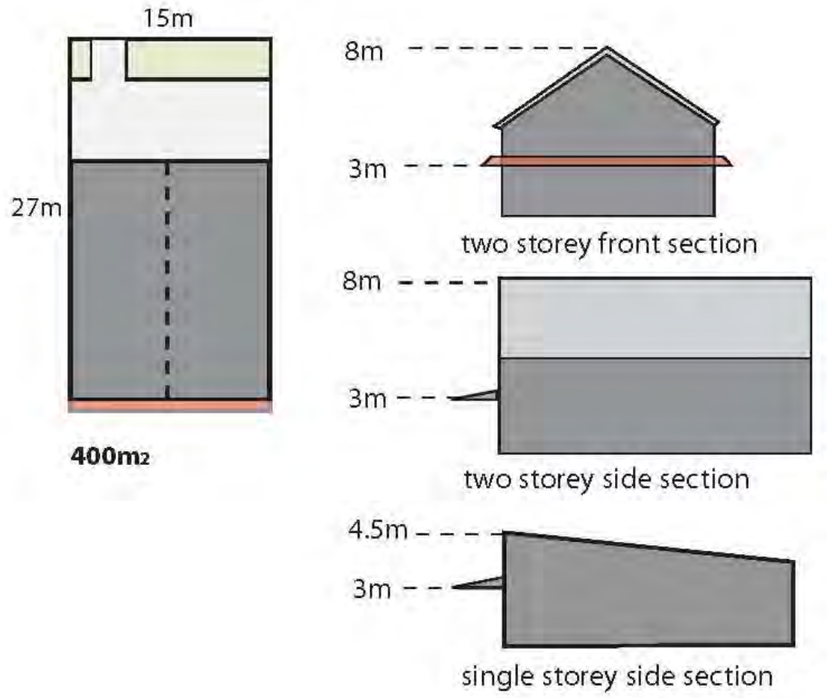



Figure 18: Typical commercial lot layout and sections with 400m$^2$ lots able to accommodate two smaller commercial sections.

# 6 URBAN LIVING AND SUSTAINABILITY

The Ohaupo Town Concept Plan envisages a sustainable environment developed with the assistance of design guidelines relating to such matters as open space, building design, local infrastructure (including roads, pedestrian and cycle ways, and the management of drainage patterns and flooding), and waste minimisation and recycling.

In particular, design guidance shall seek to ensure that key public amenities, such as recreation grounds and childcare, are located within close proximity to key nodes (such as the village centre), with pedestrian and cycle routes linking them to adjoining neighbourhoods; energy efficient design and energy saving building technology should be promoted as an integral aspect of all future development; and particular attention should be given to implementing sustainable methods of water runoff management to protect the quality of natural water systems and habitats in the area.

The principles of waste minimisation and recycling will be key considerations in the design and construction of new developments.

As a guideline to future development the following urban design strategies should be applied to development (as and when appropriate), whether at an individual site scale or over a larger site development or structure plan scale:

### Sustainable Transport

- Promote walking and cycling for functional as well as recreational journeys

### Safe neighbourhoods

- Passive supervision of public space
- Accessible routes to schools, shops and community facilities which are attractive and safe
- Sustainable use of resources
- Provision for recycling stations and local organic waste centres.
- Sustainable drainage strategies, including:
  - minimising impermeable surfaces
  - Soak pits within residential areas and adjacent to streets
  - Provide for swales, rain gardens and retention ponds

### Energy efficient living

- Orientate sites to the north to maximise solar gain
- Create building designs that enable water re-use (storage of roof water)

### Multi functional open space

- The protection of natural waterways and ecological corridors
- A variety of park sizes
- Green corridors
- Green space should be multi functional

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# 5 Land and Soil Module

# Table of Contents


**5.1 Accelerated Erosion* 5-5**
5.1.1 Issue 5-7
5.1.2 Objective 5-7
5.1.3 Policies 5-9
5.1.4 Implementation Methods – Accelerated Erosion 5-11
5.1.5 Conditions for Permitted Activity Rule 5.1.4.11 and Standards and Terms for Controlled Activity Rules 5-20
5.1.6 Matters over which Waikato Regional Council will Reserve Control 5-22
5.1.7 Environmental Results Anticipated 5-26
5.1.8 Monitoring Options 5-27

**5.2 Discharges Onto or Into Land 5-30**
5.2.1 Issue 5-31
5.2.2 Objective 5-31
5.2.3 Policies 5-32
5.2.4 Implementation Methods – Discharges Onto or Into Land 5-34
5.2.5 Implementation Methods – Cleanfilling* and Overburden* Disposal 5-36
5.2.6 Implementation Methods – Dumps* and Offal* Holes on Production Land 5-46
5.2.7 Implementation Methods – Landfills 5-50
5.2.8 Implementation Methods – Composting of Green Waste* and Other Organic Materials 5-52
5.2.9 Implementation Methods – Dust Suppression 5-55
5.2.10 Environmental Results Anticipated 5-56
5.2.11 Monitoring Options 5-57
5.2.12 Good Practice Guide on Location of Dumps and Offal Holes on Production Land 5-58

**5.3 Contaminated Land* 5-59**
5.3.1 Issue 5-60
5.3.2 Objective 5-60
5.3.3 Policies 5-61
5.3.4 Implementation Methods – Contaminated land 5-62
5.3.5 Environmental Results Anticipated 5-66
5.3.6 Monitoring Options 5-66


## Figures


Figure 5-1 Application of Regional Rules Adjacent to Water Bodies..... 5-18
Figure 5-2 Implementation Flow Chart for Contaminated Land..... 5-67


## Tables


Table 5-1 Prioritisation of Land Uses..... 5-68

# 5.1 Accelerated Erosion*

**Background and Explanation**

Erosion is a natural phenomenon which results in soil losses and water quality degradation. New Zealand is geologically young and active and, as a result, the natural level of erosion is high by international standards. Changes to the vegetative cover of the land brought about by activities such as farming, introduction of pests, burning, forestry, road construction and urban development reduce protection against erosive forces and lead to accelerated erosion. Soil is a finite resource. Once erosion has occurred, the productivity of the soil rarely returns to its former level.

**Erosion Prone Areas**

Although much of the Waikato Region's 2.5 million hectares is relatively stable, the National Land Resource Inventory has identified over one million hectares affected to some degree by erosion, with almost 36,000 hectares ranked as severe to extreme. A further 400,000 hectares is classified as having severe erosion potential.

Soil erosion susceptibility is the result of a complex set of interactions between soil type, climate, vegetative cover, terrain characteristics (slope and aspect) and land management practices. Some land types are more susceptible to accelerated erosion than others. Susceptible land types generally include hill country and the banks of rivers and lakes. In addition, some soils such as pumice soils are more prone to erosion than others. In the Waikato Region, accelerated erosion occurs in different forms depending on the locality.

Erosion prone areas in the Waikato can be grouped as follows:

**a) The Central Volcanic Area**

Includes the pumice land around Taupo, Kaingaroa and Mamaku. The soils lack coherence, making them prone to severe gully, sheet, rill, stream bank and wind erosion in situations where there is insufficient vegetative cover or water control. It is only when there is insufficient vegetative cover or water control that these soils are high erosion risk soils.

**b) The Western and Central Hill Country**

Includes the hill country extending along the Waikato's west coast and becoming more dissected in the north. The central hill country consists principally of the Hapuakohe Range and the southern section of the Hunua Range. Overlain with volcanic ash, these hills are prone to sheet erosion, particularly where heavy livestock are grazed on steep land. This part of the Region also includes karst landscapes and caves. Cave systems are particularly vulnerable to disruption caused by sediment input or works that alter airflow characteristics.

**c) The Eastern Ranges**

Parts of the Kaimai, Coromandel and Hapuakohe Ranges. High rainfall in these areas exacerbates erosion effects. Downstream estuaries on the Coromandel Peninsula are vulnerable to accelerated infilling from sediment that threatens the ecological values of these areas.

**d) The Coastal Margins**

The dune systems of the east (Coromandel) and west coasts act as natural buffers against coastal hazards. These areas are prone to wind erosion.

**e) River and Lake Banks**

Rivers across the entire Region are affected by erosion. River and lake banks are subject to the erosive force of water, which can be exacerbated by land use activities that damage or disturb the banks and beds of rivers and lakes. Erosion of the beds of rivers and lakes is addressed in Module 4 River and Lake Beds.

**f) Pukekohe, Bombay and Pukekawa Hills**

Cultivated soils around Pukekohe, Bombay and Pukekawa. These soils are prone to high rates of soil erosion due to frequency and extent of cultivation for food production. Open cultivated ground is prone to severe rill and sheet erosion during high intensity or prolonged rain events.

Water yields, and consequently, sediment yields from surface and stream bank erosion, have increased in catchments which have been largely cleared of forest, for example, the Waipa Catchment. Land use also has a major effect on the sediment loads in rivers. Erosion prone areas such as the weathered volcanics in the Coromandel Peninsula or the tertiary mudstones in the King Country yield higher levels of suspended sediment under agriculture than under forest.

Based on these erosion prone areas, Issue 5.1.1 identifies seven parts of the Region that are at particular risk from the adverse effects of land use activities. These areas are estuaries of Coromandel catchments, cave and karst systems, steep hill country, sand dune areas, areas adjacent to estuaries and river and lake banks.

**Causes of Accelerated Erosion**

Accelerated erosion is generally caused by activities that disturb or expose the soil to the erosive forces of gravity and rainwater. Climatic or weather conditions combined with human activity can accentuate soil erosion. For example, severe and intense storm events may increase the rate of accelerated erosion.

Different land uses have different effects. For example, forestry operations may have positive effects on land and water for the period that trees are growing and a period of adverse effects associated with land disturbance from harvesting. In contrast, erosion from pastoral activities may occur at reasonably constant rates for long periods, as there may be minimal protection against erosion.

Data from a wide variety of sources, including forestry industry research, shows the main land uses contributing to accelerated erosion are agriculture, earthworks, roading and tracking activities, establishment and harvesting of forests, and mining. In catchments undergoing land use changes, sediment yields increase as vegetation cover is reduced, exposing the soil surface.[26]

A wet winter period may saturate the ground increasing its susceptibility to accelerated erosion if used in an inappropriate manner. On land with high erosion potential, land managers need to be aware of, and take into account, the local weather conditions. The level of knowledge and experience of land managers is a major contributing factor to the severity of accelerated erosion arising from specific land disturbance activities. There are well-documented land management procedures and good practices that can minimise accelerated erosion and subsequent adverse environmental effects.

The adoption of inappropriate land management practices, or the use of land for purposes to which it is not suited, are major contributors to erosion problems. For example, soil disturbance on steep slopes may lead to a high risk of accelerated erosion. Overgrazing by livestock and uncontrolled browsing by pests may damage vegetation to the extent that it no longer adequately protects the soil from erosion.

[26] Auckland Regional Council. 1996: The Environmental Impacts of Accelerated Erosion and Sedimentation. *ARC Technical Division, Technical Publication no. 69*, Auckland Regional Council, Auckland.

## 5.1.1 Issue

**Some land use activities in parts of the Waikato Region can create a high risk of accelerated erosion of soil resources.**

**Accelerated soil erosion can cause:**

**a) loss of soil productivity, capability and versatility reducing the ability of the Region's soil resource to provide for the economic, social and cultural well being of the community**
**b) high suspended sediment loads in streams reducing water quality and smothering aquatic ecosystems**
**c) land instability hazards particularly in steep hill country**
**d) downstream sedimentation increasing the rate of infilling of the Region's lakes, estuaries, artificial watercourses, rivers, wetlands and cave systems resulting in loss of aquatic habitats and increased risk of flooding**
**e) significant adverse effects on the relationship tangata whenua as Kaitiaki have with their taonga, such as ancestral lands, water, and waahi tapu**
**f) significant adverse effects on natural character and ecological values associated with land including the loss of areas of significant indigenous vegetation and significant habitats of indigenous fauna[27] and the margins of rivers and lakes and the coastal environment, including dune systems**
**g) the discharge of particulate matter into the air to levels that will be inconsistent with the Objectives in Chapter 6.1**
**h) property damage, threats to infrastructure.**

**The High Risk Erosion Areas* of the Region that are particularly at risk from these activities are:**

**i) Steep hill country throughout Region**
**ii) coastal sand country on the west coast and coastal frontal dunes on the east coast**
**iii) areas adjacent to estuaries**
**iv) areas of high intensity rainfall or areas of light unconsolidated soils, where there is insufficient vegetative cover, insufficient surface water control, or intensive cultivation**
**v) the banks of rivers, lakes and wetlands across the Region**
**vi) catchments of estuaries that are areas of significant conversation value on the Coromandel Peninsula**
**vii) karst and cave systems.**

## 5.1.2 Objective

A net reduction of accelerated erosion across the Region so that:

a) soil productivity, versatility and capability is maintained
b) there are no adverse effects on water quality, aquatic ecosystems and wetlands that are inconsistent with Water Management Objective 3.1.2
c) there is no increase in the adverse effects of flooding or land instability hazards
d) accelerated infilling of lakes, estuaries, rivers, wetlands and cave systems is avoided and the rate of infilling of artificial watercourses, excluding structures designed to trap sediment, is minimised
e) significant adverse effects on the relationship tangata whenua as Kaitiaki have with their identified ancestral taonga such as ancestral lands, water and waahi tapu are avoided

[27] Refer to Appendix 3 of the RPS.

f) cumulative adverse effects on the relationship tangata whenua as Kaitiaki have with their identified taonga such as ancestral lands, water, waahi tapu are remedied or mitigated.
g) significant adverse effects on natural character and ecological values associated with land and the coastal environment including dune systems is avoided
h) there are no adverse effects on air quality that are inconsistent with Air Quality Objective 6.1.2, Objectives 2 and 3
i) damage to property and infrastructure is avoided

in particular in High Risk Erosion Areas together with:

i) Catchments of estuaries that are areas of significant conservation value on the Coromandel Peninsula
ii) Karst and cave systems.

**Principal Reasons for Adopting the Objective**

Use of the words 'net reduction in accelerated erosion…' indicates that Waikato Regional Council is seeking to reduce accelerated erosion across the Region, recognising that this will not be possible in all circumstances, and that in some areas accelerated erosion may continue to occur. For a net reduction in accelerated erosion to be achieved it will be necessary for ongoing accelerated erosion in some places to be offset by significantly reduced accelerated erosion in other places. For guidance on interpretation of this expression refer to the policy framework in this Chapter in conjunction with Section 1.3.3 of the Waikato RPS.

The effects addressed in parts a) to h) are only addressed within this Chapter insofar as they are impacted upon or are caused by accelerated erosion. These parts of the objective flow directly from Issue 5.1.1.

The productivity and versatility of soils are vital for the Region, since soils with these qualities sustain a wide range of productive land uses. **Part a)** indicates that it is important to maintain these characteristics of soil.

The reference in **part b)** regarding Water Management Objective 3.1.2 establishes a link between this Chapter and the relevant objective in Chapter 3.2 of this Plan. Accelerated erosion may have significant adverse effects on water bodies and should be managed in manner that is consistent with the relevant water management objectives.

**Part c)** recognises that while natural hazards occur naturally and are beyond our management, adverse effects from these hazards should not be increased as a result of land uses that cause accelerated erosion.

**Part d)** recognises that infilling occurs naturally and will continue to do so. Where practicable, the entry of sediment into water bodies should be avoided so that the rate of accelerated infilling is not significantly greater than that which would occur naturally.

Accelerated erosion may also have impacts on the relationship tangata whenua as Kaitiaki have with their identified taonga such as ancestral lands, water, and waahi tapu. Land use activities may also expose or adversely affect waahi tapu or cultural heritage sites. **Part e)** recognises that the statutory duty to manage accelerated erosion should avoid significant adverse effects on the relationship tangata whenua as Kaitiaki have with their ancestral lands, water, sites, waahi tapu and other taonga.

**Part f)** recognises that there are effects which may be smaller scale but which together add up to adversely affecting identified taonga, such as ancestral lands, water and waahi tapu. These adverse effects are more easily remedied or mitigated as they

occur through resource consent conditions or non-regulatory methods such as education or incentives.

Module 2 Matters of Significance to Maori identifies the process in which Maori and Waikato Regional Council can work together to identify the areas of interest to tangata whenua, in regards to the specific resource, that will facilitate a greater awareness of these matters in the management of this resource.

Erosion may have significant impacts on the natural character and ecological values associated with land. For example, erosion may adversely affect areas of significant indigenous vegetation and significant habitats of indigenous fauna through the discharge of sediment or the destruction of habitat. **Part g)** recognises that the management of accelerated erosion should avoid significant adverse effects on these values.

Accelerated erosion may result in the release of particulate matter into the air that may have adverse effects on human health and flora and fauna. The reference in **part h)** regarding Air Quality Objective 6.1.2, Objectives 2 and 3, establishes a link between this chapter and the relevant objectives in Module 6 Air.

**Part i)** recognises that property damage, threats to infrastructure and adverse effects on the natural character of coastal dune systems should be avoided and managed when undertaking land uses in the coastal environment.

The final part of Objective 5.1.2 identifies areas of the Region where there is a high risk of the adverse effects identified in the objective occurring. These areas represent areas of high erosion risk due to slope or proximity to the coastal marine area, rivers, lakes and wetlands or to cave systems that have been identified in Issue 5.1.1.

The coastal environment (and especially coastal dune systems) are particularly at risk from wind and sea erosion. Human activity should avoid any interruption with the physical and ecological processes that ensure the dynamic stability of these systems. The Regional Coastal Plan contains Waikato Regional Council's objectives in respect of the coastal marine area. By contrast the coastal environment covers a wider area and includes the coastal marine area as well as landward features. This Plan only addresses those parts of the coastal environment landward of the coastal marine area. The Coromandel catchments and their areas of significant conservation value are included due to potential increased sedimentation threatening to adversely affect the ecological values of these areas.

Cave systems are particularly vulnerable to any disruption caused by sediment input or works that alter airflow characteristics. Activities in these systems need to be undertaken in a manner that minimises any such adverse effects. Waikato Regional Council is seeking that adverse effects of accelerated erosion in these areas are avoided in order to prevent adverse effects occurring.

## 5.1.3 Policies

**Policy 1: Managing Activities that Cause or Have the Potential to Cause Accelerated Erosion and Encouraging Appropriate Land Management Practices**

Through permitted activities and non-regulatory methods manage activities that cause or have the potential to cause accelerated erosion, with particular regard to:

a) the potential for the activity to adversely affect the purpose of the water management classes as identified in the policies in Section 3.2.2, and the coastal marine area
b) the risk of downstream sedimentation leading to accelerated infilling of lakes, estuaries, artificial watercourses, rivers, wetlands and caves

c) the erosion potential of soil when it is disturbed or vegetation is cleared
d) the potential to increase the adverse effects of flooding
e) the potential to adversely affect waahi tapu and archaeological sites or other identified sites of importance to tangata whenua as Kaitiaki
f) the potential to adversely affect natural character of the coastal environment and the margins of rivers, lakes and wetlands and areas of significant indigenous vegetation and significant habitats of indigenous fauna[28]
g) the potential to compromise air quality objectives as identified in Module 6 Air
h) the potential to damage property and infrastructure.

**Policy 2: Use of Regulatory and Non-Regulatory Approaches of Management for Soil Disturbance/Vegetation Clearance Activities in High Risk Erosion Areas[29]***

Waikato Regional Council will use a mixture of regulatory and non-regulatory approaches to:

a) minimise the adverse effects of soil disturbance and vegetation clearance in high risk erosion areas
b) minimise the accelerated infilling of Coromandel estuaries that are listed as areas of significant conservation value in the Regional Coastal Plan
c) minimise adverse effects of soil disturbance activities in karst environments on cave ecosystems.

**Policy 3: Promote Good Practice**

Promote, through environmental education, good practice guides and incentives, soil and land management practices that avoid adverse effects on soil productivity, capability and versatility and the off-site effects of sediment discharge, and remedies or mitigates these effect if they do occur.

**Policy 4: Approved Operators Approach**

Identify methods to reduce regulatory requirements for land managers or operators who are certified under a registered operators system for soil and land managers and who can demonstrate a proven record of good environmental practice and performance.

**Explanation and Principal Reasons for Adopting the Policies**

The policy approach adopted provides for managing, through a regulatory approach, soil disturbance and vegetation clearance activities in those high risk areas identified in Objective 5.1.2, and permitting all activities that may cause or have the potential to cause accelerated erosion outside of these areas. The policies promote the use of

[28] Refer to Appendix 3 of the RPS.

[29] **High risk erosion area**: Means any part of any activity area (where the activity is not otherwise permitted):
a) where the pre-existing slope of the land exceed 25 degrees; or
b) on coastal frontal dunes on the East Coast; or
c) on coastal sand country on the West Coast (Mokau to Karioitahi) where loose sands are at the ground surface or within 10 centimetres of the surface; or
d) within 50 metres landward of the coastal marine area of an estuary, except in the landward margin of an authorised stopbank; or
e) adjacent to water bodies (including ephemeral watercourse draining catchments greater than 100 hectares, but excluding any other ephemeral rivers or streams), where:
   i) the land slope is between 0 degrees to 15 degrees – within 10 metres from any lake, wetland or the bed of a river or lake, or
   ii) the land slope is greater than 15 degrees – within that distance from the wetland, the bed of a river or lake, or from mean high water springs to the first point at which the slope reduces to 15 degrees or less, or 100 metres (whichever is the lesser, outside the minimum distance described in i).

This definition is illustrated in Figure 5-1 in Chapter 5.1.4

non-regulatory methods in all areas to assist with achieving Objective 5.1.2 and encourage good practice and seek to reduce the regulatory requirements for certified operators.

The purpose of **Policy 1** is to indicate that Waikato Regional Council will use permitted activity rules and other non-regulatory methods to provide certainty to resource users as to appropriate land use practices and to acknowledge such practices by removing the need for resource consents for complying activities. Parts a) to h) flow from Objective 5.1.2 and identify that any activities able to achieve these standards consistently given best practice should be enabled by the Plan.

**Policy 2** indicates that Waikato Regional Council will use a mixture of regulatory and non-regulatory approaches to managing soil disturbance and vegetation clearance activities in high risk erosion areas. The criteria to define high risk erosion areas outlined in Issue 5.1.1 are defined in the Glossary of this Plan. A mixture of regulatory and non-regulatory approaches is necessary in these areas in order to minimise any significant adverse effects occurring as a result of land use activities.

The promotion of good practice through environmental education, good practice guides and incentives as provided in **Policy 3** is an effective means of encouraging soil productivity, versatility and capability outside of high risk erosion areas. It is also an effective way of communicating measures that help to avoid the off-site effects of sediment in all areas.

**Policy 4** provides a mechanism by which Council can reward good operators who have demonstrated that they can and do meet the requirements of an appropriate certification system and who have a proven record of good environmental practice and performance. Council intends to investigate, develop and implement an approved operators system that will reduce the regulatory requirements for those who qualify for registration. This system will be developed and implemented in conjunction with those people/organisations that undertake land use activities and those who represent them.

## 5.1.4 Implementation Methods – Accelerated Erosion

### 5.1.4.1 Environmental Education

Waikato Regional Council will, through environmental education programmes, raise awareness within the regional community:

1. of sustainable soil management practices for activities that cause accelerated erosion and how these practices can be implemented
2. on how to undertake retirement and/or rehabilitation of land subject to severe accelerated erosion
3. of the value of ‘care’ groups to avoid the adverse effects of accelerated erosion and remedy or mitigate these effects if they do occur
4. on the significance of cave karst landscapes and land use practices that avoid, remedy or mitigate adverse effects on them.

### 5.1.4.2 Investigation

Waikato Regional Council will undertake, and where appropriate, encourage investigation into:

1. the extent to which different activities cause accelerated erosion, contribute sediment to water bodies and adversely affect aquatic and estuarine habitats
2. the location, extent, severity and causes of accelerated erosion in the Waikato Region
3. the adverse effect of activities causing accelerated erosion,

4. sustainable land management practices.

#### 5.1.4.3 Good Practice

Waikato Regional Council will, in conjunction with relevant organisations, industry groups and individuals undertaking activities causing accelerated erosion, provide guidance on the development, implementation and review of good practice techniques or appropriate codes of practices.

#### 5.1.4.4 Economic Incentives

Waikato Regional Council will consider providing funding contributions for the promotion and implementation of new initiatives that assist in resolving accelerated erosion problems within the Region.

#### 5.1.4.5 Property Management Plans/Environmental Management Systems

Waikato Regional Council will encourage and assist landowners with the development and implementation of property management plans and environmental management systems that identify erosion risk areas and measures to avoid, remedy or mitigate adverse environmental effects of land use activities.

#### 5.1.4.6 Investigate Approved Operators Approach

Waikato Regional Council will investigate the workability of an 'approved operators approach' with respect to soil disturbance and vegetation clearance activities in the Waikato Region and initiate a change to the Plan if such an approach is appropriate.

#### 5.1.4.7 Joint Plans/Strategies

Waikato Regional Council will promote the preparation and implementation of joint plans, strategies or agreements with territorial authorities to address accelerated erosion issues. Priority will be given to joint plans, strategies or agreements for:

1. the Region's karst landscapes
2. the Coromandel and west coast estuaries
3. the Lake Taupo Catchment.

#### 5.1.4.8 Information, advice and comments on Land Use Consent Applications

Waikato Regional Council will provide information, advice and comments and, if appropriate, submissions on consent applications submitted to territorial authorities where such applications may result in adverse effects on soil conservation, land stability, erosion hazards and dune systems. A formal process for the advice on land use consent applications and provision of comments, advice and submissions will be developed in conjunction with territorial authorities.

#### 5.1.4.9 Effects of Livestock Management

If the current extent of adverse effects attributable to livestock having access to water bodies is not reduced significantly at the time of Plan review or by 2005, whichever is the sooner, then rules to excludes livestock from water bodies identified by Method 3.9.4.6 as being particularly sensitive to land use effects, will be promoted as part of the Plan review or by way of a Plan change.

#### 5.1.4.10 Part XII RMA Enforcement

Waikato Regional Council will apply for enforcement orders, issue abatement notices and use other enforcement mechanisms in Part XII of the RMA, where an activity breaches conditions of rules or has the effects listed in Policy 1.

Land use practices that may result in or increase the potential for, the adverse effects listed in Issue 5.1.1 to occur include:

1. intensive mob stocking and inappropriate livestock type
2. livestock grazing on river and lake banks and beds
3. vegetation clearance on slopes greater than 25 degrees that are not revegetated within six to 12 months
4. soil disturbance activities where there is inadequate sediment and runoff control
5. soil disturbance on sand dunes and in the margins of the coastal marine area.

### 5.1.4.11 Permitted Activity Rule – Soil Disturbance, Roading and Tracking and Vegetation Clearance

**Exception**
These Standards do not apply to:

Plantation forestry activities as from 1 May 2018 these activities are regulated under the National Environmental Standards for Plantation Forestry Regulations 2017.

1. Unless otherwise provided for by Rules 5.1.4.14, 5.1.4.15, 5.1.4.16 or 5.1.4.17, soil disturbance, roading and tracking, and vegetation clearance and any associated deposition of slash into or onto the beds of rivers and any subsequent discharge of contaminants into water or air;
2. Any roading and tracking activities associated with the installation of bridges or culverts permitted by Rules 4.2.8.1, 4.2.9.1 and 4.2.9.2, within 20 metres of that bridge or culvert and any associated deposition of slash into or onto the beds of rivers and any subsequent discharge of contaminants into water or air;
3. Vegetation clearance of planted production forest as planted at the date upon which this Plan becomes operative;

are **permitted activities** subject to the conditions in Section 5.1.5. In addition 5.1.4.11(3) is subject to the following conditions:

a) Provided that replanting of planted production forest does not occur within:
   i) five metres, on either side, of the bed of a water body excluding an ephemeral stream (except on the Coromandel Peninsula); and
   ii) ten metres, on either side of the bed of a water body excluding an ephemeral stream on the Coromandel Peninsula streams greater than 50 hectares
   iii) five metres on either side of the bed of water bodies between 20 and 50 hectares on the Coromandel Peninsula regardless of slope;

b) On the Coromandel Peninsula where wilding pines are present at a density of greater than 50 stems per kilometre of riparian margin they will all be removed at first thinning so long as practicable from a safety perspective.

**Advisory Notes:**
- District plans may have rules which restrict land disturbance and vegetation clearance in areas outside of high risk erosion areas.
- Grazing and cultivation are excluded from the requirements of this Rule.

### 5.1.4.12 Permitted Activity Rule – Soil Cultivation Adjacent to Water Bodies

Except as controlled by Rules 7.2.6.1 and 7.2.6.2 soil cultivation not less than two metres from the bed of a river or lake and any subsequent discharge of contaminants into water or air is a **permitted activity** subject to the following conditions:

a) The concentration of suspended solids discharged from the activity shall not result in any of the following receiving water standards being breached:

i) in Waikato Region Surface class waters - 100 grams per cubic metre suspended solids concentration
ii) in Indigenous Fisheries and Fish Habitat class waters - 80 grams per cubic metre suspended solids concentration
iii) in Trout Fisheries and Trout Spawning Habitat class waters - 25 grams per cubic metre suspended solids concentration
iv) in Contact Recreation class waters - black disc horizontal visibility greater than 1.6 metres.
v) in Natural State class waters - the activity or discharge shall not increase the concentration of suspended solids in the receiving water by more than 10 percent.

Condition a) shall apply, except where the suspended solids concentration or black disc horizontal visibility in the receiving water is greater than the standards specified, at the time and location of discharge or of undertaking the activity. Then there shall not be any increase (i.e. further deterioration) in the receiving water suspended solids concentration or black disc horizontal visibility of more than 20% as a result of the activity or discharge.

The point at which compliance with this standard shall be measured is after reasonable mixing has occurred which in any instance does not exceed 200 metres from the point of discharge.

**Advisory Note:**
- The bed of a river is defined by the diagram in Chapter 4.1 of this Plan.

### 5.1.4.13 Discretionary Activity Rule – Soil Disturbance, Roading and Tracking and Vegetation Clearance

**Exception**
These Standards do not apply to:

Plantation forestry activities as from 1 May 2018 these activities are regulated under the National Environmental Standards for Plantation Forestry Regulations 2017.

1. Any soil disturbance, roading and tracking, and vegetation clearance and any associated deposition of slash into or onto the beds of rivers and any subsequent discharge of contaminants into water or air that does not comply with the conditions of Permitted Activity Rule 5.1.4.11;
2. Soil cultivation within two metres of the bed of a river or lake that does not comply with Rule 5.1.4.12;

are **discretionary activities** (requiring resource consent).

**Advisory Notes:**
- District plans may have rules, which restrict land disturbance and vegetation clearance in areas outside of high risk erosion areas.
- Information requirements to enable the assessment of any application under this Rule are set out in Section 8.1.4.1 of this Plan. In addition, assessment shall also take into account the matters identified in Policy 1 of Section 5.1.3.

### 5.1.4.14 Controlled Activity Rule – Soil Disturbance, Roading and Tracking and Vegetation Clearance, Riparian Vegetation Clearance in High Risk Erosion Areas[30]

**Exception**
These Standards do not apply to:

Plantation forestry activities as from 1 May 2018 these activities are regulated under the National Environmental Standards for Plantation Forestry Regulations 2017.

Except as restricted by Rule 5.1.4.16, the following activities, occurring in any continuous 12 month period and located in a high risk erosion area:

1. Roading and tracking activities between 100 and 2,000 metres in length, or
2. Soil disturbance activities between 250 and 1,000 cubic metres in volume (solid measure), or
3. Soil disturbance activities between 0.2 and 2.0 hectares in area, or
4. Soil disturbance activities resulting in a cut slope batter exceeding three metres in vertical height over a cumulative distance between 30 and 120 metres in length, or
5. Vegetation Clearance of between one and five hectares with the exclusion of planted production forests, plant pests as specified in the Waikato Regional Council's Regional Pest Management Strategy and vegetation clearance adjacent to a Natural State water body as shown on the Water Management Class Maps
6. Vegetation clearance which is within five metres on either side, of the banks of a water body excluding an ephemeral stream, and which is between 50 to 100 metres in length per kilometre of that water body, with the exclusion of planted production forests and vegetation in riparian margins adjacent to planted production forest, riparian enhancement and replanting programmes and plant pests as specified in the Waikato Regional Council's Pest Management Strategy.
7. Vegetation clearance within five metres on either side of the banks of a water body excluding an ephemeral stream of greater than 50 metres in length per kilometre of that water body of:
   a) Planted production forest (except as provided for in Rule 5.1.4.11(3) and/or vegetation in riparian margins adjacent to planted production forest; or
   b) Vegetation associated with riparian enhancement programmes.
8. Any roading and tracking activities associated with the installation of a bridge or culvert controlled by Rules 4.2.8.2 and 4.2.9.3, within 20 metres of that bridge or culvert;

and any associated deposition of slash into or onto the beds of rivers and any subsequent discharge of contaminants into water or air are **controlled activities** (requiring resource consent) subject to the standards and terms as specified in Section 5.1.5.

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[30] **High risk erosion area**: Means any part of any activity area (where the activity is not otherwise permitted):

a) where the pre-existing slope of the land exceed 25 degrees; or
b) on coastal frontal dunes on the East Coast; or
c) on coastal sand country on the West Coast (Mokau to Karioitahi) where loose sands are at the ground surface or within 10 centimetres of the surface; or
d) within 50 metres landward of the coastal marine area of an estuary, except in the landward margin of an authorised stopbank; or
e) adjacent to water bodies (including ephemeral watercourses draining catchments greater than 100 hectares, but excluding any other ephemeral rivers or streams), where:
   iii) the land slope is between 0 degrees to 15 degrees – within 10 metres from any lake, wetland or the bed of a river or lake, or
   iv) the land slope is greater than 15 degrees – within that distance from the wetland, the bed of a river or lake, or from mean high water springs to the first point at which the slope reduces to 15 degrees or less, or 100 metres (whichever is the lesser, outside the minimum distance described in i).

This definition is illustrated in Figure 5-1 in Chapter 5.1.4

Waikato Regional Council reserves control over the matters that are specified in Section 5.1.6.

**Exclusion to Rule 5.1.4.14:**

a) This Rule shall not apply to vegetation clearance within high risk erosion areas and riparian vegetation clearance where it is for the express purposes of erosion control or natural hazard mitigation, provided Waikato Regional Council is notified in writing at least ten (10) working days prior to the activity commencing. (Rule 5.1.4.11 applies).

b) This Rule shall not apply to the clearance of planted production forest where the clearance is for the express purpose of constructing access across the bed of a river where the crossing structure and associated earthworks are otherwise permitted by this plan or a resource consent.

**Notification:**

1. Subject to 2. below applications for resource consents under this Rule will be considered without notification.
2. Notice of applications for vegetation clearance under this Rule other than:
   - clearance of planted production forest,
   - vegetation clearance in riparian margins adjacent to planted production forest, or
   - riparian enhancement and replanting programmes

will be served on all adversely affected persons.

**Advisory note:**

- Information requirements to enable the assessment of any application under this Rule are set out in Section 8.1.4.1 of this Plan. In addition, assessment shall also take into account the matters identified in Policy 2 of Section 5.1.3.
- For the disposal of materials in high risk erosion areas generated by activities under Rule 5.1.4.14 refer to Rules 5.2.5.1, 5.2.5.2 and 5.2.5.3.
- For vegetation clearance by way of burning also refer to Section 6.1.12 of this Plan.
- For vegetation clearance by way of spraying agrichemicals also refer to Section 6.2.4 of this Plan.
- Applicants are advised to consult with the relevant district plan to determine whether district rules apply.
- Grazing and cultivation are excluded from the requirements of this Rule.
- Solid measure may be approximated by calculating the volume of soil that has been disturbed multiplied by a factor of 0.8 to account for the bulking up of soil when disturbed.

### 5.1.4.15 Discretionary Activity Rule – Soil Disturbance, Roading, Tracking, Vegetation Clearance, Riparian Vegetation Clearance in High Risk Erosion Areas

**Exception**

These Standards do not apply to:

Plantation forestry activities as from 1 May 2018 these activities are regulated under the National Environmental Standards for Plantation Forestry Regulations 2017.

Except as restricted by Rule 5.1.4.16 the following activities, occurring in any continuous 12 month period and located in a high risk erosion area:

1. Roading and tracking activities exceeding 2,000 metres in length
2. Soil disturbance activities exceeding 1,000 cubic metres in volume (solid measure)
3. Soil disturbance activities exceeding two hectares in area
4. Soil disturbance activities resulting in a cut slope batter exceeding three metres in vertical height over a cumulative distance exceeding 120 metres in length

5. Vegetation clearance exceeding five hectares with the exclusion of planted production forests (except those restricted by Rule 5.1.4.16), and plant pests as specified in the Waikato Regional Council's Regional Pest Management Strategy
6. Riparian vegetation clearance which is within five metres on either side of the banks of a perennial water body which exceeds 100 metres in length per kilometre, with the exclusion of planted production forests, riparian enhancement programmes and plant pests as specified in the Waikato Regional Council's Regional Pest Management Strategy
7. Any riparian vegetation clearance within five metres of a Natural State water body as shown on the Water Management Class Maps except:
   i) that which is required as part of the construction of a walking track no greater than two metres width, and
   ii) the control of plant pests as specified in the Waikato Regional Council's Regional Pest Management Strategy
8. Any activity specified in Rules 5.1.4.14 and 5.1.4.16, that does not comply with the conditions and standards and terms in Section 5.1.5;

and any associated deposition of slash into or onto the beds of rivers and any subsequent discharge of contaminants into water or air are **discretionary activities** (requiring resource consent).

**Exclusions to Rule 5.1.4.15:**
This Rule shall not apply to vegetation clearance within high risk erosion areas and riparian vegetation clearance where it is for the express purposes of erosion control or natural hazard mitigation, provided Waikato Regional Council is notified in writing at least ten (10) working days prior to work commencing. (Rule 5.1.4.11 applies).

**Advisory Notes:**

- Information requirements to enable the assessment of any application under this Rule are set out in Section 8.1.4.1 of this Plan. In addition, assessment shall also take into account the matters identified in Policy 2 of Section 5.1.3.
- For vegetation clearance by way of burning also refer to Section 6.1.12 of this Plan.
- For vegetation clearance by way of spraying agrichemicals also refer to Section 6.2.4 of this Plan.
- Applicants are advised to consult with the relevant district plan to determine whether district rules apply.
- Grazing and cultivation are excluded from the requirements of this Rule.
- Solid measure may be approximated by calculating the volume of soil that has been disturbed multiplied by a factor of 0.8 to account for the bulking up of soil when disturbed.

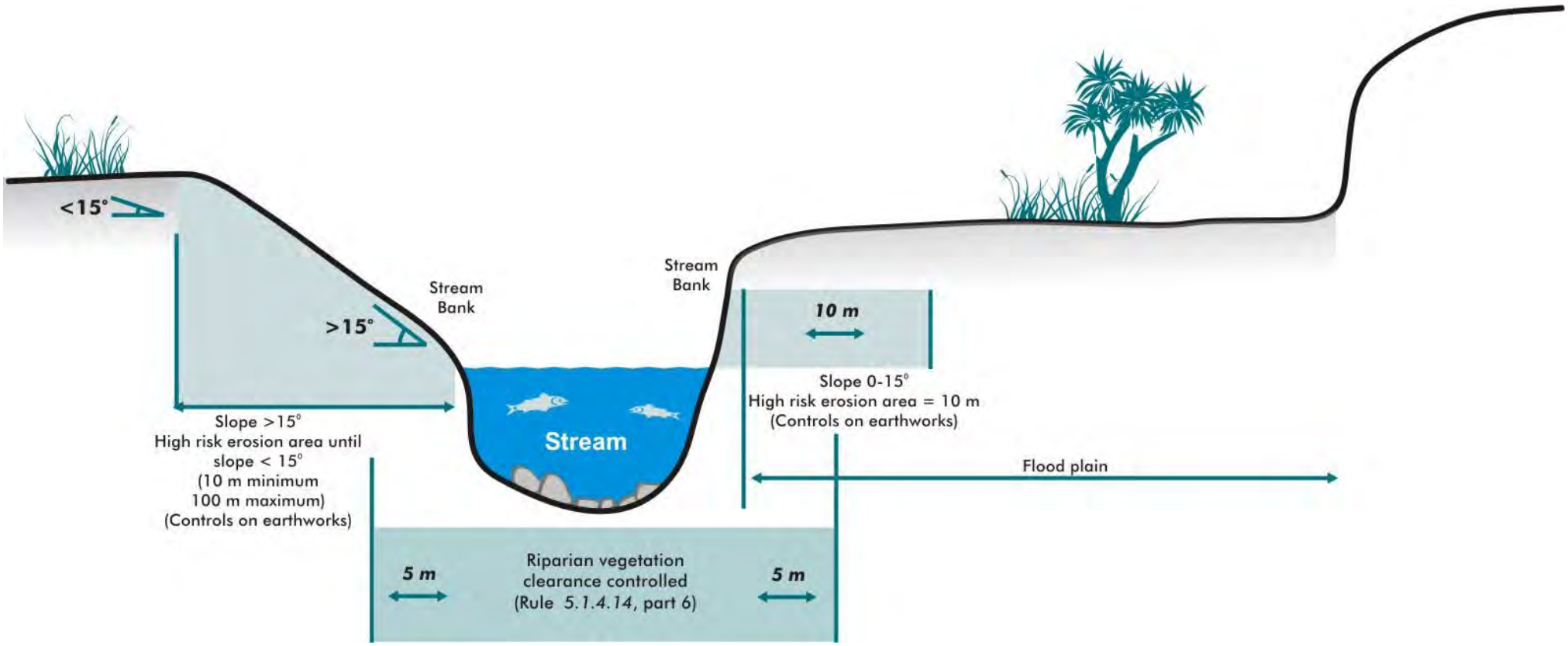



**Figure 5-1 Application of Regional Rules Adjacent to Water Bodies**

**Exception**

These Standards do not apply to:

Plantation forestry activities as from 1 May 2018 these activities are regulated under the National Environmental Standards for Plantation Forestry Regulations 2017.

### 5.1.4.16 Controlled Activity Rule – Vegetation Clearance in Catchments Draining into Coromandel Peninsula Estuaries

**Exception**
These Standards do not apply to:

Plantation forestry activities as from 1 May 2018 these activities are regulated under the National Environmental Standards for Plantation Forestry Regulations 2017.

Vegetation clearance exceeding 50 hectares per annum on slopes greater than 20 degrees within the catchments of the Coromandel, Whangapoua, Whitianga, Tairua, Wharekawa, Whangamata, Manaia, Colville Bay, Waikawau, Purangi and Otahu estuaries and any associated deposition of slash into or onto the beds of rivers and any subsequent discharge of contaminants into water or air is a **controlled activity** (requiring resource consent) subject to the standards and terms in Section 5.1.5.

Waikato Regional Council reserves control over the matters that are specified in Section 5.1.6.

**Notification:**

a) Notice of applications for vegetation clearance of planted production forest will be served only on hapu and iwi of the area where the activity is to occur.
b) Notice of applications for vegetation clearance other than clearance of planted production forest will be served on hapu and iwi of the area where the activity is to occur and on all adversely affected persons.

Limited notification to such hapu and iwi is to enable consideration as to whether the activity adversely affects their relationship as tangata whenua with their ancestral sites, waahi tapu or other taonga. Waikato Regional Council can provide contact details of hapu or iwi for the relevant area.

**Advisory Notes:**

- Information requirements to enable the assessment of any application under this rule are set out in Section 8.1.4.1 of this Plan. In addition, assessment shall also take into account the matters identified in Policy 2 of Section 5.1.3.
- For vegetation clearance by way of burning also refer to Section 6.1.12 of this Plan.
- For vegetation clearance by way of spraying agrichemicals also refer to Section 6.2.4 of this Plan.
- Applicants are advised to consult with the relevant district plan to determine whether district rules apply.

### 5.1.4.17 Discretionary Activity Rule – Soil Disturbance/Vegetation Clearance in Karst Landscapes

**Exception**
These Standards do not apply to:

Plantation forestry activities as from 1 May 2018 these activities are regulated under the National Environmental Standards for Plantation Forestry Regulations 2017.

The following activities in karst landscapes:

1. any soil disturbance or vegetation clearance activity undertaken within the catchment of, or 10 metres of, whichever is the lesser, a sinkhole or cave entrance
2. the creation of a new entrance to a cave or soil disturbance within a cave;

and any associated deposition of slash into or onto the beds of rivers and any subsequent discharge of contaminants into water or air are **discretionary activities** (requiring resource consent).

**Advisory Notes:**

- Information requirements to enable the assessment of any application under this Rule are set out in Section 8.1.4.2 of this Plan. In addition, assessment shall also take into account the matters identified in Policy 2 of Section 5.1.3.
- For vegetation clearance by way of burning also refer to Section 6.1.12 of this Plan.
- For vegetation clearance by way of spraying agrichemicals also refer to Section 6.2.4 of this Plan.
- Applicants are advised to consult with the relevant district plan to determine whether district rules apply.

## 5.1.5 Conditions for Permitted Activity Rule 5.1.4.11 and Standards and Terms for Controlled Activity Rules

**Exception**
These Standards do not apply to:

Plantation forestry activities as from 1 May 2018 these activities are regulated under the National Environmental Standards for Plantation Forestry Regulations 2017.

a) Organic material shall not be placed in fill where its subsequent decomposition will lead to land instability.

b) Erosion/sediment controls shall be installed and maintained on all earthworks during and on completion of the works to avoid the adverse effects of sediment on water bodies.

c) Cut-offs or culverts shall be designed and installed to prevent scour, gullying or other erosion.

d) Any erosion or instability of the coastal environment, or the beds of rivers and lakes or wetlands shall be avoided or remedied if it does occur.

e) The activity shall not result in neighbouring land becoming subject to flooding.

f) All disturbed vegetation, soil or debris shall be deposited or contained to prevent the movement of disturbed matter so that it does not result in:
   i) the diversion, damming or blockage of any river or stream, or
   ii) the passage of fish being impeded, or
   iii) the destruction of any habitat in a water body or coastal water, or
   iv) flooding or erosion.

g) The activity shall not disturb any archaeological site or waahi tapu as identified at the date of notification of this Plan, in any district plan, in the New Zealand Archaeological Association's Site Recording Scheme, or by the Historic Places Trust except where Historic Places Trust approval has been obtained.

h) The concentration of suspended solids in any point source discharge arising from the activity shall comply with the suspended solids standards as set out in Method 3.2.4.6. This condition applies only to permitted activity rules and excludes any non-point source discharges from roading, tracking and vegetation clearance activities (refer condition o) below).

i) Any discharge of contaminants into air arising from the activity shall comply with the permitted activity conditions in Section 6.1.8 except where the matters addressed in Section 6.1.8 are already addressed by conditions on resource consents for the site.

j) In the event of any waahi tapu that is not subject to g) above being identified by the Waikato Regional Council to the person undertaking the activity, the activity shall cease insofar as it may affect the waahi tapu. The activity shall not be recommenced without the approval of the Waikato Regional Council.

k) No storage or mixing of fuels, oils, or agrichemicals shall be undertaken in areas where deliberate or inadvertent discharge is likely to enter any permanent natural surface water body.

l) All vegetation that is being felled within five metres of a perennial water body shall be felled away from the water body, except edge vegetation, or vegetation leaning over a water body, which if necessary may be felled in accordance with safety practices.

m) All exposed areas of soil resulting from the activity shall be stabilised against erosion by vegetative cover or other methods as soon as practical following completion of the activity and no later than six to twelve months from the date of disturbance to avoid the adverse effects of sediment on water bodies.

n) The activity shall not be located within 20 metres of a Significant Geothermal Feature.

o) The concentration of suspended solids in any non-point discharges from roading, tracking and vegetation clearance activities shall meet the following standards;

i) The activity or discharge shall not result in any of the following receiving water standards being breached:

ii) in Waikato Region Surface class waters - 100 grams per cubic metre suspended solids concentration

iii) in Indigenous Fisheries and Fish Habitat class waters - 80 grams per cubic metre suspended solids concentration

iv) in Trout Fisheries and Trout Spawning Habitat class waters - 25 grams per cubic metre suspended solids concentration

v) in Contact Recreation class waters - black disc horizontal visibility greater than 1.6 metres

vi) in Natural State class waters - the activity or discharge shall not increase the concentration of suspended solids in the receiving water by more than 10 percent

Standard a) shall apply, except where the suspended solids concentration or black disc horizontal visibility in the receiving water is greater than the standards specified, at the time and location of discharge or of undertaking the activity. Then there shall not be any increase (i.e. further deterioration) in the receiving water suspended solids concentration or black disc horizontal visibility of more than 20% as a result of the activity or discharge.

The point at which compliance with this standard shall be measured is after reasonable mixing has occurred which in any instance does not exceed 200 metres from the point of discharge.

p) Soil disturbance associated with the construction of a road or track within 20 metres of a culvert or bridge provided for in Rules 4.2.8.1, 4.2.8.2, 4.2.9.1, 4.2.9.2 and 4.2.9.3;

i) Shall not occur adjacent to Significant Indigenous Fisheries and Fish Habitat Class waters during August to December inclusive and Significant Trout Fisheries and Trout Habitat class waters during May to September inclusive; and,

ii) Shall be stabilised against erosion by vegetative cover or other methods as soon as practical following completion of the activity and no later than two months from the date of disturbance to avoid the adverse effects of sediment on water bodies; and

iii) The location of the proposed soil disturbance shall be notified to the Waikato Regional Council in writing at least 10 working days prior to commencing construction.

**Advisory Note:**

- Where a waahi tapu site is identified whilst undertaking the activity, the process that Waikato Regional Council will follow in order to implement condition/standard and term j) is set out in Section 2.3.4.22 of this Plan.
- Where a structure or activity is to be located in, on, under or over the bed of a water body that is Significant Geothermal Feature, Rules 7.6.6.1 to 7.6.6.3 shall apply. Significant Geothermal Features are defined in the Glossary, and in Development and Limited Development Geothermal Systems, identified on maps in Section 7.10 of this Plan.

## 5.1.6 Matters over which Waikato Regional Council will Reserve Control

Waikato Regional Council reserves control over the following matters:

i) Measures to maintain slope stability or prevent exacerbation of any pre-existing deep-seated land instability.
ii) The carrying out of measurements, samples, analyses, surveys, investigations or inspections.
iii) The method of sediment retention and sediment runoff control to be adopted.
iv) Measures to avoid, remedy or mitigate damage to riparian vegetation or soil.
v) Measures to avoid, remedy or mitigate damage to any lawfully established structures.
vi) The location, timing of construction, design and density of soil disturbance and vegetation removal activities.
vii) Any measures necessary to rehabilitate the land following the completion of the activity.
viii) Measures to avoid, remedy or mitigate damage the adverse effect of the activity on areas of significant indigenous vegetation and significant habitats of indigenous fauna[31], and significant natural features such as cave and karst systems and outstanding landscapes.
ix) Measures to control the effect on air quality from objectionable particulate matter.
x) Effects on any waahi tapu or other taonga from the activity.
xi) Effects on the relationship of tangata whenua and their culture and traditions with the site and any waahi tapu or other taonga affected by the activity.
xii) Effects on the ability of tangata whenua to exercise their kaitiaki role in respect of any waahi tapu or other taonga affected by the activity.

**Advisory Note:**

- The imposition of consent conditions under matters x), xi) and xii) shall take into account the policy direction provided in Policies 1 and 2 in Sections 2.3.3 in addition to specific policies in this chapter of the Plan.

### Explanation and Principal Reasons for Adopting Methods 5.1.4.1 to 5.1.4.17

The above methods provide the range of non-regulatory and regulatory methods as provided for in the policies in Section 5.1.3 to achieve Objective 5.1.2. The non-regulatory methods can be used either separately or in conjunction with the rules.

Environmental education programmes as provided for in **Method 5.1.4.1** are an effective means of providing resource users with information on how they can improve their land management practices.

**Method 5.1.4.2** recognises that there is incomplete knowledge of accelerated erosion in the Region. Waikato Regional Council will undertake and encourage relevant investigations and monitoring to improve this knowledge and refine this chapter. Investigations may be undertaken by Waikato Regional Council or a number of

[31] Refer to Appendix 3 of the RPS.

different organisations including crown research institutes, or other organisations or individuals.

**Method 5.1.4.3** acknowledges that many individuals and organisations have adopted good practices including codes of practice and environmental management systems that are designed to avoid, remedy or mitigate adverse environmental effects. Environmental management systems provide a systematic framework for ensuring an organisation complies with environmental legislation and improves its performance.

**Method 5.1.4.4** provides for economic incentives to be used to meet the objectives of this Plan. Economic incentives may be used in circumstances where financial considerations are an obstacle to bringing about practices that avoid, remedy or mitigate accelerated erosion.

Waikato Regional Council has produced a handbook entitled 'Funding for Environmental Projects' which provides information on sources of funding support for environmental projects based in the Waikato Region. These funding sources include Waikato Regional Council and other agencies/organisations. This booklet is available from Waikato Regional Council offices.

**Method 5.1.4.5** provides that through the development and implementation of property management plans or environmental management systems, landowners, with the assistance of Waikato Regional Council, will be able to identify erosion risk areas and measures that will avoid, remedy or mitigate adverse effects of land use activities. These plans are voluntary and will also assist in promoting sustainable land management in conjunction with environmental education initiatives under Method 5.1.4.1.

**Method 5.1.4.6** provides a means by which to investigate the workability and possible implementation of an approved operators approach with respect to soil disturbance and vegetation clearance activities in the Waikato Region. This approach provides the possibility of recognising the skills of competent operators and as such allowing them to be excluded from resource consent requirements for soil disturbance and vegetation clearance activities.

**Method 5.1.4.7** recognises that land use issues affect both regional council and territorial authority functions in regard to land. The preparation and implementation of joint plans, strategies or agreements will enable territorial authorities and Waikato Regional Council to develop plans, strategies or agreements that cover both regional council and territorial authority responsibilities under one plan. This will ensure that in those areas where joint plans, strategies or agreements are developed that there will be consistent objectives and consent requirements for land use activities. The four priority areas identified in this method are areas where Waikato Regional Council considers that a joint plan, strategy or agreement would assist in fulfilling both regional council and territorial authority functions.

**Method 5.1.4.8** is included because land use consent applications submitted to territorial authorities often have the potential to affect soil conservation issues. Territorial authorities send many of their consent applications to Waikato Regional Council for comment. Waikato Regional Council recognises that providing information, advice or comments on these consent applications is an effective means by which to address soil conservation issues and ensure that land instability is addressed during consideration of subdivision and other land use consent applications.

Waikato Regional Council will monitor the adverse effects caused by livestock on the beds and banks of rivers and lakes. If there is no noticeable improvement in the current situation through the use of non-regulatory methods in this Plan, Waikato Regional Council will consider introducing regional rules when the Plan is reviewed or

by 2005, whichever is the sooner. **Method 5.1.4.9** gives an early indication of future methods such as a regulatory 'backstop' that Waikato Regional Council will use, where voluntary action by landowners has not taken place and where significant adverse effects of unrestricted livestock access are still occurring.

Section 17 of the RMA places a duty on every person to avoid, remedy or mitigate adverse environmental effects. As provided for in **Method 5.1.4.10** where land management practices that occur in areas outside high risk erosion areas and below the thresholds identified in Rules 5.1.4.14 and 5.1.4.15, result in the adverse effects noted in Policy 2 parts a) and b), Waikato Regional Council will apply for enforcement orders and issue abatement notices under Part XII of the RMA. This may require a person to cease or prohibit them from commencing an activity that may result in those effects occurring.

**Rule 5.1.4.11** makes it clear that soil disturbance, roading and tracking and vegetation removal are permitted activities, provided they are outside high risk erosion areas and undertaken below the thresholds identified in Rules 5.1.4.14, 5.1.4.15 and 5.1.4.16. It should be noted that there might also be district plan rules, which restrict land disturbance activities in areas outside of high risk erosion areas, for example earthworks controls on subdivision.

**Rule 5.1.4.12** makes soil cultivation more than two metres from the bed of a river or lake a permitted activity. Soil cultivation adjacent to river and lake beds can lead to high sediment inputs into streams resulting in infilling of watercourses, damage to aquatic habitats and degradation of water quality.

**Rule 5.1.4.13** provides for those situations where an activity cannot comply with the conditions of Rule 5.1.4.11 and occurs outside of a high risk erosion area and the requirements of Rule 5.1.4.12.

Parts 1, 2, 3 and 4 of **Rule 5.1.4.14** focus on soil disturbance and roading and tracking activities because data from a wide range of sources including industry and research shows that these are the activities that cause the greatest levels of erosion and sediment runoff. They are therefore the activities that have the potential to cause the most significant adverse effects.

The purpose of part 5 of Rule 5.1.4.14 is to control the clearance of vegetation, other than planted production forests and plant pests, in high risk erosion areas. Removal of vegetation in high risk erosion areas may result in accelerated erosion leading to adverse effects on waterways hence this Plan requires consent to be obtained if clearing vegetation between one and five hectares.

Plant pests are excluded from Rule 5.1.4.14 because Waikato Regional Council has a regional pest management strategy that encourages the clearance of these plants.

Planted production forests are exclude from Rule 5.1.4.14 because harvesting and replanting of production forestry is cyclical, with a relatively short period of risk for potential mass movement erosion on harvested slopes compared to land uses which do not rapidly re-establish protective woody vegetation.

Where land use activities requiring a number of resource consents are proposed over an area of operation, these could be applied for in one package. Submitting a management plan or management system that details methods for avoiding, remedying or mitigating the significant adverse effects of an activity may be an appropriate method of ensuring that significant adverse effects are appropriately managed and may fulfil resource consent requirements.

Part 6 of Rule 5.1.4.14 is included because vegetation removal within five metres of and between 50 and 100 metres along, a perennial water body may result in erosion of the stream bank with subsequent adverse effects. Erosion may be caused by the physical action of removing the woody vegetation and subsequent weakening and dying of the roots.

Five metres from a water body is specified because this is considered to be a distance where the removal of vegetation from that area would have direct adverse effects on stream bank stability. A five metre riparian strip will buffer the aquatic habitat from surrounding land use and protect the banks of the stream.

The 50 to 100 metres distance in part 6 of Rule 5.1.4.14 allows minor or small areas of vegetation to be removed alongside water bodies. Where 50 metres or more of vegetation is removed the potential for adverse effects increase and are therefore subject to control. If less than 50 metres of vegetation is removed and adverse effects occur as a result, Waikato Regional Council will apply for Part XII enforcement mechanisms to require the person to fulfil the duty referred to in s17 of the RMA.

Planted production forestry and riparian enhancement programmes are excluded from part 6 of Rule 5.1.4.14 because riparian areas subject to these activities are either replanted or left to revert to natural vegetation. Riparian enhancement programmes assist with maintaining stream bank stability and improving and enhancing water quality and habitat.

Part 7 of Rule 5.1.4.14 is included to give certainty that planted production forestry and riparian enhancement programmes within five metres of a perennial stream and greater than 50 metres in length per kilometre are able to occur. These activities result in riparian areas being replanted or reverting to natural vegetation in order to prevent adverse effects on perennial water bodies.

Rule 5.1.4.14 focuses on all water bodies in the Region because this is consistent with advocating streamside management along all water bodies in Chapter 3.9 of this Plan.

**Rule 5.1.4.15** provides for activities that do not comply with the standards and terms of the controlled activities and are likely to have significant adverse effects. For example, in the case of Natural State water bodies the clearance of vegetation within five metres may cause inputs of sediment and nutrients that adversely affect water quality. Rules 5.1.4.14 and 5.1.4.15 would not prevent the removal of a small number of trees over a limited area.

The intention of the high risk erosion area definition is to restrict the application of Rules 5.1.4.14 and 5.1.4.15 to the areas specified in the definition and to permit activities that fall outside of this definition. Only the works done within high risk erosion areas shall be subject to length, volume and area thresholds specified in Rules 5.1.4.14 and 5.1.4.15. In the case of an existing road or track the pre-existing slope does not refer to a cut batter.

**Figure 5-1** illustrates the application of regional rules in areas adjacent to water bodies. The application of the controls on soil disturbance and vegetation clearance are intended to reduce the likelihood of disturbed sediment entering water bodies and to prevent erosion of river and lake banks. The driving force of slope is therefore an important controlling parameter. Rule 5.1.4.14 establishes a minimum fixed width for riparian areas, in this case on each side of the stream. The purpose is to preserve the main portion of existing riparian vegetation that maintains the aquatic habitat. The establishment, maintenance and enhancement of riparian areas are promoted through advocacy and education in Chapter 3.9 of this Plan.

The purpose of **Rule 5.1.4.16** is to protect the Coromandel, Whangapoua, Whitianga, Tairua, Wharekawa, Whangamata, Manaia, Colville Bay, Waikawau, Purangi and Otahu estuaries from sedimentation that is occurring due to land use activities in these catchments. These estuaries are particularly affected by sedimentation since the commencement of land clearance for mining, kauri logging, farming and production forestry. These estuaries have been included in this Rule because they have been specifically identified as having very high sedimentation rates, and have been identified in the Regional Coastal Plan as Areas of Significant Conservation Value.

**Rule 5.1.4.17** is included to prevent uncontrolled soil disturbance and vegetation clearance adjacent to a stream sink or cave entrance and uncontrolled creation of new cave entrances. Such activities may cause adverse effects on water quality and sedimentation within the cave system. Soil disturbances and vegetation clearance may also compromise the natural values of a karst system through the entry of sediment, changes in air and water flow regimes and the introduction of foreign matter.

**Section 5.1.6** sets out those matters which Waikato Regional Council has chosen to retain control over. These are matters that are best considered on an individual consent basis, as they may vary according to specific circumstances of a particular consent.

The 25° slope in part a) of the high risk erosion area definition is only a trigger factor and the degree of slope is not the sole factor to be assessed. Soil type and underlying geology are often more relevant than the degree of slope.

## 5.1.7 Environmental Results Anticipated

1. A reduction of the areas within the Region affected by accelerated erosion.
2. Improved water quality as a result of reduced severity of accelerated erosion.
3. Reduced rates of accelerated infilling of estuaries, lakes, artificial watercourses, rivers and karst systems.
4. Maintenance of the life supporting capacity of soils.
5. Greater public awareness of the importance of maintaining stable productive soils.
6. Maintenance of the ecological values associated with land.

## 5.1.8 Monitoring Options

| Objective | Indicators/ Measurements | Types of Monitoring | Information Source |
|---|---|---|---|
| Net reduction in accelerated erosion across the Region, in particular in<br>• Steep hill country<br>• In coastal sand country on the west coast and coastal frontal dunes on the east coast<br>• Areas adjacent to estuaries<br>• Areas of high intensity rainfall or areas of light unconsolidated soils, where there is insufficient vegetative cover, insufficient surface water control, or intensive cultivation<br>• The banks of rivers and lakes and wetlands across the Region<br>• Catchments of estuaries that are areas of significant conservation value on the Coromandel Peninsula<br>• Karst and cave systems. | Land cover (use/type/area condition).<br>Land use relative to land capability.<br>Extent and frequency of slipping.<br>Develop and update soil loss by erosion indicator.<br>Develop and update sediment in rivers and streams indicator for selected catchments.<br>Develop and update a estuary infilling indicator for selected estuaries.<br>Develop and update a beach erosion indicator. | Satellite imagery, aerial photographs at five yearly intervals.<br>Regional trend monitoring.<br>Compliance and effects monitoring.<br>Monitoring of selected catchments, estuaries and coastlines.<br><br>Site specific investigation of karst systems. | Land use/cover database.<br>Resource consents database.<br>Compliance monitoring database.<br>Aerial photographs.<br>Complaints, enquiries and submissions database.<br>Care group databases.<br>Satellite imagery.<br>Site specific investigations and surveys. |
| Soil productivity, versatility and capability maintained. | Develop and update soil quality indicators for different land uses.<br>Update land use/land cover indicators. Land use relative to land capability. | Regional trend monitoring. Compliance and effects monitoring, soil quality monitoring. | Land use/cover database.<br>Vegetation and wetlands database.<br>Soil quality database.<br>Central government databases.<br>Aerial photographs.<br>Satellite imagery. |
| There are no adverse effects on water quality, aquatic ecosystems and wetlands that are inconsistent with Water Management Objective 3.1.2. | Refer to monitoring options for Water Management Objective 3.1.2. | Refer to monitoring techniques for Water Management Objective 3.1.2. | Refer to information sources for monitoring options for Water Management Objective 3.1.2. |

| Objective | Indicators/ Measurements | Types of Monitoring | Information Source |
|---|---|---|---|
| There is no increase in the adverse effects of flooding and land instability. | Update land use/land cover indicator.<br>Develop and update soil loss by erosion indicator.<br>Develop and update sediment in rivers and streams indicator for selected catchments.<br>Develop and update a estuary infilling indicator for selected estuaries. | Regional trend monitoring. Compliance and impact monitoring. | Land use cover database.<br>Vegetation and wetlands database.<br>Resource consents database.<br>Compliance monitoring database.<br>Care group databases. |
| Accelerated infilling of lakes, estuaries, rivers, wetlands and cave systems avoided and the rate of infilling of artificial watercourses excluding structures designed to trap sediment minimised. | As above – Land cover.<br>Extent and frequency of slipping.<br>Sediment levels in water bodies. | Region trend monitoring. Compliance and impact monitoring. | Land use/cover database.<br>Vegetation and wetlands database.<br>Resource consents database.<br>Compliance monitoring database.<br>Care group databases. |
| Significant adverse effects on the relationship tangata whenua as Kaitiaki have with their identified taonga such as ancestral lands, water and waahi tapu are avoided. | Complaints from tangata whenua.<br>Damage to areas of significance to tangata whenua. | Ongoing surveys of attitudes held by central government, other resource management agencies, resource users, community groups, environmental groups and Waikato Regional Council staff. | Perception survey database.<br>Iwi/Maori databases.<br>Resource consents databases.<br>Compliance monitoring database.<br>Central government databases. |
| Cumulative adverse effects on the relationship tangata whenua as Kaitiaki have with their identified taonga such as ancestral lands, water and waahi tapu are remedied or mitigated. | Complaints from tangata whenua. Damage to areas of significance to tangata whenua. | Ongoing surveys of attitudes held by central government, other resource management agencies, resource users, community groups, environmental groups and Waikato Regional Council staff. | Perception survey database.<br>Iwi/Maori databases.<br>Resource consents databases.<br>Compliance monitoring database.<br>Central government databases. |

| Objective | Indicators/ Measurements | Types of Monitoring | Information Source |
|---|---|---|---|
| Significant adverse effects on natural character and ecological values associated with land and coastal dune systems avoided. | Update indicator on extent of native vegetation.<br>Develop and update indicator on fragmentation of native vegetation.<br>Update indicator on number, extent and type of wetlands.<br>Develop and update indicator on area and type of wetlands legally protected.<br>Develop and update indicators on site specific condition of wetlands, river and lake margin health.<br>Develop and update indicator on coastal development on Coromandel beaches. | Ongoing surveys of attitudes held by central government, other resource management agencies, resource users, community groups, environmental groups and Waikato Regional Council staff.<br>Site specific investigations and surveys. | Land use/cover databases.<br>Vegetation and wetlands database.<br>Resource consents database.<br>Compliance monitoring databases.<br>Care group databases.<br>Iwi/Maori databases. Territorial authority files.<br>Central government databases.<br>Perception survey database.<br>Complaints, enquiries and submissions database.<br>Aerial photographs.<br>Site specific investigations and surveys. |
| There are no adverse effects on air quality that are inconsistent with Air Management objective 6.1.2. | Refer to monitoring options for Air Management objective 6.1.2. | Refer to monitoring techniques for Air Management objective 6.1.2. | Refer to information sources for monitoring options for Air Management objective 6.1.2. |
| Damage to property or infrastructure avoided. | Land cover.<br>Extent of slipping.<br>Sediment levels in water bodies.<br>Develop and update indicator on coastal developments at risk on ocean beaches.<br>Develop and update indicator on beach erosion. | Regional trend monitoring.<br>Compliance and effects monitoring.<br>Sediment in streams monitoring programmes<br>Changes in area of slip erosion monitoring. | Resource consents database.<br>Compliance monitoring database.<br>Aerial photographs.<br>Incidents and accidents.<br>Site specific investigations and surveys. |
| In particular High Risk Erosion Areas together with:<br>Catchments of estuaries that are areas of significant conservation value on the Coromandel Peninsula.<br>Karst and cave systems. | Land cover (use/type/area condition).<br>Land use relative to land capability.<br>Extent and frequency of slipping. | Regional trend monitoring.<br>Compliance and effects monitoring. | Land use/cover databases.<br>Resource consents database.<br>Monitoring databases.<br>Aerial photographs. Complaints, enquiries and submissions database.<br>Care group databases. |

# 5.2 Discharges Onto or Into Land

### Background and Explanation

The discharge of contaminants onto or into land is an essential part of many resource use activities throughout the Region. In the absence of rules in regional plans enabling these discharges, most would require resource consents. The definition of contaminant* in the RMA is sufficiently wide to include discharges of relatively benign products such as irrigation water, soil conditioners and fertilisers, as well as hazardous substances, wastes and other products that may have significant adverse effects. The activities covered in this Chapter are:

a) cleanfill and overburden disposal
b) dumps and offal holes on production land
c) landfills
d) composting of green waste and other organic material
e) dust suppression.

### Integration with Water and Air Management

This Chapter focuses on discharges of contaminants onto or into land where the primary effects of the discharge are likely to be on the land and soil resource in terms of soil contamination, increased risk from natural hazards or infilling of sensitive environments. However, the discharge of contaminants onto or into land can affect other natural and physical resources such as air or water. There are many examples of discharges onto or into land that occur in the Region which may not cause soil contamination or adversely affect land but may have other adverse effects such as objectionable odour.

Discharges to air such as those from abrasive blasting which will primarily affect air quality but may result in discharges of contaminants to land in some circumstances are addressed more fully in Chapters 6.1 and 6.2.

Discharges onto or into land, such as on-site sewage, farm animal effluent discharges, stormwater, fertiliser use and the use of treated biosolids as fertiliser substitutes are unlikely to cause significant soil contamination. The primary effects of these discharges are mainly related to water quality which is discussed in Chapter 3.5. Discharges onto or into land around geothermal features are addressed in Module 7 Geothermal.

The methods developed in Chapters 3.5, 6.1, 6.2 and Module 7 Geothermal take into account the objective and policy directions developed in this Chapter.

### Integration with Accelerated Erosion Management

This Chapter deals with the adverse effects of discharges onto or into land, soil and water. There is an overlap with Chapter 5.1, which addresses the adverse effects of soil disturbance activities such as moving or removing soil, land contouring, blading, cutting of batters, blasting, extraction and roading and tracking. Chapter 5.2 addresses soil disturbance and vegetation clearance where soil from the disturbance is disposed of as cleanfill or overburden. Some of these activities may result in the discharge or overburden into specific sites. In those circumstance there is a discharge into or onto land that requires a consent under s15 of the RMA, unless enabled by a rule in a plan. This Chapter addresses these discharges.

### Meaning of Significant Risk

This Chapter uses the term “significant risk”, when referring to activities that may have the effect of contaminating soil. Significant risk in terms of chemical contamination of

soils can be determined through reference to relevant guidelines. The process of developing New Zealand specific guidelines for managing risk from hazardous substances is underway through the development of regulations under the Hazardous Substances and New Organisms Act 1996 and the development of guidelines for managing contaminated sites[32]. Where New Zealand specific guidelines do not exist, relevant guidelines from overseas organisations such as the Australia/New Zealand Environment and Conservation Council (ANZECC) or the United States Environmental Protection Agency (USEPA) can be used. Decision-makers will need to determine which of these overseas guidelines is most appropriate for the activity being considered.

## 5.2.1 Issue

**The discharge of wastes and hazardous substances into or onto land can cause:**

**a) contamination of soils with pathogens, heavy metals, pesticides, hydrocarbons and other persistent hazardous substances to levels that:**
  **i) present significant risks to human health or the wider environment**
  **ii) reduce the versatility and productive capacity of the soil environment**
**b) adverse effects on the significant characteristics of air quality**
**c) contamination of surface water and ground water with substances such as nutrients, pathogens and persistent hazardous substances to levels that present risks to human health, aquatic habitats and the wider environment through processes such as surface run-off, acid drainage, leaching and ground water percolation**
**d) downstream sedimentation increasing the rates of infilling of the Region's lakes, estuaries, artificial watercourses, rivers, wetlands and cave systems resulting in loss of aquatic habitats, increased risk of flooding**
**e) increased risk of flooding and land instability hazards**
**f) adverse effects on the relationship that tangata whenua as Kaitiaki have with their taonga such as ancestral lands, water and waahi tapu.**

## 5.2.2 Objective

Discharges of wastes and hazardous substances onto or into land undertaken in a manner that:

a) does not contaminate soil to levels that present significant risks to human health or the wider environment
b) does not have adverse effects on aquatic habitats, surface water quality or ground water quality that are inconsistent with the Water Management objectives in Section 3.1.2
c) does not have adverse effects related to particulate matter, odour or hazardous substances that are inconsistent with the Air Quality objectives in Section 6.1.2
d) is not inconsistent with the objectives in Section 5.1.2
e) avoids significant adverse effects on the relationship that tangata whenua as Kaitiaki have with their taonga such as ancestral lands, water and waahi tapu
f) remedies or mitigates cumulative adverse effects on the relationship that tangata whenua as Kaitiaki have with their identified taonga such as ancestral lands, water and waahi tapu.

[32] For example, Ministry of Health and Ministry for the Environment. 1997: *The Health and Environmental Guidelines for Selected Timber Treatment Chemicals*. Ministry of Health and Ministry for the Environment, Wellington.

**Principal Reasons for Adopting the Objective**

The objective acknowledges that discharges onto or into land are a necessary facet of resource use in the Waikato Region and, subject to environmental standards, should be allowed to occur.

Part a) acknowledges that the discharge of chemicals onto or into land should not contaminate soils beyond specific threshold levels at which soil versatility declines and other adverse effects begin to occur. These thresholds represent the point at which the risks to human health or the wider environment from soil contamination become significant. If soils are contaminated above these levels, they will be considered unsafe for their current uses and the range of existing and foreseeable uses of the soil will be restricted.

Parts b) and c) recognise the interconnected nature of the environment so that when managing discharges onto or into land, effects on water and air quality must also be taken into account. Part d) addresses issues associated with Chapter 5.1 such as accelerated infilling of lakes, estuaries, artificial watercourses, rivers, wetlands, cave systems, flood and land instability. This is particularly the case with waste disposal sites or filling operations placed on unstable hill slopes or in floodplains. It is essential that these discharges are managed so that they do not exacerbate these hazards. The degree to which the activity increases the risks of adverse effects and at what point that increase becomes significant will need to be determined on a case-by-case basis taking into account the facility design and the nature of the locality. In the case of a flood event, the risks become significant where the discharge would cause flooding on a neighbouring property.

Parts e) and f) acknowledge the relationship of tangata whenua as Kaitiaki have with their land over which they hold mana whenua. Activities involving discharge onto or into land need to avoid significant adverse effects on the relationship of tangata whenua with their identified taonga such as ancestral lands, water, and waahi tapu.

The intention of the phrase ‘the relationship of tangata whenua as Kaitiaki’ is to state that Council will give priority to the concerns of Maori based on the status as tangata whenua and as Kaitiaki, whilst maintaining the ability of Council to consider the concerns of other groups who are not tangata whenua. The phrasing addresses the concerns of tangata whenua who exercise kaitiakitanga over specific resources, ahead of other Maori submitters to a resource consent who have a relationship that is not based on the present day exercise of kaitiakitanga.

The term ‘significant adverse effects’ means those effects that if allowed to occur, would destroy a site or taonga that is of such importance to tangata whenua as Kaitiaki that its loss or degradation is assessed to be unacceptable and unable to be remedied or mitigated.

## 5.2.3 Policies

**Policy 1: Low Risk Discharges Onto or Into Land**

Enable, through permitted activity rules and non-regulatory methods, the discharge of contaminants onto or into land where:

a) hazardous substances present in the discharge, or produced as a consequence of the breakdown of the contaminants from the discharge:
   i) are not environmentally persistent
   ii) will not bioaccumulate to a level that has acute or chronic toxic (carcinogenic, teratogenic or mutagenic) effects on humans or other non-target species

b) the discharge of these contaminants onto or into land will not result in pathogens accumulating in soil or pasture to levels that would render the soil unsafe for agricultural or domestic use
c) the discharge is not inconsistent with policies in Section 5.1.3
d) the discharge will not result in any effect on water quality or aquatic ecosystems that is inconsistent with the purpose of the Water Management Classes as identified by the policies in Section 3.2.3
e) the discharge will not result in any effect on air quality that is inconsistent with policies in Section 6.1.3
f) the discharge will not damage archaeological sites, waahi tapu or other identified sites of importance to tangata whenua as Kaitiaki.

**Policy 2: Other Discharges Onto or Into Land**

Manage discharges of contaminants onto or into land not enabled by Policy 1, in a manner that avoids, where practicable, the following adverse effects and remedies or mitigates those effects that cannot be avoided:

a) contamination of soils with hazardous substances or pathogens to levels that present a significant risk to human health or the wider environment
b) the discharge is not inconsistent with policies in Section 5.1.3
c) any effect on water quality or aquatic ecosystems that is inconsistent with the purpose of the Water Management Classes as identified by the policies in Section 3.2.3
d) the adverse effects outlined in the policies and rules for air quality in Chapters 6.1 and 6.2, particularly for odour and particulate deposition
e) damage to archaeological sites, waahi tapu or other identified sites of importance to tangata whenua as Kaitiaki.

**Explanation and Principal Reasons for Adopting the Policies**

Waikato Regional Council wants to enable discharges onto or into land that will not cause adverse effect that are inconsistent with the objectives.

**Policy 1** identifies the adverse environmental effects of discharges onto or into land that are of most concern. Any discharge that does not have those effects is considered to be a low risk discharge and is enabled by the Plan.

Part a) relates to hazardous substances in the discharge or likely to be produced as a consequence of chemical reactions after the discharge has occurred. This addresses the potential contamination of soils or water. Information on whether a particular substance can meet these criteria is available for most hazardous substances through Material Safety Data Sheets and licences under legislation such as the Hazardous Substances and New Organisms Act 1996.

Part b) applies to discharges such as waste sludges from industry and municipal sewage treatment facilities. Human and animal pathogens or diseases in these wastes could have serious adverse environmental effects and could also threaten market access for products. It is therefore important that these discharges are not enabled where they would accumulate in the soils to unsafe levels. The levels of pathogen contamination that is considered safe varies depending upon the pathogen, soil type and land use and needs to be determined on a case-by-case basis with reference to relevant guidelines.

Part c) acknowledges that discharges onto or into land such as landfilling or cleanfilling in high risk environments such as floodplains or near cave entrances can increase sedimentation rates or exacerbate natural hazards in these environments. The policy

identifies that these activities should not be enabled where they occur in locations where these effects are likely to occur.

Parts d) and e) acknowledge that discharges onto or into land can also have adverse effects on water and air resources. The objectives and policies for these resources are determined elsewhere in this Plan. To avoid repetition the policy provides a clear cross reference to these sections.

Part f) acknowledges that there are other values of land and soil resources that may be adversely affected by discharges onto or into land. This is particularly the case where the discharge affects archaeological sites, waahi tapu or other sites of importance to tangata whenua.

**Policy 2** provides for those discharges onto or into land that do not meet the criteria in Policy 1. The policy gives primacy to avoiding adverse effects. However, it acknowledges that where adverse effects cannot be avoided when discharging onto or into land, they may still be able to be remedied or mitigated. The extent to which adverse effects must be remedied or mitigated is best determined on a case-by-case basis through the resource consent process.

## 5.2.4 Implementation Methods – Discharges Onto or Into Land

### 5.2.4.1 Good Practice

Waikato Regional Council will, in conjunction with other organisations, industry groups and individuals, provide guidance on the development, implementation and review of good practices or appropriate codes of practice for:

1. cleanfilling and overburden disposal, addressing issues such as filling techniques, site selection, sediment control, waste acceptance criteria, rehabilitation, site stability/drainage and the protection/reuse of topsoil material
2. dumps and offal holes on production land, addressing issues such as location, allowable rubbish types and management of the site after it has closed
3. composting operations, addressing issues such as odour management, location and raw material control
4. the reuse of non-hazardous by products from industrial or trade premises (e.g. paunch grass from meat processing sites) as soil conditioners, addressing issues such as nutrient management, water quality, assessing and managing the carrying capacity of the soil and odour management.

**Advisory Note:**

- Some initial good management practices have been identified for dumps and offal holes on production land in Section 5.2.12.

### 5.2.4.2 Promotion

Waikato Regional Council will promote the:

1. provision by territorial authorities of refuse transfer stations that are accessible to rural communities
2. provision by private industry or territorial authorities of hazardous waste collection systems for small quantities of hazardous waste
3. Used Oil Recovery Programme established by Milburn Cement and the oil industry to provide a collection scheme for waste oil through out the Region
4. use of alternatives to waste oil for controlling dust
5. reuse and recycling of construction and demolition waste such as concrete, bitumen, aggregates and wood.

#### 5.2.4.3 Part XII RMA Enforcement

Waikato Regional Council will apply for enforcement orders, issue abatement notices and use other enforcement mechanisms in Part XII of the RMA, where an activity has the effects listed in Policy 2 or breaches conditions of rules in the Plan.

Discharges onto or into land that may result in, or increase the potential, for the adverse effects listed in Policy 2 occurring include:

1. cleanfilling or overburden disposal where there is inadequate sediment, run-off or leachate control of the site is not rehabilitated properly
2. the siting of dumps or offal holes on production land in locations where the waste will contaminate water
3. the production of objectionable odour as a consequence of poor management of composting
4. the disposal of waste into cave entrances, stream sinks or wetlands
5. the contamination of soils as a consequence of intentional or unintentional discharges of hazardous substances.

#### 5.2.4.4 Integration

Waikato Regional Council will promote integration with other relevant organisations in respect of:

1. aligning the management of cleanfilling and overburden disposal across regional and district plans when district plans are reviewed to ensure that duplication is minimised
2. the development and implementation of a system of tracking hazardous waste being transported across region council boundaries to ensure that the waste is disposed of in appropriate facilities.

**Explanation and Principal Reasons for Adopting Methods 5.2.4.1 to 5.2.4.4**

These methods are necessary to provide for non-regulatory means of implementing Policy 1 of this Chapter. Of particular importance are **Methods 5.2.4.2** to **5.2.4.4.**

**Method 5.2.4.1** identifies that industry initiatives to develop and implement codes of practice and good practices will be an important tool in managing the effects of discharges onto or into land.

**Method 5.2.4.2** recognises that in some parts of the Region there are no easily available disposal methods for solid hazardous wastes (including animal carcasses). Rules in this Chapter relating to dumps and offal holes on production land (Methods 5.2.6.1 and 5.2.6.2) may make it difficult for some of these sites to continue operating. In those circumstances alternative waste disposal techniques must be made available to the community.

**Method 5.2.4.3** acknowledges that enforcement action under the RMA is available in instances where activities have adverse effects that do not meet the performance standards identified in Policy 2. **Method 5.2.4.4** identifies that some potential overlaps exist between regional and district council management of activities such as cleanfilling as a consequence of district plans being prepared in advance of this Plan. Some district plans exercise control over matters outside of their jurisdiction. Waikato Regional Council will need to work with territorial authorities when their plans are reviewed to address these overlaps. The Method also identifies that the transport of waste across regional boundaries (and hazardous waste in particular) has the potential to have adverse effects if waste goes into uncontrolled facilities. The Method acknowledges that Waikato Regional Council needs to work with neighbouring councils and central government to address the tracking of these wastes.

## 5.2.5 Implementation Methods – Cleanfilling* and Overburden* Disposal

### 5.2.5.1 Permitted Activity Rule – Overburden Disposal Outside of High Risk Locations

**Exception**
These Standards do not apply to:

Plantation forestry activities as from 1 May 2018 these activities are regulated under the National Environmental Standards for Plantation Forestry Regulations 2017.

The discharge of overburden onto or into land at an overburden disposal site* and any subsequent discharge of contaminants into water or air when occurring outside of:

1. A high risk erosion area[33]
2. A floodplain of a river*
3. The catchment of, or within 10 metres of, whichever is the lesser, a sink hole* or cave entrance
4. Any wetlands[34] that are areas of significant indigenous vegetation and/or significant habitats of indigenous fauna
5. A significant geothermal feature*

is a **permitted activity** subject to the following conditions:

a) The concentration of suspended sediment in any discharge to a water body arising from this activity shall comply with the suspended sediment criteria as set out in Section 3.2.4.5.
b) Any discharge to air arising from the activity shall comply with the conditions and standards and terms in Section 6.1.8 except where the matters addressed in Section 6.1.8 are already addressed by conditions on resource consents for the site.
c) The overburden has no acid producing material[35]
d) The activity shall not disturb any archaeological site or waahi tapu as identified at the date of notification of this Plan (28 September 1998), in any district plan, in the NZ Archaeological Association's Site Recording Scheme, or by the Historic Places Trust except where Historic Places Trust approval has been obtained.

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[33] **High risk erosion area**: Means any part of any activity area (where the activity is not otherwise permitted):
a) where the pre-existing slope of the land exceed 25 degrees; or
b) on coastal frontal dunes on the East Coast; or
c) on coastal sand country on the West Coast (Mokau to Karioitahi) where loose sands are at the ground surface or within 10 centimetres of the surface; or
d) within 50 metres landward of the coastal marine area of an estuary, except in the landward margin of an authorised stopbank; or
e) adjacent to water bodies (including ephemeral watercourses draining catchments greater than 100 hectares, but excluding any other ephemeral rivers or streams), where:
   i) the land slope is between 0 degrees to 15 degrees – within 10 metres from any lake, wetland or the bed of a river or lake, or
   ii) the land slope is greater than 15 degrees – within that distance from the wetland, the bed of a river or lake, or from mean high water springs to the first point at which the slope reduces to 15 degrees or less, or 100 metres (whichever is the lesser, outside the minimum distance described in i).

This definition is illustrated in Figure 5-1 in Chapter 5.1.4

[34] Refer to Appendix 3 of the RPS.
[35] Acid producing potential is a laboratory measure of the ability of a rock or soil mass to generate acid drainage.

e) In the event of any waahi tapu that is not subject to condition d) being identified by the Waikato Regional Council to the person undertaking the activity, the activity shall cease insofar as it may affect the waahi tapu. The activity shall not be recommenced without the approval of the Waikato Regional Council.

f) Where the site is to receive a total volume of more than 1,000 cubic metres of overburden (solid measure) the operator shall notify the Waikato Regional Council in writing of the accurate location of the site seven working days prior to commencing operation.

g) The placement of the material shall be undertaken and maintained in a manner so as to ensure its long term stability.

h) The activity shall not cause any increase in flooding on neighbouring properties.

**Exclusion to Rule 5.2.5.1:**
This Rule does not apply to soil disturbance activities where overburden is reused, such as land contouring, roading and tracking which are addressed by methods and rules in Section 5.1.4.

**Advisory Notes:**

- Soil disturbance activities and the discharge of contaminants into or onto land within 20 metres of any significant geothermal feature is a discretionary activity under Rules 7.6.6.1 to 7.6.6.3. Significant Geothermal Features are defined in the Glossary, and in Development and Limited Development Geothermal Systems, identified on maps in Section 7.10 of this Plan.
- Where the material to be dumped does not meet the definition of overburden provided in the Glossary it is subject to the rules relating to landfills in Section 5.2.7.
- Land use consents for filling operations may also be required by district plans. These will address issues such as amenity effects, traffic, noise, protection of identified areas of significant indigenous vegetation[36] and outstanding landscapes and future uses of the site. The thresholds at which resource consents are required vary within each territorial authority area.
- Where a waahi tapu site is identified whilst undertaking the activity, the process that Waikato Regional Council will follow in order to implement condition e) is set out in Section 2.3.4.22 of this Plan.
- Discharges of contaminants into land that affect Significant Geothermal Features are addressed in Rules 7.6.6.1 to 7.6.6.3. Significant Geothermal Features are defined in the Glossary, and in Development and Limited Development Geothermal Systems, identified on maps in Section 7.10 of this Plan.

### 5.2.5.2 Controlled Activity Rule – Overburden Disposal Not Permitted by Rule 5.2.5.1

**Exception**
These Standards do not apply to:

Plantation forestry activities as from 1 May 2018 these activities are regulated under the National Environmental Standards for Plantation Forestry Regulations 2017.

The discharge of overburden onto or into land at an overburden disposal site and any subsequent discharge of contaminants into water or air that does not comply with Rule 5.2.5.1 when occurring within:

1. A high risk erosion area
2. A floodplain of a river
3. The catchment of, or within 10 metres of, whichever is the lesser, a sink hole or cave entrance
4. Any wetlands[37] that are areas of significant indigenous vegetation and/or significant habitats of indigenous fauna

[36] Refer to Appendix 3 of the RPS.
[37] Refer to Appendix 3 of the RPS.

5. A significant geothermal feature*

is a **controlled activity** (requiring resource consent) subject to the following standards and terms:

a) The maximum volume of material deposited at any single site and within any three year period, shall not exceed 5,000 cubic metres of overburden (solid measure).
b) The overburden material has no acid producing potential[38].
c) The placement of the material shall be undertaken and maintained in a manner so as to ensure its long-term stability.
d) The activity shall not cause any increase in flooding on neighbouring properties.

Waikato Regional Council reserves control over the following matters:

i. Measures to ensure that the activity does not reduce slope stability, exacerbate pre-existing land instabilities or constrict flood flows.
ii. Measures to avoid, remedy or mitigate damage to riparian vegetation or soil.
iii. Measures to avoid, remedy or mitigate damage to any lawfully established structures.
iv. The location, timing of construction, design and density of soil disturbance activities and vegetation removal.
v. Any measures necessary to rehabilitate the land following the completion of the activity.
vi. The means of controlling effects on air quality from objectionable particulate matter.
vii. Measures to avoid, remedy or mitigate the adverse effect of the activity on areas of significant indigenous vegetation, significant habitats of indigenous fauna[39], and significant natural features such as cave and karst systems and outstanding landscapes.
viii. Effects on any waahi tapu or other taonga from the activity.
ix. Effects on the relationship of tangata whenua and their culture and traditions with the site and any waahi tapu or other taonga affected by the activity.
x. Effects on the ability of tangata whenua to exercise their kaitiaki role in respect of any waahi tapu or other taonga affected by the activity.
xi. The quality of any discharges to water from the site.
xii. Measures to monitor incoming material to ensure that only overburden is received.

**Exclusion to Rule 5.2.5.2:**

a) This rule does not apply to disturbance activities where overburden is reused, such as land contouring, and roading and tracking which are addressed by methods and rules in Section 5.1.4.

**Advisory Notes:**

- Soil disturbance activities and the discharge of contaminants into or onto land within 20 metres of any Significant Geothermal Features is a discretionary activity under Rules 7.6.6.1 to 7.6.6.3. Significant Geothermal Features are defined in the Glossary, and in Development and Limited Development Geothermal Systems, identified on maps in Section 7.10 of this Plan.
- Where the material to be dumped does not meet the definition of overburden provided in the Glossary it is subject to the rules relating to landfills in Section 5.2.7.
- Land use consents for filling operations may also be required by district plans. These will address issues such as amenity effects, traffic, noise, protection of identified areas of significant indigenous vegetation[40] and outstanding landscapes and future uses of the

[38] Acid producing potential is a laboratory measure of the ability of a rock or soil mass to generate acid drainage.
[39] Refer to Appendix 3 of the RPS.
[40] Refer to Appendix 3 of the RPS.

site. The thresholds at which resource consents are required vary within each territorial authority area.

- The imposition of consent conditions under matters viii), ix) and x) shall take into account the policy direction provided in Policies 1 and 2 in Section 2.3.3 in addition to specific policies in this Chapter of the Plan.

### 5.2.5.3 Discretionary Activity Rule – Large Scale Overburden Disposal

**Exception**
These Standards do not apply to:

Plantation forestry activities as from 1 May 2018 these activities are regulated under the National Environmental Standards for Plantation Forestry Regulations 2017.

The discharge of overburden onto or into land and any subsequent discharge of contaminants into water or air in a manner that does not comply with Rules 5.2.5.1 and 5.2.5.2 is a **discretionary activity** (requiring resource consent).

**Exclusion to Rule 5.2.5.3:**

a) This Rule does not apply to discharges of contaminants into land that will affect significant Geothermal Features.

**Advisory Notes:**

- Information requirements to enable the assessment of any application under this Rule are as set out in Section 8.1.4.3. In addition, assessment shall also take into account the matters identified in Policy 2 of Chapter 5.2.
- Soil disturbance activities and the discharge of contaminants into or onto land within 20 metres of any Significant Geothermal Features is a discretionary activity under Rules 7.6.6.1 to 7.6.6.3. Significant Geothermal Features are defined in the Glossary, and in Development and Limited Development Geothermal Systems, identified on maps in Section 7.10 of this Plan.
- Where the material to be dumped does not meet the definition of overburden provided in the Glossary it is subject to the rules relating to landfills in Section 5.2.7.
- Land use consents for filling operations may also be required by district plans. These will address issues such as amenity effects, traffic, noise, protection of identified areas of significant indigenous vegetation[41] and outstanding landscapes and future uses of the site. The thresholds at which resource consents are required vary within each territorial authority area.

### 5.2.5.4 Permitted Activity Rule – Small Scale Cleanfill Disposal Outside of High Risk Locations

**Exception**
These Standards do not apply to:

Plantation forestry activities as from 1 May 2018 these activities are regulated under the National Environmental Standards for Plantation Forestry Regulations 2017.

The discharge of cleanfill onto or into land and any subsequent discharge of contaminants into water or air when occurring outside of:

1. A high risk erosion area
2. A floodplain of a river
3. The catchment of, or within 10 metres of, whichever is the lesser, a sink hole* or cave entrance
4. Any wetlands[42] that are areas of significant indigenous vegetation and/or significant habitats of indigenous fauna

[41] Refer to Appendix 3 of the RPS.
[42] Refer to Appendix 3 of the RPS.

5. A significant geothermal feature*

and where the total volume of cleanfill does not exceed 2,500 cubic metres per annum, is a **permitted activity** subject to the following conditions:

a) Any discharge to air arising from the activity shall comply with the conditions and standards and terms in Section 6.1.8 except where the matters addressed in Section 6.1.8 are already addressed by conditions on resource consents for the site.
b) Records of the source and composition of all material disposed of at the site shall be maintained and made available to the Waikato Regional Council upon request to demonstrate that only cleanfill as defined in the Glossary to this Plan has been received.
c) The cleanfill has no acid producing potential.[43]
d) The activity shall not disturb any archaeological site or waahi tapu as identified at the date of notification of this Plan (28 September 1998), in any district plan, in the NZ Archaeological Association's Site Recording Scheme, or by the Historic Places Trust except where Historic Places Trust approval has been obtained.
e) In the event of any waahi tapu that is not subject to condition d) being identified by the Waikato Regional Council to the person undertaking the activity, the activity shall cease insofar as it may affect the waahi tapu. The activity shall not be recommenced without the approval of the Waikato Regional Council.
f) Where the site is to receive a total volume of more than 1,000 cubic metres of cleanfill (loose measure) the operator shall notify the Waikato Regional Council in writing of the accurate location of the site seven working days prior to commencing operation.
g) The placement of the material shall be undertaken and maintained in a manner so as to ensure its long-term stability.
h) The activity shall not cause any increase in flooding on neighbouring properties.
i) The concentration of suspended sediment in any discharge to a water body arising from this activity shall comply with the suspended sediment criteria as set out in Section 3.2.4.6.

**Exclusions to rule 5.2.5.4:**

a) This Rule does not apply to discharges of cleanfill for the purpose of erosion control structures in Rule 4.2.15.1.
b) This Rule does not apply to soil disturbance activities where cleanfill is reused, such as land contouring, and roading and tracking which are addressed by methods and rules in Section 5.1.4.

**Advisory Notes:**

- Soil disturbance activities and the discharge of contaminants into or onto land within 20 metres of any Significant Geothermal Features is a discretionary activity under Rules 7.6.6.1 to 7.6.6.3. Significant Geothermal Features are defined in the Glossary, and in Development and Limited Development Geothermal Systems, identified on maps in Section 7.10 of this Plan.
- Where the material to be dumped does not meet the definition of cleanfill provided in the Glossary it is subject to the rules relating to landfills in Section 5.2.7.
- Land use consents for filling operations may also be required by district plans. These will address issues such as amenity effects, traffic, noise, protection of identified areas of significant indigenous vegetation[44] and outstanding landscapes and future uses of the site. The thresholds at which resource consents are required vary within each territorial authority area.
- Where a waahi tapu site is identified whilst undertaking the activity, the process that Waikato Regional Council will follow in order to implement condition e) is set out in Section 2.3.4.22 of this Plan.

[43] Acid producing potential is a laboratory measure of the ability of a rock or soil mass to generate acid drainage.
[44] Refer to Appendix 3 of the RPS.

### 5.2.5.5 Controlled Activity Rule – Large Scale Cleanfill Disposal outside High Risk Locations

**Exception**
These Standards do not apply to:

Plantation forestry activities as from 1 May 2018 these activities are regulated under the National Environmental Standards for Plantation Forestry Regulations 2017.

The discharge of cleanfill onto or into land and any subsequent discharge of contaminants into water or air that does not comply with Rule 5.2.5.4 when occurring outside of:

1. A high risk erosion area
2. A floodplain of a river
3. The catchment of, or within 10 metres of, whichever is the lesser, a sink hole* or cave entrance
4. Any wetlands[45] that are areas of significant indigenous vegetation and/or significant habitats of indigenous fauna
5. A significant geothermal feature*

is a **controlled activity** (requiring resource consent) subject to the following standards and terms:

a) Any discharge to air arising from the activity shall comply with the conditions and standards and terms in Section 6.1.8 except where the matters addressed in Section 6.1.8 are already addressed by conditions on resource consents for the site.
b) Records of the source and composition of all material disposed of at the site shall be maintained and made available to the Waikato Regional Council upon request to demonstrate that only cleanfill as defined in the Glossary to this Plan has been received.
c) The cleanfill has no acid producing potential[46].
d) The placement of the material shall be undertaken and maintained in manner so as to ensure its long-term stability.
e) The activity shall not cause any increase in flooding on neighbouring properties.

Waikato Regional Council reserves control over the following matters:

i. Measures to ensure that the activity does not reduce slope stability, exacerbate pre-existing land instabilities or constrict flood flows.
ii. Measures to avoid, remedy or mitigate damage to riparian vegetation or soil.
iii. Measures to avoid, remedy or mitigate damage to any lawfully established structures.
iv. The location, timing of construction, design and density of soil disturbance activities and vegetation removal.
v. Any measures necessary to rehabilitate the land following the completion of the activity.
vi. The means of controlling effects on air quality from objectionable particulate matter.
vii. Measures to avoid, remedy or mitigate the adverse effect of the activity on areas of significant indigenous vegetation, significant habitats of indigenous fauna[47] and

[45] Refer to Appendix 3 of the RPS.
[46] Acid producing potential is a laboratory measure of the ability of a rock or soil mass to generate acid drainage.
[47] Refer to Appendix 3 of the RPS.

significant natural features such as cave and karst systems and outstanding landscapes.

viii. Effects on any waahi tapu or other taonga from the activity.

ix. Effects on the relationship of tangata whenua and their culture and traditions with the site and any waahi tapu or other taonga affected by the activity.

x. Effects on the ability of tangata whenua to exercise their kaitiaki role in respect of any waahi tapu or other taonga affected by the activity.

xi. The quality of any discharges to water from the site.

xii. Measures to monitor incoming material to ensure that only overburden is received.

**Exclusions to Rule 5.2.5.5:**

a) This Rule does not apply to cleanfill disposal for the purpose of erosion control structures in Rule 4.2.15.1.

b) This Rule does not apply to soil disturbance activities where cleanfill is reused, such as land contouring, and roading, tracking which are addressed by methods and rules in Section 5.1.4.

**Advisory Notes:**

- Information requirements to enable the assessment of any application under this Rule are as set out in Section 8.1.4.3. In addition assessment shall also take into account the matters identified in Policy 2 of Chapter 5.2.
- Soil disturbance activities and the discharge of contaminants into or onto land within 20 metres of any Significant Geothermal Features is a discretionary activity under Rules 7.6.6.1 to 7.6.6.3. Significant Geothermal Features are defined in the Glossary, and in Development and Limited Development Geothermal Systems, identified on maps in Section 7.10 of this Plan.
- Where the material to be dumped does not meet the definition of cleanfill provided in the Glossary it is subject to the rules relating to landfills in Section 5.2.7.
- Land use consents for fillings operations may also be required by district plans. These will address issues such as amenity effects, traffic, noise, protection of identified areas of significant indigenous vegetation[48] and outstanding landscapes and future uses of the site. The thresholds at which resource consents are required vary within each territorial authority area.
- The imposition of consent conditions under matters viii), ix) and x) shall take into account the policy direction provided in Policies 1 and 2 in Section 2.3.3 in addition to specific policies in this chapter of the Plan.

### 5.2.5.6 Discretionary Activity Rule – Cleanfill Disposal in High Risk Locations

**Exception**

These Standards do not apply to:

Plantation forestry activities as from 1 May 2018 these activities are regulated under the National Environmental Standards for Plantation Forestry Regulations 2017.

The discharge of cleanfill onto or into land and any subsequent discharge of contaminants into water or air in a manner that does not comply with Rules 5.2.5.4 and 5.2.5.5 is a **discretionary activity** (requiring resource consent).

**Exclusions to Rule 5.2.5.6:**

a) This Rule does not apply to discharges of contaminants into land that will affect significant Geothermal Features.

b) This Rule does not apply to soil disturbance activities where cleanfill is reused, such as land contouring, and roading and tracking which are addressed by methods and rules in Section 5.1.4.

[48] Refer to Appendix 3 of the RPS.

**Advisory Notes:**

- Information requirements to enable the assessment of any application under this Rule are as set out in Section 8.1.4.3. In addition assessment shall also take into account the matters identified in Policy 2 of Chapter 5.2.
- Soil disturbance activities and the discharge of contaminants into or onto land within 20 metres of any Significant Geothermal Features is a discretionary activity under Rules 7.6.6.1 to 7.6.6.3. Significant Geothermal Features are defined in the Glossary, and in Development and Limited Development Geothermal Systems, identified on maps in Section 7.10 of this Plan.
- Where the material to be dumped does not meet the definition of cleanfill provided in the Glossary it is subject to the rules relating to landfills in Section 5.2.7.
- Land use consents for fillings operations may also be required by district plans. These will address issues such as amenity effects, traffic, noise, protection of identified areas of significant indigenous vegetation[49] and outstanding landscapes and future uses of the site. The thresholds at which resource consents are required vary within each territorial authority area.

### 5.2.5.7 Permitted Activity Rule – Discharge of Small Volumes of Sediment and Vegetation From Within or Surrounding Lawfully Established Structures or Artificial Watercourses

The discharge of sediment and vegetation onto or into land and any subsequent discharge to air or water where the material is derived from the:

1. clearing of debris and bed material from within or surrounding a lawfully established structure or artificial watercourse
2. maintenance of channels in drainage districts and river control scheme areas that are managed by the Waikato Regional Council or territorial authorities
3. clearance of floating vegetation and debris behind dams and intake structures

is a **permitted activity** subject to the following conditions:

a) The discharge must occur outside of:
   - i) A high risk erosion area
   - ii) A floodplain of a river
   - iii) The catchment of, or within 10 metres of, whichever is the lesser, a sink hole or cave entrance
   - iv) Any wetland[50] that is an areas of significant indigenous vegetation and/or a significant habitat of indigenous fauna
   - v) A significant geothermal feature

b) The total volume disposed of at an individual disposal site does not exceed 10 cubic metres per annum.

c) The placement of the material shall be undertaken and maintained in a manner so as to ensure its long term stability.

d) The activity shall not cause any increase in flooding on neighbouring properties.

e) Any discharge to air that occurs either during the initial placement of the material or subsequently shall comply with the conditions and standards and terms in Section 6.1.8.

f) The sediment or material has no acid producing potential.[51]

g) The discharge shall not contain hazardous substances or pathogenic organisms.

h) Any discharge to water that occurs either during the initial placement of the material or subsequently shall:
   - i) comply with the suspended solids standards in Section 3.2.4.5 of this Plan.
   - ii) not contain any material which will cause the production of conspicuous oil or grease films, scums or foams or floatable suspended materials at any point downstream that is greater than three times the width of the river at the point of discharge and which for any river does not exceed 20 metres from the point of discharge and for any lake (other than Hydro Electricity

[49] Refer to Appendix 3 of the RPS.
[50] Refer to Appendix 3 of the RPS.
[51] Acid producing potential is a laboratory measure of the ability of a rock or soil mass to generate acid drainage

Reservoirs) does not exceed 15 metres from the location of the discharge or the activity.

iii) not contain leachate produced during the decomposition of any organic material.

i) The activity shall not disturb any archaeological site or waahi tapu as identified at the date of notification of this Plan, in any district plan, in the NZ Archaeological Association's Site Recording Scheme or by the Historic Places Trust except where Historic Places Trust approval has been obtained.

j) In the event of any waahi tapu that is not subject to condition i) being identified while undertaking the use, erection, reconstruction, placement, extension or alteration of the structure, the activity shall cease insofar as it may affect the archaeological site or waahi tapu and the Waikato Regional Council shall be notified as soon as practicable. The activity shall not be recommenced without the approval of the Waikato Regional Council.

k) Any erosion occurring as a result of the activity shall be remedied as soon as practicable.

**Advisory Notes:**

- Soil disturbance activities and the discharge of contaminants into or onto land within 20 metres of any significant geothermal feature is a discretionary activity under Rules 7.6.6.1 to 7.6.6.3. Significant Geothermal Features are defined in the Glossary, and in Development and Limited Development Geothermal Systems, identified on maps in Section 7.10 of this Plan.
- Land use consents for filling operations may also be required by district plans. These will address issues such as amenity effects, traffic, noise, protection of identified areas of significant indigenous vegetation[52] and outstanding landscapes and future uses of the site. The thresholds at which resource consents are required vary within each territorial authority area.

### 5.2.5.8 Controlled Activity Rule – Discharge of Large Volumes of Sediment and Vegetation From Within or Surrounding Lawfully Established Structures or Artificial Watercourses

The discharge of sediment and vegetation onto or into land and any subsequent discharge to air or water where the material is derived from the:

1. clearing of debris and bed material from within or surrounding a lawfully established structure or artificial watercourse
2. maintenance of channels in drainage districts and river control scheme areas that are managed by the Waikato Regional Council or territorial authorities
3. clearance of floating vegetation trapped from behind dams and intake structures

is a **controlled activity** (requiring resource consent) subject to the following standards and terms:

a) The discharge must occur outside of:
   i) A high risk erosion area
   ii) A floodplain of a river
   iii) The catchment of, or within 10 metres of, whichever is the lesser, a sink hole or cave entrance
   iv) Any wetland that is an area of significant indigenous vegetation and/or significant habitat of indigenous fauna[53]
   v) A significant geothermal feature

b) The activity shall not cause any increase in flooding on neighbouring properties

c) Any discharge to air arising from the activity shall comply with the conditions and standards and terms in Section 6.1.8

d) The activity shall not disturb any archaeological site or waahi tapu as identified at the date of notification of this Plan, in any district plan, in the NZ Archaeological

[52] Refer to Appendix 3 of the RPS.
[53] Refer to Appendix 3 of the Waikato RPS

Association's Site Recording Scheme or by the Historic Places Trust except where Historic Places Trust Approval has been obtained.

e) In the event or any waahi tapu that is not subject to condition d) being identified while undertaking the use, erection, reconstruction, placement, extension or alteration of the structure, the activity shall cease insofar as it may affect the archaeological site or waahi tapu and the Waikato Regional Council shall be notified as soon as practicable. The activity shall not be recommenced without the approval of the Waikato Regional Council.

Waikato Regional Council reserves control over the following matters:

i) Measures required to avoid, remedy or mitigate adverse effects on water quality.
ii) Effects on any waahi tapu or other taonga from the activity.
iii) Effects on the relationship of tangata whenua and their culture and traditions with the site and any waahi tapu or other taonga affected by the activity.
iv) Effects on the ability of tangata whenua to exercise their kaitiaki role in respect of any waahi tapu or other taonga affected by the activity.
v) Measures to avoid, remedy or mitigate adverse effects on aquatic habitat.
vi) Measures to avoid, remedy or mitigate adverse effects on neighbouring properties.
vii) Measures (including rehabilitation and revegetation if necessary) to ensure that the site is maintained in a manner so as to ensure its long term stability.
viii) Measures to manage the effects of contaminants such as heavy metals, mineral salts, hazardous substances or pathogens on the long term health of the soil resource and on the existing and the range of foreseeable uses of the soil resource.

**Advisory Notes**

- Soil disturbance activities and the discharge of contaminants into or onto land within 20 metres of any significant geothermal feature is a discretionary activity under Rules 7.6.6.1 to 7.6.6.3. Significant Geothermal Features are defined in the Glossary, and in Development and Limited Development Geothermal Systems, identified on maps in Section 7.10 of this Plan.
- Land use consents for filling operations may also be required by district plans. These will address issues such as amenity effects, traffic, noise, protection of identified areas of significant indigenous vegetation[54] and outstanding landscapes and future uses of the site. The thresholds at which resource consents are required vary within each territorial authority area.
- If the activity does not comply with this Rule it is a discretionary activity under Rule 3.5.4.5.
- Information requirements to enable assessment of any application under this rule are set out in Section 8.1.4.3. In addition assessment shall also take into account the matters identified in Policy 2 of Chapter 5.2.

### Explanation and Principal Reasons for Adopting Methods 5.2.5.1 to 5.2.5.8

The distinction between soil disturbance activities managed in Section 5.1.4 and the activities managed in this section is very important. The activities covered here are not soil disturbance activities or land contouring activities where soil is moved over a property or area to create an even grade. The activities covered by these rules occur at specific sites where large quantities of cleanfill or overburden generated as by-products or wastes from construction, mining and in some instances road building activities are discharged onto land. These activities can have adverse effects on surface and ground water quality, flooding, land instability or air quality through dust emissions.

**Rules 5.2.5.1, 5.2.5.2** and **5.2.5.3** identify that in most locations overburden disposal will present only a minimal risk of adverse effects. The risks of adverse effects from

[54] Refer to Appendix 3 of the RPS.

overburden disposal operations will be greatest where the site is located in a high risk erosion area, floodplain or near sensitive features, such as wetlands or cave systems. In high risk erosion areas and floodplains of rivers, placement of fill may increase the risk of accelerated erosion and potentially exacerbate natural hazard events such as land instability or flooding.

Condition c) of Rule 5.2.5.1 identifies that some rock types in the Waikato Region have the potential to cause acid drainage (e.g. the Tui Mine). The risks of acid drainage are such that the disposal of any material with this potential is not a permitted activity.

**Rules 5.2.5.4** and **5.2.5.5** indicate that disposal operations need to exercise quality control procedures that would ensure that only cleanfill was being deposited on site, only a resource consent can ensure that this is achieved. The controlled activity rule provides for monitoring and enforcement by Waikato Regional Council to maintain control over the nature of the material being deposited.

**Rules 5.2.5.5** and **5.2.5.6** acknowledge that larger scale cleanfill operations, even outside high risk areas, represent an unacceptable level of risk due to the lack of acceptance criteria at most cleanfill sites. The number of vehicles using larger cleanfill sites make it much harder for operators to ensure that only cleanfill enters the site. There are cleanfills in the Region where potentially hazardous waste has been dumped due to lack of acceptance criteria. The resource consent process is necessary to ensure that waste acceptance criteria are closely adhered to.

**Rules 5.2.5.7** and **5.2.5.8** enable activities that are necessary to ensure that the Region's hydro-electricity power and flood control infrastructure are maintained. The disposal of weed and sediment removed from waterways associated with these structures during maintenance processes is an essential activity that must occur if we are to provide for the social, cultural and economic wellbeing of our communities. However, because of the nature of contaminants involved and the potential scale of these activities some degree of regulation is essential to ensure that risks to the environment are adequately avoided, remedied or mitigated. The rules provide an opportunity for the community to ensure that these activities do not have adverse effects that are inconsistent with the objectives and policies of this Plan and the Regional Policy Statement.

## 5.2.6 Implementation Methods – Dumps* and Offal* Holes on Production Land

### 5.2.6.1 Permitted Activity Rule – Dumps on Production Land

The discharge of solid waste into or onto land as part of the operation of a dump on production land where the contaminants are sourced only from the property on which the dump occurs, and where the dump site is outside of:

1. The catchment of, or within 10 metres of, whichever is the lesser, a sink hole* or cave entrance
2. A floodplain of a river
3. Any wetlands[55] that are areas of significant indigenous vegetation and/or significant habitats of indigenous fauna
4. A significant geothermal feature

is a **permitted activity** subject to the following conditions:

a) The waste shall not contain:
   i) hazardous substances*, including residues in empty agrichemical, detergent and oil containers

[55] Refer to Appendix 3 of the RPS.

ii) sewage, offal or animal carcasses.

b) No contaminants from the dump on production land shall be discharged into water.

c) The activity shall not disturb any archaeological site or waahi tapu as identified at the date of notification of this Plan (28 September 1998), in any district plan, in the NZ Archaeological Association's Site Recording Scheme, or by the Historic Places Trust except where Historic Places Trust approval has been obtained.

d) In the event of any waahi tapu that is not subject to condition c) being identified by the Waikato Regional Council to the person undertaking the activity, the activity shall cease insofar as it may affect the waahi tapu. The activity shall not be recommenced without approval of the Waikato Regional Council.

**Advisory Notes:**

- Guidance on suitable locations for dumps on production land is provided in Section 5.2.12.
- Where the dump on production land receives waste from more than one property, it is subject to the rules for landfills in Section 5.2.7.
- Land use consents for dumps on production land may also be required by district plans. These will address issues such as amenity effects, noise, protection of identified areas of significant indigenous vegetation[56] and outstanding landscapes and future uses of the site. The thresholds at which resource consents are required vary within each territorial authority area.
- Discharges of contaminants into land that affect Significant Geothermal Features are addressed in Rules 7.6.6.1 to 7.6.6.3. Significant Geothermal Features are defined in the Glossary, and in Development and Limited Development Geothermal Systems, identified on maps in Section 7.10 of this Plan.
- Where a waahi tapu site is identified whilst undertaking the activity, the process that Waikato Regional Council will follow in order to implement condition d) is set out in Section 2.3.4.22 of this Plan.

### 5.2.6.2 Permitted Activity Rule – Offal Holes on Production Land

The discharge of contaminants into or onto land as part of the operation of an offal hole on production land where the contaminants are sourced from the property on which the offal hole is sited and any subsequent discharge to air that does not comply with Rule 5.2.6.1 when occurring outside of:

1. The catchment of, or within 10 metres of, whichever is the lesser, a sink hole* or cave entrance
2. A floodplain of a river
3. Any wetlands[57] that are areas of significant indigenous vegetation and/or significant habitats of indigenous fauna
4. A significant geothermal feature

is a **permitted activity** subject to the following conditions:

a) Only dead animal matter and perishable household waste shall be disposed of into the offal hole.

b) The waste shall not contain:

i) hazardous substances or material contaminated by hazardous substances (including residues in empty agrichemical, detergent and oil containers)

ii) sewage.

c) The lowest point of the offal hole shall be at least one metre above the level of the seasonally shallowest water table.

d) Where the offal hole was in use prior to this Plan becoming operative and the lowest point of the offal hole was less than one metre above the seasonally shallowest water table, there must be no discharge of contaminants to water.

[56] Refer to Appendix 3 of the RPS.
[57] Refer to Appendix 3 of the RPS.

e) The offal hole shall be covered to prevent surface water from entering the offal hole and prevent pests from gaining access to the waste.
f) The activity shall not disturb any archaeological site or waahi tapu as identified at the date of notification of this Plan (28 September 1998), in any district plan, in the NZ Archaeological Association's Site Recording Scheme, or by the Historic Places Trust except where Historic Places Trust approval has been obtained.
g) In the event of any waahi tapu that is not subject to condition f) being identified by the Waikato Regional Council to the person undertaking the activity, the activity shall cease insofar as it may affect the waahi tapu. The activity shall not be recommenced without approval of the Waikato Regional Council.
h) There are no objectionable effects as a result of odour beyond the property boundary.
i) The offal hole shall not be within 100 metres of any water supply bore or water body.

**Advisory Notes:**

- Guidance on good practice for the suitable location of offal holes is provided in Section 5.2.12.
- Where the offal hole, on production land, receives waste from more than one property, it is subject to the rules for landfills in Section 5.2.7.
- Land use consents for offal holes may also be required by district plans. These will address issues such as amenity effects, noise, protection of identified areas of significant indigenous vegetation[58] and outstanding landscapes and future uses of the site. The thresholds at which resource consents are required vary within each territorial authority area.
- Discharges of contaminants into land that affect Significant Geothermal Features are addressed in Rules 7.6.6.1 to 7.6.6.3. Significant Geothermal Features are defined in the Glossary, and in Development and Limited Development Geothermal Systems, identified on maps in Section 7.10 of this Plan.
- Where a waahi tapu site is identified whilst undertaking the activity, the process that Waikato Regional Council will follow in order to implement condition g) is set out in Section 2.3.4.22 of this Plan.

### 5.2.6.3 Controlled Activity Rule – Offal Holes in Area of Shallow Ground Water

Except as authorised by Rule 5.2.6.2, the discharge of contaminants into or onto land as part of the operation of an offal hole on production land where the contaminants are sourced from the property on which the offal hole is sited and any subsequent discharge to air is a **controlled activity** (requiring resource consent) subject to the following standards and terms:

a) Only dead animal matter and perishable household waste shall be disposed of into the offal hole.
b) The waste shall not contain:
   i) hazardous substances or material contaminated by hazardous substances (including residues in empty agrichemical, detergent and oil containers)
   ii) sewage.
c) The offal hole shall be covered to prevent surface water from entering the offal hole and prevent pests from gaining access to the waste.
d) The offal hole shall not affect a significant geothermal feature.
e) There are no objectionable effects as a result of odour beyond the property boundary.

Waikato Regional Council reserves control over the following matters:

i. Measures to be adopted to avoid any discharge of contaminants into water.
ii. The location of the offal hole. (including proximity to bores that take water for human consumption).
iii. Effects on any waahi tapu or other taonga from the activity.

[58] Refer to Appendix 3 of the RPS.

iv. Effects on the relationship of tangata whenua and their culture and traditions with the site and any waahi tapu or other taonga affected by the activity.
v. Effects on the ability of tangata whenua to exercise their kaitiaki role in respect of any waahi tapu or other taonga affected by the activity.

**Notification:**

Application for resource consents for activities under this Rule will be considered without notification or the need to obtain written approval of affected persons, in accordance with s94(1)(b) of the RMA.

**Advisory Notes:**

- Where the offal hole, on production land, receives waste from more than one property, it is subject to the rules for landfills in Section 5.2.7.
- Land use consents for offal holes may also be required by district plans. These will address issues such as amenity effects, noise, protection or identified areas of significant indigenous vegetation[59] and outstanding landscapes and future uses of the site. The thresholds at which resource consents are required vary within each territorial authority area.
- Discharges of contaminants into land that affect Significant Geothermal Features are addressed in Rules 7.6.6.1 to 7.6.6.3. Significant Geothermal Features are defined in the Glossary, and in Development and Limited Development Geothermal Systems, identified on maps in Section 7.10 of this Plan.
- The imposition of consent conditions under matters iii), iv) and v) shall take into account the policy direction provided in Policies 1 and 2 in Section 2.3.3 in addition to specific policies in this Chapter of the Plan.

### 5.2.6.4 Discretionary Activity Rule – Other Dumps and Offal Holes on Production Land

The discharge of any liquid or solid waste into or onto land and any subsequent discharge of contaminants to water or air during the operation of a dump or offal hole on production land where:

1. the contaminants are sourced only from the property on which the dump or offal hole occurs
2. the activity does not comply with Rules 5.2.6.1, 5.2.6.2 and 5.2.6.3
3. the activity is addressed by Rules 7.2.6.1 and 7.2.6.2;

is a **discretionary activity** (requiring resource consent).

**Advisory Notes:**

- Information requirements to enable the assessment of any application under this rule are as set out in Section 8.1.4.4. In addition assessment shall also take into account the matters identified in Policy 2 of Chapter 5.2.
- Land use consents for dumps and offal holes on production land may also be required by district plans. These will address issues such as amenity effects, noise, protection of identified areas of significant indigenous vegetation[60] and outstanding landscapes and future uses of the site. The thresholds at which resource consents are required vary within each territorial authority area.
- Discharges of contaminants into land that affect Significant Geothermal Features are addressed in Rules 7.6.6.1 to 7.6.6.3. Significant Geothermal Features are defined in the Glossary, and in Development and Limited Development Geothermal Systems, identified on maps in Section 7.10 of this Plan.

**Explanation and Principal Reasons for Adopting Methods 5.2.6.1 to 5.2.6.4**

Waikato Regional Council recognises that properly managed and sited small-scale rural dumps and offal holes will not have significant adverse environmental effects. **Rules 5.2.6.1** and **5.2.6.2** implement Policy 1 by establishing a permitted activity rule

[59] Refer to Appendix 3 of the RPS.
[60] Refer to Appendix 3 of the RPS.

for dumps and offal holes on production land. A well-sited and managed dump or offal hole for disposal of waste generated on production land is unlikely to have adverse effects such as damage to aquatic ecosystems from leachate discharges to water.

**Rule 5.2.6.3** is necessary to provide for existing offal holes in areas of high ground water that would otherwise be a discretionary activity. **Rules 5.2.6.3** and **5.2.6.4** recognise that even if a dump or offal hole does not comply with the conditions in the permitted activity rules, it may still be able to occur. However, resource consents will be required to ensure that the potential adverse effects associated with these facilities are well managed.

## 5.2.7 Implementation Methods – Landfills

### 5.2.7.1 Discretionary Activity Rule – New and Currently Operating Landfills

The discharge of contaminants into or onto land, and any subsequent discharge of contaminants into water or air (excluding discharges to air permitted by Rule 6.1.13.1) as part of the operation of a landfill is a **discretionary activity** (requiring resource consent).

**Advisory Notes:**

- Information requirements to enable the assessment of any application under this Rule are as set out in Section 8.1.4.5. In addition assessment shall take into account the matters identified in Policy 2 of Chapter 5.2.
- Small scale discharges of biogas to air are permitted by Section 6.1.13.1.
- Some landfills may also require resource consents for damming and diverting which is covered in Chapter 3.6.
- Land use consents may also be required by district plans. These will address such issues as public health, traffic flows protection of identified areas of significant indigenous vegetation[61] and outstanding landscapes and other land use related effects.

### 5.2.7.2 Controlled Activity Rule – Closed Municipal Solid Waste Landfills

The discharge of contaminants from any closed municipal solid waste landfill;

1. Into or onto land in circumstances which may result in contaminants entering water; or
2. Into water; or
3. Into air (excluding discharges to air permitted by Section 6.1.14.1)

where those discharges are not authorised by a current resource consent with conditions relating to the management of those discharges that continue to occur after closure is a **controlled activity** (requiring resource consents) subject to the following standards and terms:

a) The landfill must not be located within:
   i) A high risk erosion area
   ii) The floodplain of a river
   iii) A wetland that is an area of significant indigenous vegetation and/or significant habitat for indigenous fauna[62]
   iv) 100 metres of the Coastal Marine Area

b) The final capping layer is topsoiled and planted with vegetation that will maintain groundcover as far as practicable and whose roots will not intrude into the refuse in the landfill; and

c) Landfill gas shall not be detectable below ground level or in buildings or infrastructure such as pipelines or drains beyond the property boundary.

Waikato Regional Council reserves control over the following matters:

[61] Refer to Appendix 3 of the RPS.
[62] Refer to Appendix 3 of the RPS.

i) Ongoing site management and monitoring
ii) Measures to avoid, remedy or mitigate adverse effects arising from the discharge of contaminants from the site to air, water and to land where they may subsequently enter water or air
iii) Measures to avoid, remedy or mitigate adverse effects arising from saltwater, freshwater or groundwater intrusion or inundation
iv) Measures to manage stormwater flows at the site
v) Measures to manage adverse effects of landfill gas
vi) The use and management of the site after closure, especially any activities that may cause or exacerbate discharges
vii) The contents of an Aftercare and Monitoring Plan and measures to ensure that such a plan is complied with
viii) Contingency plans to ensure that potential adverse effects arising from natural hazards (including flooding, land instability and earthquakes) are able to be prevented or mitigated
ix) Measures to avoid, remedy or mitigate adverse effects on significant indigenous vegetation, significant habitats of indigenous fauna[63] and significant natural features such as cave and karst systems
x) Effects on any waahi tapu or other taonga from the activity
xi) Effects on the relationship of tangata whenua and their culture and traditions with the site and any waahi tapu or other taonga affected by the activity
xii) Effects on the ability of tangata whenua to exercise their kaitiaki role in respect of any waahi tapu or other taonga affected by the activity.

**Advisory Notes:**

- Closed landfills that do not comply with the standards and terms of this Rule or are not municipal solid waste landfills are discretionary activities under Rule 5.2.7.3.
- These standards and terms should be prepared generally in accordance with 'A Guide to the Management of Closing and Closed Landfills in New Zealand', Ministry for the Environment, May 2001.
- Information requirements to enable assessment of any application under this Rule are set out in Section 8.1.4.5 of the Plan. In addition assessment shall also take into account the matters identified in Policy 2 of Chapter 5.2.
- Small scale discharges of biogas to air are permitted by Section 6.1.14.1.
- Some landfills may also require consents for damming and diverting which are covered by rules in Chapter 3.6.

### 5.2.7.3 Discretionary Activity Rule – Closed Landfills

Except as provided for by Rule 5.2.7.2, the discharge of contaminants from any closed landfill:

1. Into or onto land in circumstances which may result in contaminants entering water; or
2. Into water; or
3. Into air (excluding discharges to air permitted by Section 6.1.14.1)

from a closed landfill that does not have a current resource consent with conditions relating to the management of those discharges that continue to occur after closure, is a **discretionary activity** (requiring resource consent).

**Advisory Notes:**

- Information requirements to enable the assessment of any application under this Rule are as set out in Section 8.1.4.6. In addition assessment shall take into account the matters identified in Policy 2 of Chapter 5.2.
- Small scale discharges of biogas to air are permitted by Section 6.1.13.1.

[63] Refer to Appendix 3 of the RPS.

- Land use consents may also be required by district plans addressing matters such as public health issues, traffic flows protection of identified areas of significant indigenous vegetation[64] and outstanding landscapes and other land use related effects.

**Explanation and Principal Reasons for Adopting Methods 5.2.7.1 to 5.2.7.3**

Landfills that receive either solid waste or waste from industrial and trade premises present a significant risk of generating adverse environmental effects. These facilities must therefore be assessed on a case-by-case basis. This is recognised in **Rule 5.2.7.1**.

In some instances, landfills have closed without obtaining resource consents related to ongoing off-site discharges that continue after closure. **Rule 5.2.7.3** acknowledges this and gives a clear indication that where discharges of contaminants to land, air or water are occurring or are likely to occur at these sites, and the adverse environmental effects that are likely to be occurring at them, must be addressed through the resource consent process. If no discharges are occurring, the site will be managed as contaminated land under Chapter 5.3. Where appropriate, the consent conditions may allow reduced monitoring over time as the contaminant loadings in the discharge stabilise.

## 5.2.8 Implementation Methods – Composting of Green Waste* and Other Organic Materials

### 5.2.8.1 Permitted Activity Rule – Small Scale Composting

The discharge of contaminants onto or into land or air occurring as the result of the production of compost is a **permitted activity** subject to the following conditions:

a) The total volume of compost produced at the site does not exceed 20 cubic metres per annum.
b) The material to be composted shall not contain any hazardous substance or biosolids.
c) Leachate produced during the process of composting shall not be discharged into any water body.
d) Any discharge to air arising from the activity shall comply with the conditions and standards and terms in Section 6.1.8 except where the matters addressed in Section 6.1.8 are already addressed by conditions on resource consents for the site.
e) If the discharge is within the Lake Taupo catchment, the compost shall be sourced within the property it is discharged to.

**Advisory Notes:**

- Discharges of contaminants into land that affect Significant Geothermal Features are addressed in Rules 7.6.6.1 to 7.6.6.3. Significant Geothermal Features are defined in the Glossary, and in Development and Limited Development Geothermal Systems, identified on maps in Section 7.10 of this Plan.
- Land use consents may also be required for this activity under the relevant district plan. These consents will cover issues such as buffer zones, traffic, amenity values protection of identified areas of significant indigenous vegetation[65] and outstanding landscapes and noise.

### 5.2.8.2 Permitted Activity – Green Waste Composting

The discharge of contaminants onto or into land or air occurring as the result of the production of compost from green waste* at a landfill or Refuse Transfer Station

[64] Refer to Appendix 3 of the RPS.
[65] Refer to Appendix 3 of the RPS.

designated in an operative district plan is a **permitted activity** subject to the following conditions:

a) The maximum volume of green waste and compost being stored, processed or cured on the site at any one time is less than 1500 cubic metres of which
   i) no more than 500 cubic metres shall be actively composting at any one time
   ii) no more that 100 cubic metres shall be awaiting processing at any one time unless the green waste has been mixed with coarse or woody material and loosely windrowed to ensure the green waste remains aerobic in which case 500 $m^3$ can be stored

b) Where the composting activity is an existing lawfully established activity as at 1 July 2006, and has had no verified complaints of objectionable effects of odour or particulate matter that has resulted in successful enforcement action being taken since 1 July 2003, the site shall be 250 metres or more away from any building occupied by people on a regular basis, including houses, hostels, meeting places, schools and hospitals or places of work (other than places of work within the property where the composting is occurring).

c) Where the composting activity is a new activity, the site at which the activity occurs shall be 500 metres or more away from any building occupied by people on a regular basis, including houses, hostels, meeting places, schools and hospitals or places of work (other than places of work within the property where the composting is occurring).

d) Any discharge to air arising from the activity shall comply with the conditions and standards and terms in Section 6.1.8 except where the matters addressed in Section 6.1.8 are already addressed by conditions on resource consents for the site.

e) Leachate produced during the process of composting shall not be discharged into water unless separately authorised by a resource consent to do so.

f) Any material with a known potential to cause objectionable odours (e.g. partially composted grass clippings) must be covered before the end of the working day.

**Advisory Notes**

- The 1500 cubic metres volume includes all unshredded green waste, shredded green waste, composting material and composted material.
- Activities that comply in full with Appendix K of NZS4454:2005 Compost, Soil Conditioners and Mulches are likely to comply with the conditions of this Rule.
- Discharges of contaminants into land that affect Significant Geothermal Features are addressed in Rules 7.6.6.1 to 7.6.6.3. Significant Geothermal Features are defined in the Glossary, and in Development and Limited Development Geothermal Systems, identified on maps in Section 7.10 of this Plan.

### 5.2.8.3 Controlled Activity Rule – Existing and Large Scale Green Waste* Composting

The discharge of any contaminant onto or into land, water or air during the production of compost in a manner that does not comply with Rules 5.2.8.1 and 5.2.8.2 where:

1. The operation is a green waste composting operation
2. The composting operation is an existing activity at the time of notification of this Plan (28 September 1998)
3. Any change in the activity shall not increase the scale, frequency, intensity, nature or duration of the operation
4. The activity shall have no verified complaints of objectionable effects of odour or particulate matter that has resulted in successful enforcement action being taken in the two years prior to the consent application;

is a **controlled activity** (requiring resource consent) subject to the following standards and terms:

a) Leachate produced during the process of composting shall not be discharged into any water body unless separately authorised by a resource consent to do so.

b) The material to be composted must not contain or be derived from hazardous wastes or pathogenic wastes.

Waikato Regional Council reserves control over the following matters:

i. The means of controlling effects on air quality from objectionable odour or objectionable particulate matter.
ii. Measures to be adopted for stormwater control and leachate management.
iii. Measures for controlling the source and quality of material being composted.
iv. Effects on any waahi tapu or other taonga from the activity.
v. Effects on the relationship of tangata whenua and their culture and traditions with the site and any waahi tapu or other taonga affected by the activity.
vi. Effects on the ability of tangata whenua to exercise their kaitiaki role in respect of any waahi tapu or other taonga affected by the activity.
vii. Any contingency measures necessary to avoid, remedy or mitigate adverse effects associated with the failure to successfully dispose and/or sell composted product.
viii. Any measures necessary to rehabilitate the land following the completion of the activity.
ix. The need for buffer zones or other measures to avoid or mitigate the effects of discharges to air.

**Advisory Notes:**

- Discharges of contaminants into land that affect Significant Geothermal Features are addressed in Rules 7.6.6.1 to 7.6.6.3. Significant Geothermal Features are defined in the Glossary, and in Development and Limited Development Geothermal Systems, identified on maps in Section 7.10 of this Plan.
- Land use consents may also be required for this activity under the relevant district plan. These consents will cover issues such as buffer zones, traffic, amenity values, protection of identified areas of significant indigenous vegetation[66] and outstanding landscapes and noise.
- The imposition of consent conditions under matters iv), v) and vi) shall take into account the policy direction provided in Policies 1 and 2 in Sections 2.3.3 in addition to specific policies in this Chapter of the Plan.

### 5.2.8.4 Discretionary Activity Rule – Other Composting Operations

Any discharge of contaminants onto or into land, water or air associated with the composting of organic waste that does not comply with Rules 5.2.8.1, 5.2.8.2 or 5.2.8.3 is a **discretionary activity** (requiring resource consent).

**Advisory Notes:**

- Information requirements to enable the assessment of any application under this Rule are as set out in Section 8.1.4.7. In addition assessment shall also take into account the matters identified in Policy 2 of Chapter 5.2.
- Land use consents may also be required for this activity under the relevant district plan. These consents will cover issues such as buffer zones, traffic, amenity values, protection of identified areas of significant indigenous vegetation and outstanding landscapes and noise.
- Soil disturbance activities and the discharge of contaminants into or onto land within 20 metres of any Significant Geothermal Feature is a discretionary activity under Rules 7.6.6.1 to 7.6.6.3. Significant Geothermal Features are defined in the Glossary, and in Development and Limited Development Geothermal Systems, identified on maps in Section 7.10 of this Plan.

### Explanation and Principal Reasons for Adopting Methods 5.2.8.1 to 5.2.8.4

The composting of green waste is an activity that Waikato Regional Council wishes to encourage in accordance with Policy 1 of this Chapter. Significant quantities of green waste are produced in the Region each year. Much of this waste is disposed of in

[66] Refer to Appendix 3 of the RPS.

landfills or dumps where its decomposition contributes to the generation of landfill gases and leachate. However, green waste represents a potential resource if it is composted and recycled as a soil conditioner.

**Rule 5.2.8.1** permits small scale composting, such as on an orchard or farm. Even at this small scale, if many landowners import organic material into the Lake Taupo catchment, nutrient effects with respect to the Lake may be unacceptable. For this reason the rule applies outside the Lake Taupo catchment, or within the catchment if the compost is sourced from the property it is discharged to. **Rule 5.2.8.2** permits relatively small scale composting operations typically established at designated waste disposal sites and transfer stations. Because these operations only receive green waste and are generally in relatively isolated locations there is little risk of objectionable effects of odour arising. The Rule effectively provides for existing operations that have not been subject to successful enforcement action to continue without the need for resource consents, and provides for new operations to be established provided buffer zones are sufficient.

Larger composting operations involving more windrows become much more complicated to operate with much more attention required to the temperature, moisture content, raw material, inputs, leachate control and odour management at the site. Such larger sites are also generally operating as industrial or trade premises, receiving waste from a range of sources which further complicates management of the site. Considerable technical expertise is required at this scale of operation and the risks of non-compliance with the conditions are sufficiently high that a resource consent should be required. Green waste composting which enables composting activities that present a lower risk of generating odour due to their scale is enabled by a controlled activity **(Rule 5.2.8.3)**. This activity generally presents low risks of objectionable effects of odour, compared with operations that compost biosolids, manure or food waste. However, due to the risks a resource consent is still required. Existing composting operations that have no record of complaints have also been enabled in this Rule as a recognition of good practice.

**Rule 5.2.8.4** identifies that composting other organic wastes or composting green waste in a manner that does not comply with the other rules is a discretionary activity. Past experience shows that these activities present a greater risk of generating objectionable odour than green waste composting. The matters over which control has been reserved in the controlled activity rule do not give Waikato Regional Council sufficient confidence that the effects of these activities can always be adequately managed. This Rule provides for composting of other materials such as sewage sludges or substrate for mushroom cultivation on a case-by-case basis.

## 5.2.9 Implementation Methods – Dust Suppression

### 5.2.9.1 Permitted Activity Rule – Use of Dust Suppressants

The discharge of contaminants (excluding waste oil*) onto or into land for the purpose of dust suppression is a **permitted activity** subject to the following conditions:

a) If the dust suppressant is a hazardous substance of if the water or dust suppressant contains hazardous substances it shall be licensed for use as a dust suppressant under the provisions of the Hazardous Substances and New Organisms Act (1996).
b) The contaminants shall not be applied at a rate or in weather conditions that result in ponding or surface run-off of contaminants into surface water.
c) Any discharge to air arising from the activity shall comply with the conditions and standards and terms in Section 6.1.8 except where the matters addressed in Section 6.1.8 are already addressed by conditions on resource consents for the site.

### 5.2.9.2 Non-Complying Activity Rule – Waste Oil and Other Dust Suppressants

The discharge onto or into land of waste oil or other substances that does not comply with Rule 5.2.9.1 is a **non-complying activity** (requiring resource consent).

**Advisory Notes:**

- Information requirements to enable the assessment of any application under this Rule are as set out in Section 8.1.4.8. In addition, assessment shall also take into account the matters identified in Policy 2 of Chapter 5.2.
- For the avoidance of doubt this Rule shall not apply to tar-seal or other permanent road surfacing materials.

**Explanation and Principal Reason for Adopting Methods 5.2.9.1 and 5.2.9.2**

Every year Waikato Regional Council receives enquiries as to whether the use of waste oil as a dust suppressant is a permitted activity. Approximately 30 million litres of waste oil is generated in New Zealand every year[67]. Of this only seven million litres per annum is currently recycled or disposed of in an environmentally responsible manner. The rest is disposed of through the following means:

a) Dumping in landfills.
b) Low temperature burning.
c) Application to roads for dust control.
d) Oiling chainsaws/staining fences.
e) Other unspecified methods.

The disposal of waste oil in landfills is addressed in Rule 5.2.7.1. The low temperature incineration of waste oil is addressed in Rule 6.1.12.3. The use of waste oil for oiling chainsaws or staining fences does not present significant environmental risks compared to the widespread application of waste oil for dust suppression. These uses are therefore not addressed specifically by this Plan. The non-regulatory measures provided in Method 5.2.4.2 encourage the safe disposal of waste oil and the use of alternative products and techniques for dust suppression. However, non-regulatory methods do not provide sufficient clarity for resource users as to the status of the activity of dust suppression.

**Rule 5.2.9.1** permits the discharge of alternative, lower hazard dust control products. This Rule encourages resource users to shift to less hazardous alternative methods of dust suppression. The Rule allows the discharge of non-hazardous substances and hazardous substances licensed specifically for use as dust suppressants so long as they are not applied at a rate or in weather conditions that might lead to surface run-off and subsequent discharges to water.

**Rule 5.2.9.2** provides a clear signal that the use of waste oil as a dust suppressant, along with other substances that cannot comply with the conditions in the permitted activity rule is inconsistent with the objectives and policies.

## 5.2.10 Environmental Results Anticipated

1. A decline in the number of contaminated sites created each year.
2. An increase in the number and use of refuse transfer stations in rural areas and hazardous waste collection depots.
3. Solid waste on farms managed in a way that avoids adverse effects.
4. A reduction in the proportion of green waste in municipal solid waste streams going to landfill.
5. Increased rates of waste oil recycling/recovery through the oil industry waste oil collection programme and territorial authority collection systems.

[67] Ministry for the Environment and Opus Consultants. 1997: *Environmental Effects of Used Oil Application to Roads for the Suppression of Dust*. Ministry for the Environment, Wellington.

## 5.2.11 Monitoring Options

| Objective | Indicators/ Measurements | Types of Monitoring | Information Source |
|---|---|---|---|
| Discharges of wastes and hazardous substances onto or into land that: does not contaminate soil to levels that present significant risks to human health or the wider environment. | Number of confirmed contaminated sites created per annum since 1998.<br>Presence of specific contaminants of concern such as dioxin in the environment. | Compliance and effects monitoring.<br>Regional trend monitoring.<br>External databases. | Database of Selected Land Use Sites or Register of Contaminated Sites.<br>Incidents, spills and accidents.<br>Air quality database.<br>Water quality database.<br>National Drinking Water Programme. |
| Discharges of wastes and hazardous substances onto or into land undertaken in a manner that does not have adverse effects on aquatic habitats, surface water quality or ground water quality that are inconsistent with the Water Management Objectives in Section 3.1.2 | See section 3.2.7<br>Metals in Waikato River.<br>Trends in contaminant discharges from point and non-point sources. | See section 3.2.7.<br>Waikato river monitoring programme.<br>Regional trend monitoring. | See section 3.2.7.<br>Water quality database.<br>Compliance monitoring database.<br>Resource consents database. |
| Discharges of wastes and hazardous substances onto or into land undertaken in a manner that does not have adverse effects related to particulate matter, odour or hazardous substances that are inconsistent with the Air Quality Objectives in Section 6.1.3. | Sections 6.1.22. | Sections 6.1.22. | Sections 6.1.22. |
| Discharges of wastes and hazardous substances onto or into land undertaken in a manner that is not inconsistent with the objectives in Section 5.1.2. | As for Chapter 5.1 Land cover, sediment levels in water bodies.<br>Land cover, extent frequency of slips/floods.<br>Develop and update indicator on coastal developments at risk on ocean beaches.<br>Develop and update indicator on beach erosion.<br>Land use. Land use relative to land capability.<br>Soil quality monitoring. | Regional trend monitoring, compliance and effects monitoring. Regional trend monitoring, compliance and effects monitoring.<br>Regional trend monitoring.<br>Compliance and effects monitoring, soil quality monitoring. | Land use/cover database. Vegetation and wetlands database.<br>Resource consents database. Compliance monitoring database.<br>Care group databases.<br>Coastal database. Resource consents database. Compliance monitoring database. Incidents, spills and accidents.<br>Land use/cover database.<br>Vegetation and wetlands database. Central government databases. |

| Objective | Indicators/ Measurements | Types of Monitoring | Information Source |
|---|---|---|---|
| Avoids significant adverse effects on the relationship that tangata whenua as Kaitiaki have with their identified taonga such as ancestral lands, water and waahi tapu. | Land use, attitudes to protection of sites. | Regional trend monitoring.<br>Community monitoring, surveys. | Perception survey database.<br>Iwi/Maori databases.<br>Resource consents databases.<br>Compliance monitoring database.<br>Central government databases. |
| Remedies or mitigates cumulative adverse effects on the relationship that tangata whenua as Kaitiaki have with their identified taonga such as ancestral lands, water and waahi tapu. | Land use, attitudes to protection of sites. | Regional trend monitoring.<br>Community monitoring, surveys. | Perception survey database.<br>Iwi/Maori databases.<br>Resource consents databases.<br>Compliance monitoring database.<br>Central government databases. |

## 5.2.12 Good Practice Guide on Location of Dumps and Offal Holes on Production Land

The following good practice guide provides some initial guidance on the best locations for dumps and offal holes on production land. It should be read with the rules in Section 5.2.6.

a) To prevent or minimise the risk of adverse effects associated with dumps and offal holes on production land such facilities shall not be located within:
   i) 100 metres of any water supply bore, water body or area identified by a district plan as being a significant habitat of indigenous flora and fauna[68].
   ii) A coastal sand dune system or within 100 metres of the coastal marine area.
   iii) 10 metres of a cave entrance or stream sink.
   iv) 20 metres of a significant geothermal feature.
   v) 50 metres of a property boundary.
   vi) 300 metres from a marae, residential zone, hall or a public reserve.
   vii) High risk erosion areas.
   viii) Floodplains of rivers or streams.
   ix) Any wetland area.

b) In soils where water tables are very close to the surface, consideration should be given to composting of offal material or the use of commercial animal carcass collection services as an alternative waste disposal means.

c) Under no circumstances should the base of the disposal area come into contact with the ground water table.

d) When offal holes or dumps are closed, their location should be clearly identified so that future users or owners of the farm do not accidentally disturb the site.

e) Offal holes should be covered with an impermeable concrete or metal manhole cover which is in kept place whenever the offal hole is not in use.

[68] Refer to Appendix 3 of the RPS.

# 5.3 Contaminated Land*

### Background and Explanation

Historical records show hazardous substances that may contaminate soils have probably been used, stored or disposed of at over 3,300 locations throughout the Region. This figure excludes sites that may have been contaminated as a result of the use of production land (e.g. sheep dip sites or elevated levels of pesticides in soils at orchards) and sites where hazardous wastes have been disposed of illegally.

Only 191 of these 3,300 sites have been investigated, and an even smaller number of these have been remediated or actively managed to minimise risk to site users, the community and the wider environment. Specific examples of prominent contaminated sites that have had significant adverse effects within the Region include the:

a) Waikato Carbonisation Plant at Rotowaro
b) Tui Mine above Te Aroha
c) Hamilton Timber Treatment
d) Hamilton Gasworks Site.

Contaminated land is not always a large industrial site. Contamination of ground water with petroleum products, mainly from leaking underground fuel storage tanks, is a problem in the United States and Europe and is increasingly being recognised as a threat in New Zealand. A number of underground fuel storage tanks in the Waikato Region have leaked, contaminating soil and both surface and ground water.

Where remediation has occurred[69] it has generally been to levels that national or international guidelines identify as being safe for the current or proposed land use or for specified uses of water (e.g. livestock watering purposes but not potable use).

This Chapter focuses on contaminated land, especially those sites that have not yet been investigated or remediated. Chapter 5.2 addresses the risk that future discharges of contaminants onto or into land may contaminate soils.

### Functions for the Management of Contaminated Land

Territorial authorities are responsible for controlling land use on contaminated land. This means that Waikato Regional Council must develop objectives, policies and methods for managing both passive and active discharges from contaminated land. Territorial authorities will need to consider, in terms of district plans and building consents, the suitability of some sites for a range of activities given the degree and effects of soil contamination on the site.

Other organisations such as the Ministry of Health (under the Health Act 1956) and the Department of Labour (under the Health and Safety in Employment Act 1992) also have functions that relate to the management of contaminated land. These functions are, however, very limited in their scope.

This Chapter provides clarity as to how Waikato Regional Council will respond to issues associated with discharges from contaminated land. By defining Waikato Regional Council's response to the issue, other agencies may also be better placed to develop their own responses to the issues.

[69] For instance the Waikato Carbonisation Plant at Rotowaro or the Hamilton Gasworks.

## 5.3.1 Issue

**The discharge of contaminants from contaminated land can cause the following adverse effects:**

**a) acute toxic effects on human health through ingestion of contaminated material or inhalation of volatile chemicals and particulate matter**
**b) bioaccumulation of contaminants in flora, fauna and humans, causing chronic health effects**
**c) degradation of water quality and aquatic ecosystems**
**d) objectionable levels of odour**
**e) adverse effects on the relationship that tangata whenua as Kaitiaki have with their taonga such as ancestral lands, water and waahi tapu.**

## 5.3.2 Objective

Discharges of contaminants from contaminated land shall be managed so that they:

a) do not present significant risk[70] of chronic or acute toxic effects on human health, flora or fauna due to the contamination of soil and ground or surface water
b) do not have adverse effects on water quality or aquatic ecosystems that are inconsistent with the water management objectives in Section 3.1.2
c) there are no adverse effects on air quality that are inconsistent with air quality objectives in Section 6.1.2
d) avoid significant adverse effects on the relationship that tangata whenua as Kaitiaki have with their identified taonga such as ancestral lands, water and waahi tapu
e) remedy or mitigate cumulative adverse effects on the relationship that tangata whenua as Kaitiaki have with their identified taonga such as ancestral lands, water and waahi tapu.

**Principal Reasons for Adopting the Objective**

Waikato Regional Council is responsible for ensuring that the adverse effects of discharges from contaminated land are managed. **Objective 5.3.2** has focused Waikato Regional Council on managing the significant risks of adverse effects rather than focusing only on the immediate effects.

Part a) therefore identifies that discharges from contaminated land should not present significant risks of adverse effects on human health, flora or fauna.

Parts b) and c) provide for integrated management of the issues associated with contaminated land by cross-referencing directly to the relevant water and air management objectives in Chapters 3.1 and 6.1.

Parts d) and e) acknowledge the relationship that tangata whenua as Kaitiaki have with the land. When managing contaminated land, care must be taken to ensure that this relationship is not damaged.

[70] For the purposes of this objective, the significance of risks at each contaminated site can only be determined through examination of a range of factors including the:
a) types and quantities of contaminants present or likely to be present compared to national and international guideline values for the specific contaminant
b) characteristics of the receiving environment
c) current and proposed uses of the site
d) current and proposed uses of affected water bodies
e) likely scale of effects associated with the contamination (e.g. Are the human health effects carcinogenic or acute? How rare/important are the affected species?)

## 5.3.3 Policies

**Policy 1: Priorities for the Management of Contaminated Land**

List and prioritise land uses that present significant risk of contamination and give priority to managing those with the greatest risk.

**Policy 2: Significant Risks**

For the purpose of Chapter 5.3 the significance of risks associated with a particular site will be assessed on the following basis:

a) Any numerical standards provided by relevant nationally recognised guidelines.[71]
b) In the absence of relevant national guidelines, numerical standards determined in other internationally recognised guidelines that are prepared using the same methodologies as those prepared by the Ministry for the Environment.
c) The current or proposed land use and any restrictions on future uses of the site.
d) The proximity of the land to sensitive ecosystems and the sensitivity of those ecosystems to the contaminants.
e) The existence and characteristics of possible exposure pathways for the contamination.
f) The level of contamination in soil and water at the site, potential for discharges to air and the characteristics of the contaminants.
g) The degree and nature of discharges from the site.
h) The geological nature and history of the site.
i) Any archaeological sites, waahi tapu or other identified sites of significance to tangata whenua as Kaitiaki affected by discharges from the contaminated land.
j) Any adverse effects on the relationship of tangata whenua as Kaitiaki with the land and water resources affected by the discharge from the contaminated land.

**Policy 3: Remediation**

Through rules in this Plan and resource consent processes, enable the remediation of contaminated land where the technology to be used and associated discharges are unlikely to have adverse effects that are inconsistent with the objectives or the requirements of the RMA.

**Policy 4: High Priority Land Uses[72] and Confirmed Contaminated Land**

Ensure that any discharges from high priority land uses and confirmed contaminated land do not present a significant risk of adverse effects.

**Policy 5: Other Potentially Contaminated Land**

Ensure that resource users are aware of the risk associated with contaminated land and the steps required to manage these risks.

**Explanation and Principal Reasons for Adopting the Policies**

**Policy 1** is necessary because the funds available for Waikato Regional Council to ensure that contaminated land is adequately managed are limited. Table 5-1 identifies the historical land uses generally associated with some degree of land contamination, due to past use (transport, storage or disposal) of hazardous substances and prioritise them on the basis of the risk that they pose.

This list was developed taking into account the following factors:

a) The characteristics of the hazardous substances known, or likely, to have been used (or generated) for each category of land.

[71] For instance, the 1997: *Health and Environmental Guidelines for Selected Timber Treatment Chemicals*. (Ministry for the Environment and Ministry of Health). Wellington.

[72] High priority land uses are identified in Section 5.3.7.

b) Any generic characteristics of the land known to typify a particular category (e.g. typical location, degree of contamination typically found at such sites overseas).

**Policy 2** provides clarification for landowners and decision-makers as to the means by which the significance of risks on contaminated land will be assessed. The standards to be used in determining whether risks are significant are to be based on the Ministry for the Environment's pragmatic risk-based philosophy rather than other more prescriptive or precautionary standards such as those from Europe. The Policy recognises that even when national or international guidelines exist, they should not be followed exclusively. These guidelines tend to focus on human health risk rather than ecological risks and must be considered along with any site-specific factors that may either exacerbate or reduce the risks of contaminants.

**Policy 3** acknowledges the positive effects of land remediation. The Plan enables a range of discharges likely to occur from contaminated land during land remediation through Rules 3.5.11.3 and 3.5.11.4. The Policy indicates that, where a resource consent is required, Waikato Regional Council will take an enabling and positive approach to the consent process if discharges are unlikely to have adverse effects that are inconsistent with the objectives or the requirements of the RMA.

**Policies 4** and **5** identify that Waikato Regional Council must focus its limited resources on managing high priority land uses and contaminated land.

## 5.3.4 Implementation Methods – Contaminated land

### 5.3.4.1 Partnerships

Waikato Regional Council will work with:

1. individual land owners, other liable parties, territorial authorities, public health boards and other relevant agencies to develop strategies for managing the risks on contaminated land,
2. territorial authorities and public health boards to establish and maintain a database of historic land use sites where past land uses have involved the use, storage or disposal of hazardous substances, or where contamination has been confirmed.

### 5.3.4.2 Environmental Education

Waikato Regional Council will, through environmental education programmes, provide land owners with information and advice on:

1. the best means to avoid or remedy any potential effects of land contamination,
2. techniques for undertaking contaminated site assessments,
3. the options for remediation and long term management of their sites.

### 5.3.4.3 Promotion

Waikato Regional Council will encourage:

1. owners of sites on which medium and high priority land uses have occurred to complete contaminated site assessments, especially prior to the sale or redevelopment of their land,
2. territorial authorities to seek site assessments prior to allowing subdivision or redevelopment of land where any of the historical land uses identified in Table 5-1 are likely to have occurred in the past,

3. territorial authorities to contribute to the ongoing development and maintenance of a joint database collating information on the status of land where uses involving the storage, use or disposal of hazardous substances has occurred and release of that information through the LIMs and PIMs processes.

#### 5.3.4.4 Investigation and Remediation

Waikato Regional Council will:

1. undertake appropriate desk top investigations (including analysis of old aerial photos and records of chemical use, enforcement action and affidavits) of sites where high priority land uses have occurred in the past. Priority for investigation will be given to those orphaned sites* that pose the most significant risk of adverse effects,
2. take a lead role in identifying funding sources for, and in co-ordinating, the remediation of orphaned sites that have discharges that present a significant risk of adverse effects to the environment.

#### 5.3.4.5 Part XII RMA Enforcement

Waikato Regional Council will apply for enforcement orders, issue abatement notices and use other enforcement mechanisms in Part XII of the RMA, to require remediation or management of contaminated land where the current management is not adequately addressing adverse effects of discharges to air or water emanating from the site.

#### 5.3.4.6 Permitted Activity Rule – Discharges from Remediation of Contaminated Land

Any discharge arising from remediation of contaminated land is a **permitted activity**, subject to the following conditions:

a) any discharge to air arising from the activity shall comply with the conditions and standards and terms in Section 6.1.8 except where the matters addressed in Section 6.1.8 are already addressed by conditions on resource consents for the site.

b) No contaminants from the remediation of the contaminated land shall be discharged into water or onto land unless discharged to a landfill authorised in Section 5.2.7.

c) The Waikato Regional Council shall be provided with the following reports prepared in compliance with Contaminated Land Management Guideline No.1: Reporting on Contaminated Sites in New Zealand (Ministry for the Environment, Wellington, NZ, updated October 2003) prior to commencement of land remediation:
   i) detailed site investigation report
   ii) site remedial action plan

d) After remediation is completed, copies of the following reports prepared in compliance with Contaminated Land Management Guideline No.1: Reporting on Contaminated Sites in New Zealand (Ministry for the Environment, Wellington, NZ, updated October 2003) must be provided to the Waikato Regional Council:
   i) site validation report
   ii) ongoing monitoring and management plan.

e) Any updates of these reports shall be provided to the Waikato Regional Council if a change in investigation, remediation and monitoring strategy occurs.

**Advisory Notes:**

- Copies of Contaminated Land Management Guideline No.1: Reporting on Contaminated Sites in New Zealand (Ministry for the Environment, Wellington, NZ, updated October 2003) are available from Waikato Regional Council or can be found on the Ministry for the Environment's website.
- The LIM report for the site will be updated in accordance with Figure 5-2 and Method 5.3.4.3 to show that the land has been remediated.

### 5.3.4.7 Controlled Activity Rule – Discharges from Remediation of Contaminated Land

Any discharge arising from remediation of contaminated land that does not comply with Rule 5.3.4.6 is a **controlled activity** subject to the following standards and terms:

a) The Waikato Regional Council shall be provided with the following reports prepared in compliance with Contaminated Land Management Guideline No.1: Reporting on Contaminated Sites in New Zealand (Ministry for the Environment, Wellington, NZ, updated October 2003) prior to commencement of land remediation:
   i) detailed site investigation report,
   ii) site remedial action plan.

b) After remediation is completed, copies of the following reports prepared in compliance with Contaminated Land Management Guideline No.1: Reporting on Contaminated Sites in New Zealand (Ministry for the Environment, Wellington, NZ, updated October 2003) must be provided to the Waikato Regional Council:
   i) site validation report.
   ii) ongoing monitoring and management plan.

c) Any updates of these reports shall be provided to the Waikato Regional Council if a change in investigation, remediation and monitoring strategy occurs.

d) Any discharge to air arising from the activity shall comply with the conditions and standards and terms in Section 6.1.8 except where the matters addressed in Section 6.1.8 are already addressed by conditions on resource consents for the site.

Waikato Regional Council reserves control over the following matters:

i. Degree of contamination remaining in soil and water after remediation is complete.

ii. The methodology used to identify the presence and concentration of contaminants discharged onto or into land.

iii. The acceptability of the methods of assessment of resources under threat and pathways of contaminant migration followed by modelling to demonstrate the level of threat that exists, specifically in terms of:
   a) water quality protection guidelines
   b) background soil concentrations
   c) soil acceptance criteria
   d) guidelines recognised by Waikato Regional Council
   e) acceptable international standards.

iv. The requirements for leachability tests to demonstrate the mobility of contaminants present.

v. The requirements to provide an acceptable method for reducing ground or surface water migration into or out of the contaminated land.

vi. The requirements for monitoring to assess ground water and surface water contaminant levels.

vii. Contents of ongoing monitoring and management plan.

viii. Measures to ensure consistency with criteria as set out in any applicable water management classes in this Plan.

**Notification:**

Application for resource consents for activities under this Rule will be considered without notification or the need to obtain written approval of affected persons, in accordance with s94(1)(b) of the RMA.

**Advisory Notes:**

- Copies of Contaminated Land Management Guideline No.1: Reporting on Contaminated Sites in New Zealand (Ministry for the Environment, Wellington, NZ, updated October 2003) are available from Waikato Regional Council or can be found on the Ministry for the Environment's website.

- The LIM report for the site will be updated in accordance with Figure 5-2 and Method 5.3.4.3 to show that the land has been remediated.

### 5.3.4.8 Discretionary Activity Rule – Discharges from Remediation of Contaminated Land

Any discharge arising from remediation of contaminated land that does not comply with Rules 5.3.4.6 and 5.3.4.7 is a **discretionary activity** (requiring resource consent).

**Explanation and Principal Reason for Adopting Methods 5.3.4.1 to 5.3.4.8**

Waikato Regional Council's strategy for managing issues associated with contaminated land is outlined in the implementation methods above. The strategy emphasises the use of non-regulatory methods and enabling rules to manage the risks associated with land contamination. Figure 5-2 provides a graphic representation of how this strategy will be implemented.

**Methods 5.3.4.1, 5.3.4.2 and 5.3.4.3** identify the importance of maintaining a database of the status of contaminated land and providing information, advice and key messages on managing the risks associated with the land to the landowners.

The database must be developed and maintained in a partnership between Waikato Regional Council and territorial authorities. This is necessary to ensure that potentially contaminated land is not redeveloped without the risks being assessed and managed, to avoid residential or agricultural development occurring on contaminated land. This information will be made available to the public through LIM and PIM processes and will allow potential property purchasers to make informed decisions. The listing of land on the database will encourage landowners to check contamination status of their land and remediate it to a standard that meets the objective for this Section if necessary without the need for regulation.

**Method 5.3.4.4** identifies that Waikato Regional Council has a role in the identification and assessment of contaminated land. The method focuses Waikato Regional Council on high priority and orphaned sites as they are the sites that present the most significant risk of adverse environmental effects.

**Method 5.3.4.5** acknowledges that where the other implementation methods do not work, regulatory actions may be necessary. Resource consents may be required for some discharges from contaminated land. Remediation of the land can be required through enforcement orders and abatement notices. The implementation method identifies that this is an option Waikato Regional Council is prepared to use if it is necessary to ensure that risks to the public and the environment are managed.

**Methods 5.3.4.6 and 5.3.4.7** recognise that remediation of contaminated land should be enabled. In keeping with the principle of enabling contaminated land remediation, the application for resource contents for the activity will be considered without notification or the need to obtain written approval from affected persons. Methods 5.3.4.6 and 5.3.4.7 require that, as a minimum, a range of reports are prepared and submitted to Waikato Regional Council. If a resource user decides not to prepare reports in the nationally accepted formats specified, then the activity is a discretionary activity. This encourages the adopting of the Ministry for the Environment's guidelines for reporting on contaminated sites and will achieve a nationally consistent standard of management for contaminated sites.

## 5.3.5 Environmental Results Anticipated

1. Contaminated land in the Region identified, managed and where possible remediated.
2. Greater public awareness of the importance of maintaining a record of the status of the contaminated land through the LIM and PIM processes.
3. Improved water, air and soil quality in the vicinity of confirmed contaminated land as a result of land remediation.

## 5.3.6 Monitoring Options

| Objective | Indicators/ Measurements | Types of Monitoring | Information Source |
|---|---|---|---|
| Discharges of contaminants from existing contaminated sites do not present a significant risk of chronic or acute toxic effects on human health due to the contamination of soil, ground water or surface water. | Number of contaminated sites recorded as under investigation, confirmed or remediated.<br>Number of contaminated sites remediated to levels set by guidelines or risk assessments. | Compliance and effects monitoring. | Database of Selected Land Use Sites and Register of Confirmed Contamination Sites.<br>Resource consents database.<br>Territorial authority files. |
| Discharges of contaminants from contaminated land do not have adverse effects on water quality or aquatic ecosystems that are inconsistent with the water management objectives in Section 3.1.2. | The effects of discharges to water from contaminated sites on the indicators provided in Section 3.2.7. | See Section 3.2.7. | See Section 3.2.7. |
| There are no adverse effects on air quality that are inconsistent with air management objectives in Section 6.1.2. | The effects of discharges to air from contaminated sites on the indicators provided in Section 6.1.2.2. | See Section 6.1.7. | See Section 6.1.7. |
| Discharges of contaminants from contaminated land avoid significant adverse effects on the relationship that tangata whenua as Kaitiaki have with their identified taonga such as ancestral lands, water and waahi tapu. | The number of contaminated sites on waahi tapu sites. | Compliance and effects monitoring.<br>Community monitoring. | Resource consents database.<br>Iwi/Maori databases. |
| Remedies or mitigates cumulative adverse effects on the relationship that tangata whenua as Kaitiaki have with their identified taonga such as ancestral lands, water and waahi tapu. | The number of contaminated sites on waahi tapu sites. | Compliance and effects monitoring.<br>Community monitoring. | Resource consents database.<br>Iwi/Maori databases. |

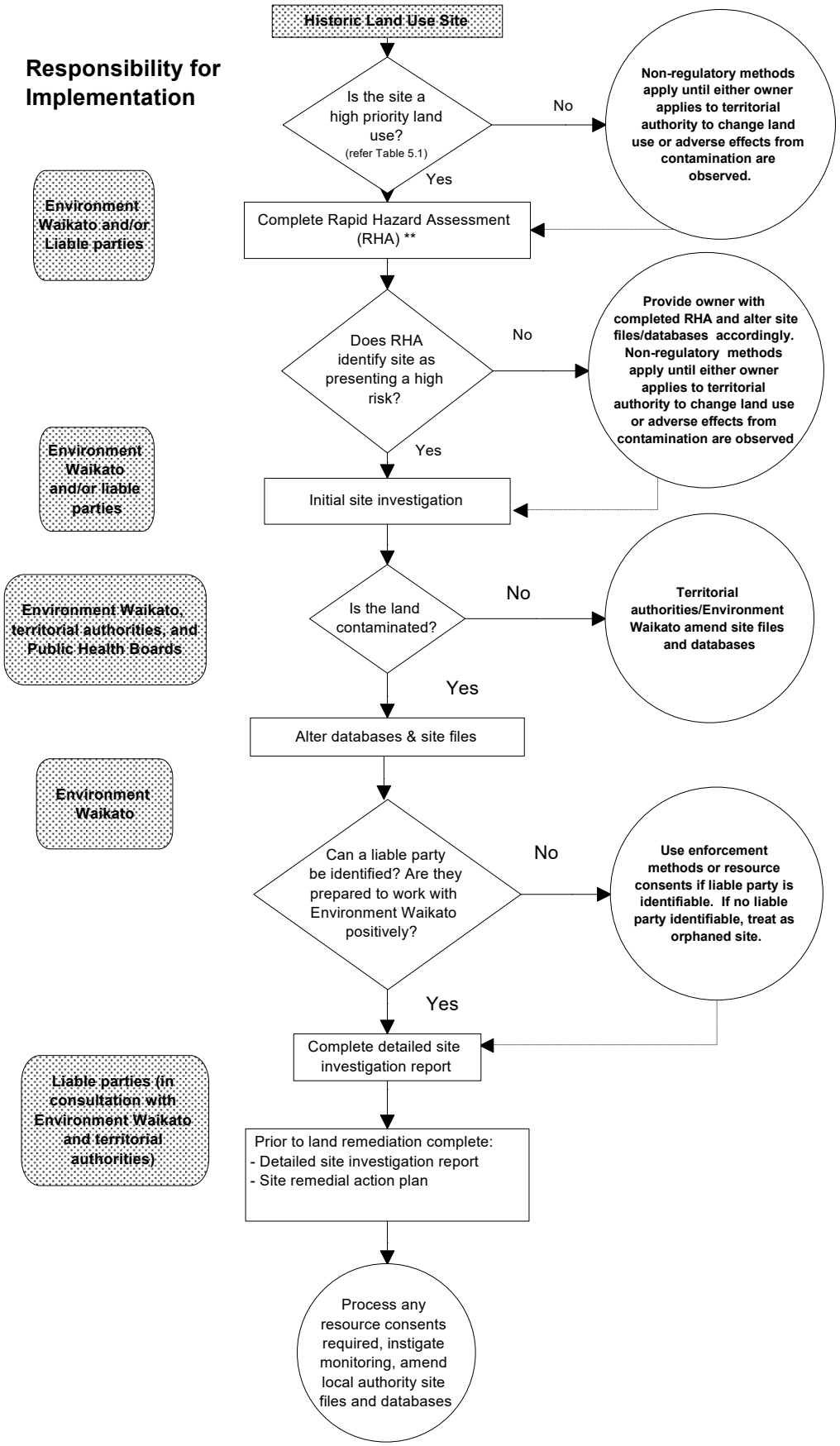



**Figure 5-2 Implementation Flow Chart for Contaminated Land**

## Table 5-1 Prioritisation of Land Uses

### (a) High Priority

| Land Uses | Rationale for Priority Status |
|---|---|
| Gas Works | Considerable amounts of hazardous waste generated.<br>Waste material generally left on site.<br>Abandoned sites with uncontrolled access.<br>Little control of off-site transport of waste.<br>Sites commonly situated in sensitive areas.<br>Major contamination problems are known to exist. |
| Landfill sites and uncontrolled waste dumps that received waste from industrial or trade premises | Uncontrolled dumping – unknown content.<br>Mobility of contaminants – leachate, gas generation.<br>Inappropriate siting.<br>Very wide range of potential contaminants.<br>Uncontrolled leachate or stormwater run-off.<br>Many sites abandoned without controls.<br>Potential release of persistent, bioaccumulative toxins. |
| Sites with the potential for generating acid drainage (e.g. earthworks or mineral extraction in sulphide bearing rock masses) | Mobility of contaminants, potential to generate acid drainage.<br>Abandoned sites without controls. |
| Oil production and storage | Large volumes of hazardous material on site.<br>High mobility of some contaminants<br>Minor leaks and spills common – build up of persistent components. |
| Scrap yards | Wide variety of hazardous material potentially present.<br>Hazardous substances may be unknown/unrecognised.<br>Potential release of persistent, bioaccumulative toxins.<br>Operate with few environmental considerations.<br>Often little or no control of run-off.<br>Often sited in sensitive areas. |
| Service stations | Large volumes of mobile, hazardous substances.<br>Storage practices known to pose threat to ground water.<br>Minor leaks and spills often undetected.<br>Often sited in sensitive areas.<br>Large number of sites in Region. |
| Wood preservation (including treated timber storage sites) | Major industry in Region.<br>Past practices known to have led to site contamination.<br>Several serious cases of site contamination known.<br>Potential source of highly toxic and bioaccumulative contaminants such as dioxin.<br>Some sites abandoned with no controls.<br>Many sited in sensitive areas. |

### (b) Medium Priority

| Land Use | Rationale for Priority Status |
|---|---|
| Acid/alkali plant and formulation | Potential for serious contamination but only minor land use in the Region. |
| Asbestos production and disposal | Serious health issue, but production very limited in the Region. More information on disposal sites and practices required. |
| Chemicals manufacture and formulation | Wide variety of potential contaminants, but only minor land use in the Region. More information required. |
| Clay target shoot ranges | Some work has identified serious lead contamination of soil at these sites and on neighbouring properties. This may also pose a threat to water quality near the range. Information is limited. |
| Defence works | Little information available on scale and nature in the Region. |
| Drum reconditioning works | Potential problems, especially if poorly managed. Very few sites in the Region. More information required. |
| Electrical manufacturing (transformers) | Major problem chemicals (e.g. PCB) no longer used and existing inventory being dealt with by collection programme. Some historical contamination may remain but very little information available on scale of practice in the Region. Investigation of sites is required to ascertain whether PCB contamination is present – if so, site will become high priority, if not, low priority. |
| Electroplating and metal treatment premises | Potential problems of unknown scale. More information on number and range of premises required. |
| Engine works | Potential problems of unknown scale. More information required. |
| Pesticide manufacture and formulation | Potential contaminants are well defined and operations generally well managed. Some historical problems may exist. This activity has not occurred extensively in the Region. |
| Power stations | Some problems recognised and need for action already acknowledged. Historical use of PCB-based transformer oils in power stations and related sites (e.g. substations, switchyards) of concern. |
| Railway yards | Little information available on the scale of contamination associated with this industry. |
| Tanning and associated trades | Potential for contamination with substances such as chromium and metal sulphides if poorly managed. More information required. |
| Waste storage and treatment | Wide variety of potential contaminants. Considerable potential for contamination if poorly managed. More information required. |

### (c) Low Priority

| Land Use | Rationale for Priority Status |
|---|---|
| Aggregate extraction | Limited potential for contamination. |
| Agricultural/horticultural activities | Industry codes of practice should minimise risks.<br>Environmental education most appropriate, given the size and scale of operations. |
| Airports | Minor land use in the Region.<br>Relatively low potential for contamination. |
| Cemetaries | Some potential for contamination from heavy metals, but land use means that little risk would normally exist. |
| Dry-cleaning establishments | Typically only small scale operation in New Zealand.<br>Limited contamination potential. |
| Explosives industry | Minor land use in Region.<br>Relatively low potential for contamination. |
| Iron and steel works | Few in Region. Limited contamination potential. |
| Paint formulation and manufacture | Minor land use in the Region.<br>Relatively low potential for contamination. |
| Pharmaceuticals manufacture and formulation | Minor land use in the Region.<br>Relatively low potential for contamination. |
| Sheep and cattle dips | Typically small scale of operation. Contamination with arsenic and organochlorine agrichemicals is possible, but likely to be very localised.<br>Environmental education most appropriate. |
| Smelting and refining | None in Region. |

Te Kāwanatanga o Aotearoa
New Zealand Government

# Urutau, ka taurikura: Kia tū pakari a Aotearoa i ngā huringa āhuarangi

# Adapt and thrive: Building a climate-resilient New Zealand

AOTEAROA NEW ZEALAND'S
FIRST NATIONAL ADAPTATION PLAN



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# Contents


Message from the Minister of Climate Change 6

Message from the Secretary for the Environment 8

Executive summary 10

Chapter 1: Adapting to climate change: Our long-term strategy 20

- Our climate reality 20
- Adaptation is a process of assessing risk, planning, implementing, evaluating and adjusting 23
- We all have a part to play 24
- Adapting in partnership with Māori 28
- Our adaptation journey must be equitable 32
- Adaptation goals 33

Chapter 2: Our first national adaptation plan 2022–28 36

- A Government-led plan for all New Zealanders 36
- Structure of the plan 38

Chapter 3: Enabling better risk-informed decisions 42

- Information, guidance, tools and methodologies are needed to enable good decisions 43
- Significant risks 45
- Objectives 45
- Actions to enable New Zealanders to make better risk-informed decisions 46

Chapter 4: Driving climate-resilient development in the right locations 64

- Planning and infrastructure investment decisions drive climate-resilient development 65
- Significant risks 66
- Objectives 66
- Local government should act now to drive climate-resilient development in the right locations 67
- Actions to drive climate-resilient development in the right locations 69

Chapter 5: Adaptation options including managed retreat 78

- Existing development faces increasing risk 79
- Significant risks 81
- Objectives 81

Actions to provide new tools and powers to respond to existing risk 83

Chapter 6: Natural environment 98
Why we need to take action 99
Significant risks 101
Objectives 102
Actions to support a thriving natural environment 102

Chapter 7: Homes, buildings and places 114
Why we need to take action 114
Significant risks 115
Objectives 117
Actions to increase the resilience of homes, buildings and places 118

Chapter 8: Infrastructure 126
Why we need to take action 126
Significant risks 127
Objectives 128
Infrastructure asset owners are best placed to manage climate risk 128
Actions to support climate-resilient infrastructure 131

Chapter 9: Communities 140
Why we need to take action 140
Significant risks 141
Objectives 144
Actions to support resilient communities 144

Chapter 10: Economy and financial system 154
Why we need to take action 155
Significant risks 156
Objectives 159
Actions to support a resilient economy and financial system 160

Chapter 11: Implementing the plan 174
Engaging with key groups 174
Monitoring and reporting 174
Research plan to fill knowledge gaps 175

Appendix 1: Glossary 180

Appendix 2: Climate risks addressed by this first plan 191

# Tables


| | | |
|---|---|---|
| Table 1: | System-wide and outcome area objectives of the plan | 39 |
| Table 2: | Government objectives relating to critical actions to enable risk-informed decisions | 45 |
| Table 3: | Government objectives relevant to critical actions to deliver a climate-resilient built environment | 67 |
| Table 4: | Government objectives relevant to critical actions for laying the foundations for adaptation options including managed retreat | 81 |
| Table 5: | Government objectives to support a resilient natural environment | 102 |
| Table 6: | Government objectives to build resilient homes, buildings and places | 117 |
| Table 7: | Actions related to homes, buildings and places are located throughout the national adaptation plan | 119 |
| Table 8: | Government objectives to build resilient infrastructure | 128 |
| Table 9: | Infrastructure governance | 129 |
| Table 10: | Actions related to infrastructure are located throughout the national adaptation plan | 132 |
| Table 11: | Government objectives for resilient communities | 144 |
| Table 12: | Government objectives for the economy and financial system | 159 |


# Figures


| | | |
|---|---|---|
| Figure 1: | Adaptation in Aotearoa New Zealand | 12 |
| Figure 2: | Projected impact of climate change on Aotearoa | 22 |
| Figure 3: | Aotearoa New Zealand's adaptation process over time | 24 |
| Figure 4: | Rauora: A climate change framework | 30 |
| Figure 5: | Principles guiding our adaptation strategy | 34 |
| Figure 6: | The ten most significant risks Aotearoa will face from climate change in 2020–26, by domain | 37 |
| Figure 7: | Adaptation options – avoid, protect, accommodate, retreat | 80 |
| Figure 8: | Types of infrastructure | 127 |
| Figure 9: | The seven economic risks and their cascading impact across the economy | 156 |
| Figure 10: | The monitoring, evaluating and reporting process for adaptation action | 174 |

# Message from the Minister of Climate Change



**Kei te whakapōrerea kētia tātou e te huringa āhuarangi, ō tātou hāpori me tō tātou ōhanga.**

**Climate change is already disrupting our lives, our communities and our economy.**

E ngā muka tāngata ko rangitāmirotia e te kaupapa huia kaimanawa o te rā, tēnā koutou katoa.

As I write this, record-breaking heatwaves are being experienced across Asia, Africa and Europe. A state of emergency was declared in Timaru with evacuations overnight, while torrential rain caused widespread flooding and power outages in Christchurch.

Aotearoa New Zealand has always had dramatic weather. But floods and slips such as those in Tairāwhiti, storms such as those experienced in Westport and droughts such as those experienced, well, just about everywhere are becoming both more severe and more frequent.

More lives and livelihoods are on the line. The outlook is especially troubling, considering the potential for disproportionate effects on Māori, people with disabilities, low-income families and rural communities.

So as the image of tomorrow becomes clearer and more certain, a purely reactive approach to climate impacts becomes ever less credible. Instead, we need to plan and we need to prepare. For too long we have pushed climate adaptation to the back of the cupboard. Now is the time for a real step-change in our approach. Because the sooner we start, the more effective our efforts will be.

This document is Aotearoa New Zealand's first national adaptation plan. It brings together in one place the Government's current efforts to help to build our climate resilience. And it sets out a proposed future work programme, indicating our priorities for the next six years.

The actions in this plan are intended to drive a significant, long-term shift in our policy and institutional frameworks. They will ensure climate-resilient development in the right places and support communities in considering a range of adaptation options. And they will result in better information about what our future climate will look like, enabling better decisions about our response.

Of course, we mustn't lose sight of the urgent need to lower our emissions. Because the severity with which we will experience climate change can be lessened if we do all we can to limit warming. This is the role of New Zealand's recently published first emissions reduction

plan. But we know some climate impacts are locked in. And we know those impacts will be felt differently by different people and in different regions.

Central government will not bear every risk and cost of climate change, including climate change adaptation. Risk and cost will fall across different parts of society, including asset or property owners, their insurance companies, their banks, local government and central government. The Government can choose the role it plays and how it influences the way these costs and risks fall. Care will need to be taken to manage any perverse or unintended outcomes such as moral hazard (that is, inappropriate incentives to continue developing in at-risk areas).

Climate change will be felt by us all, but how vulnerable we are and the limits to how well we adapt vary across groups and sectors in society. This plan is the first step in a long-term adaptation strategy and process. Implementing the actions in this plan will require all New Zealanders to take action.

Together we can build a climate-resilient Aotearoa New Zealand.



**Hon James Shaw**
Minister of Climate Change

# Message from the Secretary for the Environment



**Ka whakapakari ake te mahere urutaunga ā-motu i a tātou kei mua i te aroaro o ēnei wero.**

**Aotearoa New Zealand's first national adaptation plan will make us stronger in the face of these challenges.**

This plan is a very important milestone in the journey of every New Zealander to resilience and adaptation. It sits alongside the emissions reduction plan and together they lay out Aotearoa New Zealand's overall response to climate change so that we can transition to a low-emissions, climate-resilient future.

With this plan, for the first time as a nation we can see in one place what is being done already to adapt and proposals for what to do in the future. Actions within this plan will mean all levels of government, sectors and communities and all New Zealanders better understand the top priority risks and act to address them.

In response to what we heard during consultation on the draft national adaptation plan, the plan now has a greater sense of urgency.

There was strong support for a planning and resource management system that ensures buildings, infrastructure and developments are placed in the right locations away from rising sea levels and areas of frequent flooding. Several actions to address these risks are already underway.

Reforms of the resource management, emergency management systems and wastewater, drinking water and storm water management are underway alongside a review of the future for local government.

During consultation Māori asked to participate more in developing adaptation actions. A platform is being set up so Māori can put together tangata Māori actions that are more climate friendly and resilient.

We have a clear picture of the top-priority risks from the first National Climate Change Risk Assessment released in 2020. These include risks to coastal ecosystems, community wellbeing, potable water supplies, and buildings. This plan addresses those risks. We need systems, practices and tools that are set up to consider risk and uncertainty.

New Zealanders are already feeling the impacts of climate change. These impacts affect people and communities differently because they have varying degrees of exposure, or different capacity to prepare for and respond to climate impacts. We need to understand these different vulnerabilities to enable future actions to be targeted to support those most vulnerable to the impacts of climate change.

More change will come, and impacts will increase, disrupting nature and society, affecting people's health and wellbeing and damaging livelihoods. We need to change how we do things so we can thrive in a climate that continues to change.

At the same time as adapting, reducing emissions and limiting the severity of future climate change is just as important. The national adaptation plan and the emissions reduction plan lay out Aotearoa New Zealand's overall response to climate change.

Past emissions have already changed our climate and will continue to do so in years to come. How much more change and how fast change will happen depend on every country's contribution to reduce global emissions.

We need to build on action that people are taking already. By preparing and working together, we can build an Aotearoa New Zealand that is resilient and ready to thrive in a changing climate.



**Vicky Robertson**
Secretary for the Environment

# Executive summary

## Adapt and thrive: Building a climate-resilient Aotearoa New Zealand

Aotearoa New Zealand experiences a wide range of natural hazards – from earthquakes and volcanoes to erosion, landslides and extreme weather events.

Climate change will increase the severity and frequency of some of those hazards, including flooding, heatwaves, drought and wildfire. We will also face new risks as a result of slow-onset, gradual changes such as sea-level rise, ocean warming, more hot days, and more rainfall in some parts and less in others. If the number and value of assets increases, that can also contribute to increasing risk exposure over time. These effects will impact New Zealanders in different ways – and there is a risk that some groups may be disproportionately impacted.

How much change we will see, and how fast that change will happen, is not certain. We have greater certainty about change in the medium term, but need to plan for longer time horizons. As our climate continues to change, the impacts and risks that we face will also evolve.

Changing the way we do things to emit less greenhouse gases and limit global warming is an important step towards adapting to the effects of climate change. That's why the first emissions reduction plan sets us on track towards a low-emissions, resilient economy.

But the climate has warmed by 1.1°C in the last 100 years and we are already seeing the devastating effects. We know there are uncertainties that come with our changing climate – and we have heard from New Zealanders that there's no time to waste. Taking action now will set the foundations for more climate-resilient communities and take account of climate risk in everything we do.

This document sets out Aotearoa New Zealand's long-term strategy and first national adaptation plan. The long-term strategy sets out the Government's approach to adaptation. This first national adaptation plan, and subsequent plans, will be prepared and implemented in accordance with this strategy.

The first national adaptation plan contains Government-led strategies, policies and proposals that will help New Zealanders adapt to the changing climate and its effects – so we can reduce the potential harm of climate change, as well as seize the opportunities that arise. It responds to the risks identified in the National Climate Change Risk Assessment 2020, which was prepared under the Climate Change Response Act 2002. It also draws upon the latest science from the Intergovernmental Panel on Climate Change and builds on recommendations of the Climate Change Adaptation Technical Working Group from 2018.

Adapting to the effects of climate change is a continuous process. We need to assess climate risks, plan and implement adaptation actions, then determine whether those actions were effective in reducing risks. For that reason, this plan is the first in a series of national adaptation plans that will be prepared every six years. Each plan will respond to a new national climate change risk assessment. All New Zealanders will be able to have their say on each plan.

Several actions to address these risks are already underway. The Government is reforming the resource management system, emergency management system and three waters services, and reviewing the future for local government. All these programmes of work aim to keep our systems fit for the future and responsive to the uncertainty of a changing climate.

Other major actions signalled in this plan that will support Aotearoa to build resilience and adapt to a changing climate include: a platform to work with Māori on climate actions; risk and resilience and adaptation information portals which will provide access to information; a rolling programme of targeted guidance; and a programme of work to unlock investment in climate resilience.

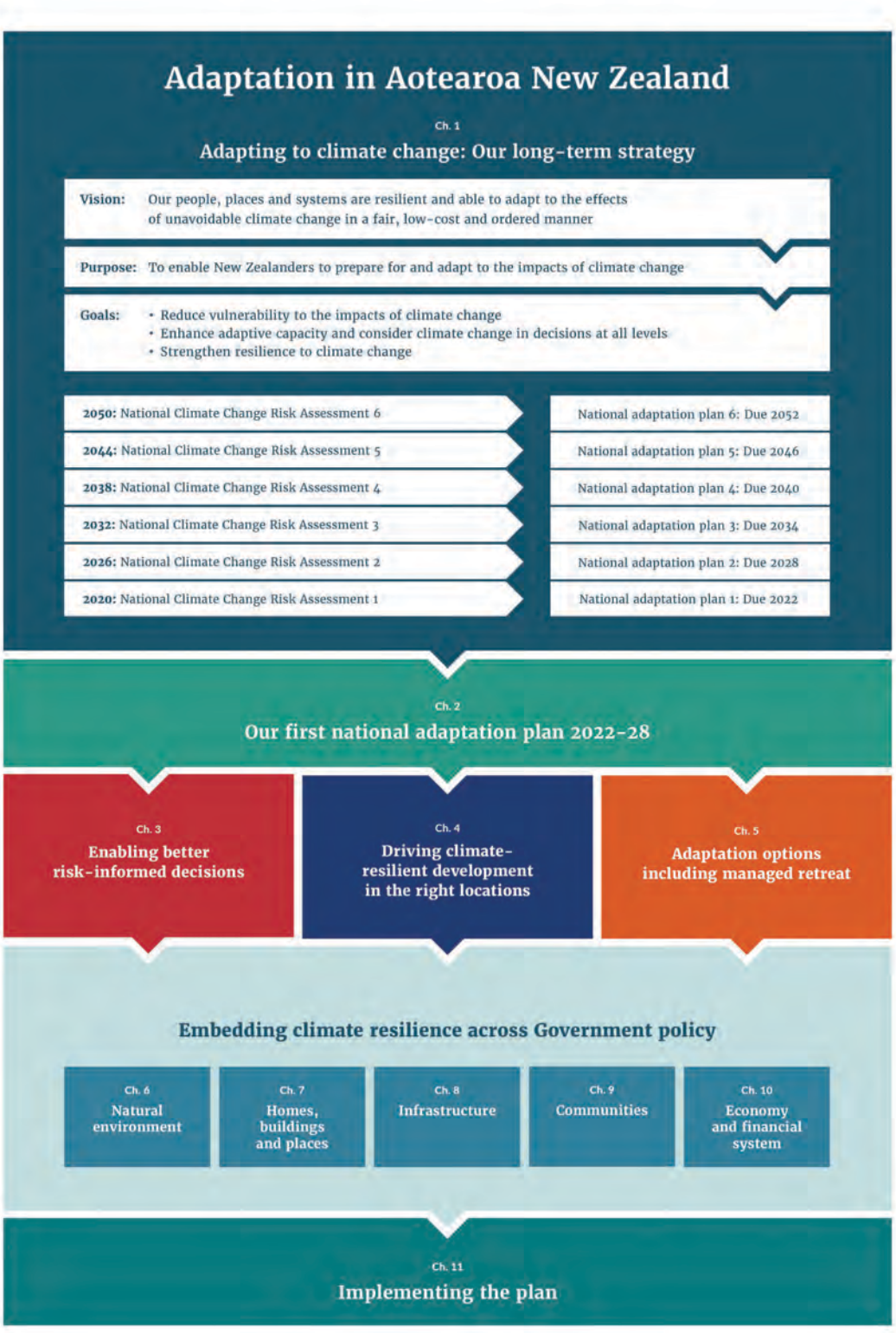
Together, the emissions reduction plan and this national adaptation plan form Aotearoa New Zealand's first comprehensive climate change mitigation and adaptation response.

This executive summary outlines:

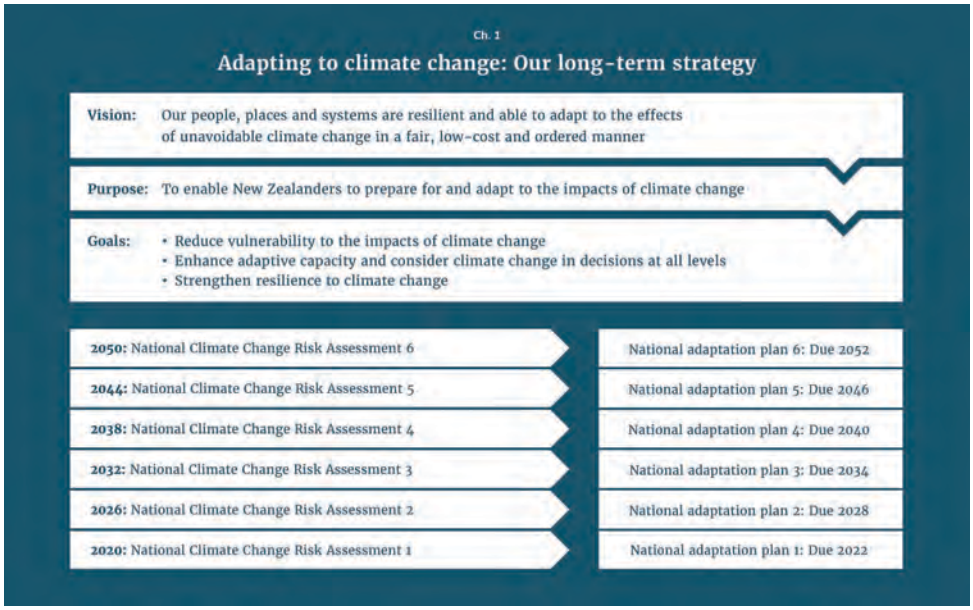
- the long-term adaptation strategy
- the priorities, objectives and outcomes for this first plan
- the actions the Government is taking over the next six years
- how the Government will implement the plan and make sure it is effective.

Below is a map outlining Aotearoa New Zealand's long-term strategy and first national adaptation plan. The map points you to the chapters of this document, where you can dive into as much or as little detail as you want.

**Figure 1: Adaptation in Aotearoa New Zealand**



# Adapting to climate change: Our long-term strategy




In the past 100 years, our climate has warmed by 1.1°C, and in 2021 Aotearoa experienced its warmest year on record.[1] Sea-level rise is accelerating and extreme weather events – such as storms, heatwaves and heavy rainfall – are projected to become more frequent and intense.[2]

This poses a complex challenge as we must adapt to both slow-onset changes, such as rising sea levels, and increased frequency and magnitude of extreme events. The Climate Change Response Act 2002 sets out the process for assessing and understanding the risks posed by climate change, and taking action to manage these.

Changing the way we do things – so our people, natural environment, built places and systems are resilient and can adapt – is an enormous challenge. But we can meet it by working together now to understand the risks, and taking action to manage them. Alongside central government, local government, the private sector, iwi, hapū, whānau, communities and individuals all have different but complementary roles to play to build a climate-resilient Aotearoa.

Upholding the principles of Te Tiriti o Waitangi is a central aspect of the Government's long-term adaptation strategy. This means developing adaptation responses in partnership with Māori, elevating te ao Māori and mātauranga Māori in the adaptation process and empowering Māori in adaptation planning for Māori, by Māori. Māori face particular infrastructure challenges in rural and remote areas, and are vulnerable to road closures, power cuts and impacts on marae and other sites of cultural significance.

No two communities will experience climate change in the same way. Inequity arises through multiple domains including income, housing, employment and accessibility. Climate change can also increase existing inequities. Some groups may be disproportionately affected by financial impacts or lack the resources to adapt. An equitable transition is core to our

1 NIWA. 2022. *Aotearoa New Zealand Climate Summary: 2021*. Wellington.

2 Ministry for the Environment. 2018. *Climate Change Projections for New Zealand: Atmosphere Projections Based on Simulations from the IPCC Fifth Assessment, 2nd Edition*. Wellington.

adaptation strategy and national adaptation plans must support New Zealanders in ways that recognise their unique needs, values and circumstances.

The following goals underpin Aotearoa New Zealand's adaptation strategy:

- reduce vulnerability to the impacts of climate change
- enhance adaptive capacity and consider climate change in decisions at all levels
- strengthen resilience.

Read more about our strategy and the goals and principles underlying this in chapter 1: Adapting to climate change: Our long-term strategy.

## Our first national adaptation plan 2022–28

This plan is the first step towards meeting the Government's long-term vision and goals for a climate-resilient Aotearoa.

The National Climate Change Risk Assessment 2020 identified 43 priority risks (see Appendix 2) that Aotearoa faces from climate change and outlines the 10 most significant risks across five domains (natural, human, economy, built and governance).

The national adaptation plan must address the most significant risks. This plan will help address all 43 risks, and the risk to the telecommunications network.

Four priorities underpin the plan:

- enabling better risk-informed decisions
- driving climate-resilient development in the right places
- laying the foundations for a range of adaptation options including managed retreat
- embedding climate resilience across government policy.

To address specific realms of risk, the plan includes actions that relate to:

- system-wide issues (SW) or
- five 'outcome areas' which broadly align with the domains identified in the risk assessment:
  - natural environment (NE)
  - homes, buildings and places (HBP)
  - infrastructure (INF)
  - communities (C)
  - economy and financial system (EF).

The Government has identified a series of objectives that drive the actions. These relate to either system-wide issues or the outcome areas above. Many actions will help us achieve more than one objective.

Actions are identified as either critical, supporting or proposed. We must start on critical actions now. Supporting actions are either less urgent, or are dependent on the critical actions.

Proposed actions are future work programmes that reflect current thinking about what will be needed in future.

Read more about the structure and objectives of this plan in chapter 2: Our first national adaptation plan 2022–28.

## Enabling better risk-informed decisions

Eight critical actions will provide information, scenarios and guidance to help decision makers. Some actions apply to all New Zealanders, while others are for specific sectors and groups.

| Critical actions to enable better risk-informed decisions | | | |
|---|---|---|---|
| Establish a platform for Māori climate action | Provide access to the latest climate projections data | Design and develop risk and resilience and climate adaptation information portals | Deliver a rolling programme of targeted adaptation guidance |
| Develop guidance for assessing risk and impact on physical assets and the services they provide | Raise awareness of climate hazards and how to prepare | Support high-quality implementation of climate-related disclosures and explore expansion | Improve natural hazard information on Land Information Memoranda |

Read more in chapter 3: Enabling better risk-informed decisions.

## Driving climate-resilient development in the right locations

Many of our communities are located in places that are likely to see the impacts of climate change increase.

Seven critical actions will ensure that our planning and infrastructure investment systems are updated now, so they guide climate-resilient development in the right locations.

| Critical actions to drive climate-resilient development in the right locations | | | |
|---|---|---|---|
| Reform the resource management system | Reform institutional arrangements for water services | Integrate adaptation into Waka Kotahi decision-making | Integrate adaptation into Treasury decisions on infrastructure |
| Embed adaptation in funding models for housing and urban development, including Māori housing | Set national direction on natural hazard risk management and climate adaptation through the National Planning Framework | Establish an initiative for resilient public housing | |

Read more in chapter 4: Driving climate-resilient development in the right locations.

# Adaptation options including managed retreat

Many communities are already experiencing natural hazard events such as flooding, and these are expected to increase over time.

Nine critical actions will support councils, communities, businesses and individuals to consider adaptation options available for their area, including managed retreat where necessary. Some actions apply to all New Zealanders while others are for specific sectors and groups.

| Critical actions to facilitate adaptation options including managed retreat | | |
|---|---|---|
| Pass legislation to support managed retreat | Complete case study to explore co-investment for flood resilience | Publish the programme of work on how Aotearoa meets the costs of climate change and invests in resilience |
| The Future for Local Government review | Scope a resilience standard or code for infrastructure | Reduce and manage the impacts of climate hazards on homes and buildings |
| Prioritise nature-based solutions | Support kaitiaki communities to adapt and conserve taonga/cultural assets | Develop options for home flood insurance |

Read more in chapter 5: Adaptation options including managed retreat.

# Embedding climate resilience across government

A priority of this plan is to embed climate resilience in all government strategies and policies.

Chapters 6–10 set out critical actions, supporting actions and future work programmes for each of the outcome areas. Below is a snapshot of critical actions that will help achieve the objectives for each of the outcome areas.

| Actions critical to chapter 6: Natural environment | | | |
|---|---|---|---|
| Implement the Department of Conservation Climate Adaptation Action Plan | Implement Te Mana o te Taiao – Aotearoa New Zealand Biodiversity Strategy | Implement key freshwater management programmes | Engage with councils to implement the New Zealand Coastal Policy Statement |
| Deliver climate, biodiversity, and wider environmental outcomes | Deliver biosecurity actions to protect our indigenous ecosystems and economy from invasive species | Implement the National Policy Statement on Freshwater Management 2020 | Implement the proposed National Policy Statement on Indigenous Biodiversity |

| Actions critical to chapter 7: Homes, buildings and places | | |
|---|---|---|
| Reduce and manage the impacts of climate hazards on homes and buildings | Reduce the exposure of public housing tenants to climate hazards | Embed adaptation in funding models for housing and urban development, including Māori housing |
| Support kaitiaki communities to adapt and conserve taonga/cultural assets | | |

| Actions critical to chapter 8: Infrastructure | | |
|---|---|---|
| Develop guidance to support asset owners to understand and manage the risks of climate change on physical assets | Scope a resilience standard or code for infrastructure | Integrate adaptation into Treasury decisions on infrastructure |
| Develop and implement the Waka Kotahi Climate Adaptation Plan | | |

| Actions critical to chapter 9: Communities | | |
|---|---|---|
| Modernise the emergency management system | Develop the Health National Adaptation Plan | Raise awareness of climate hazards and how to prepare |

| Actions critical to chapter 10: Economy and financial system | | |
|---|---|---|
| Deliver the New Zealand Freight and Supply Chain Strategy | Help financial entities to better identify and manage their climate risks and support financial stability | Strengthen the fisheries management system and support the aquaculture sector to sustainably grow |
| Develop options for home flood insurance | Support high-quality implementation of climate-related disclosures and explore expansion | |

# Implementing the plan and making sure it is effective

This plan involves many agencies, departments and ministries. Making it work requires new ways of coordinating effort across government, as well as with our Tiriti partners and with local government, the business community and civil society.

Successful implementation will involve:

- central government oversight and coordination
- indicators for assessing progress
- a research strategy to fill knowledge gaps.

A climate change interdepartmental executive board will oversee the emissions reduction plan and national adaptation plan, and report on progress. The Climate Change Response Ministers Group, chaired by the Prime Minister, will oversee the plan and drive progress.

Every two years, He Pou a Rangi – Climate Change Commission will report to the Minister of Climate Change on the implementation and effectiveness of the national adaptation plan.

CHAPTER 1:

# Adapting to climate change: Our long-term strategy



# Chapter 1: Adapting to climate change: Our long-term strategy

| Adapting to climate change: Our long-term strategy |
| --- |
| This chapter sets out the current and projected impacts of climate change on Aotearoa and the long-term adaptation strategy that will help New Zealanders prepare for and adapt to these impacts. |
| This chapter outlines:<br>• our climate reality and why we must adapt to the impacts of climate change<br>• the roles that central government, local government, Māori, communities and individuals, the private sector, and the research and scientific community will play in building a climate-resilient Aotearoa<br>• how we will adapt in partnership with Māori<br>• how our adaptation journey will be made in an equitable way<br>• the goals for our long-term adaptation strategy, which are to:<br>– reduce vulnerability to the impacts of climate change<br>– enhance adaptive capacity and consider climate change in decisions at all levels<br>– strengthen resilience. |

## Our climate reality

### We must adapt to the impacts of climate change.

In the past 100 years, our climate has warmed by 1.1°C. Aotearoa New Zealand is experiencing more hot days and fewer cold days – 2021 was the warmest year on record, surpassing the previous record set in 2016.[1] Higher temperatures change our physical environment and weather patterns, presenting new and greater risks to the wellbeing of people and communities and their ways of life, buildings and infrastructure, our natural environment and the economy. Sea-level rise is accelerating, with an average rate of rise of 3.7 millimetres per year between 2006 and 2018[2]. By 2100, median sea-level rise in Aotearoa is projected to increase by a further 0.44 metres on average under a low-emissions scenario and 0.83 metres on average under a high-emissions scenario. Under the highest emission scenario, sea-level rise in Aotearoa is projected to increase by 1.09 metres on average.[3]

This poses a complex adaptation challenge. We must adapt to both slow-onset changes (such as rising sea levels that threaten coastal ecosystems and infrastructure) and increased frequency and magnitude of extreme events – such as coastal inundation and flooding that can damage homes, roads and other infrastructure, and affect access to coastal areas.

1 NIWA. 2022. *Aotearoa New Zealand Climate Summary: 2021*. Wellington.

2 Intergovernmental Panel on Climate Change. In press. *Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge.

3 Ministry for the Environment. 2022. *Interim guidance on the use of new sea-level rise projections.* Wellington.

## Projected changes and impacts on New Zealanders

Extreme weather events – such as storms, heatwaves and heavy rainfall – are likely to be more frequent and intense.[4] Tropical cyclones are likely to have increased wind intensity and rain rates, and to be stronger and cause more damage. More frequent and intense rainfall could reduce the availability of safe drinking water if treatment systems get overwhelmed, creating a significant risk to public health.

Projections show there will be fewer frost and snow days**.** Changes to the number of snow days will have significant impacts on hydrology and the seasonal cycle of snowmelt. This will affect the biodiversity of ecosystems, the energy sector and irrigation. Impacts will likely affect skiing and other snow activities, and therefore the tourism industry.

Changes in temperature and seasonality will affect agriculture and horticulture – for example, where certain crops, such as kiwifruit, can be grown. It will also change the timing of key events in the natural environment, from when plants flower to when animals migrate.

We can expect more frequent and severe droughts, particularly east of the Southern Alps / Kā Tiritiri o te Moana. That will put pressure on our freshwater resources – potentially affecting the reliable supply of drinking water, electricity generation and recreational activities like swimming and fishing. The agriculture sector will also be vulnerable to declining crop yields and pasture growth.

Projections indicate we will have stronger, northeasterly airflows in summer and stronger westerlies in winter – particularly in the south of the South Island. This will also affect rainfall patterns. Projected changes vary substantially around the country and by season. Annual increases in rainfall are projected for the west and south of Aotearoa; annual decreases are projected for the north and east.

Higher temperatures and wind speeds, and lower rainfall and relative humidity are likely to raise the risk of wildfire.[5, 6]

Figure 2 illustrates the range of changes projected as a result of climate change.

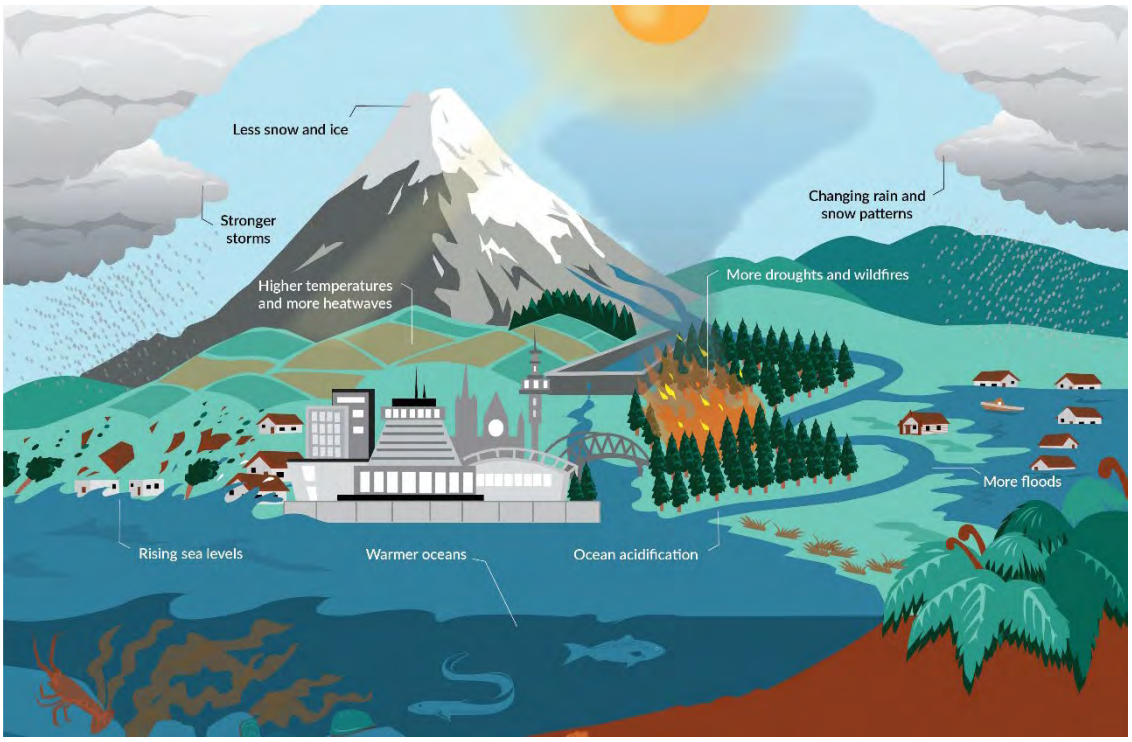
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4 Ministry for the Environment. 2018. *Climate Change Projections for New Zealand: Atmosphere Projections Based on Simulations from the IPCC Fifth Assessment, 2nd Edition.* Wellington.

5 Ministry of Agriculture and Forestry. 2011. *Improved Estimates of the Effect of Climate Change on NZ Fire Danger*. Wellington.

6 Intergovernmental Panel on Climate Change. In press. *Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge.

**Figure 2: Projected impact of climate change on Aotearoa**




The scope of these projected changes is broad. Some will increase the intensity and frequency of natural hazards that have large-scale social and financial costs. We will need to ensure our communities, homes, buildings and places are resilient enough to cope with these. Other impacts will arise from general changes in weather patterns. For example, older people may suffer heat stress from a warmer climate, farmers may need to cope with drier conditions, and warmer oceans will affect our aquaculture industry.

We therefore need to use a diverse range of climate change scenarios that cover a number of possible futures. This allows us to prudently plan for a range of outcomes, including testing worst case scenarios. A degree of uncertainty is not a reason for inaction. Limiting the level of climate warming by mitigating emissions and building resilience to climate risk is the most effective way to reduce further losses and damages from climate change.

## Adaptation will bring new opportunities we must seize

Our adaptation journey will also bring new opportunities along the way.

Warmer climates and the process of adaptation could bring lower winter heating costs, increased agriculture and horticulture productivity in new places, new fisheries species, more business and employment opportunities in sustainable sectors and new tourism offerings.

Actions in chapter 10: Economy and financial system, such as action 10.3: Deliver the Aquaculture Strategy, action 10.7: Continue delivering the Sustainable Food and Fibre Futures Fund and action 10.8: Establish innovation grants, can help New Zealanders harness upsides from the transition.

Seizing those opportunities will help us adapt and build resilience in a fair, just and equitable way.

# Adaptation is a process of assessing risk, planning, implementing, evaluating and adjusting

We are used to managing natural hazards in Aotearoa, but adapting to climate change requires a different approach.

Natural hazard management has tended to be static and reactive, taking past events as a proxy for their future likelihood and consequences. Climate change is exacerbating the natural hazards we typically experience – making them more frequent and severe. It is also changing weather patterns in ways that are not necessarily hazardous, but are still challenging.

We need to be proactive in building resilience to natural hazards and other climate impacts, and shape our responses in a holistic way. Climate-related risk over longer timeframes is inherently uncertain. We must be flexible, so we can change direction as new information and understanding comes to light.

Adaptation is a process (see figure 3). It is a continuous journey of making a plan to assess risks, implementing the plan, monitoring and evaluating how effective the plan is, and adjusting as necessary.

The Climate Change Response Act 2002 establishes a process for that journey.

## National risk assessments

The Act requires the Climate Change Commission to prepare national climate change risk assessments every six years.[7] These will assess the risks to the economy, society, environment and ecology. They will also identify the most significant risks based on their nature, severity and the need for a coordinated response.

## National adaptation plan

The next step is to prepare a national adaptation plan in response to the assessment and release a draft for consultation. Once New Zealanders have had their say on the draft plan, the plan is finalised and implemented.

## Progress reports

The He Pou a Rangi – Climate Change Commission will then prepare two-yearly progress reports on how effective the plan is in reducing the risks. The Government must respond to the Commission's report within six months.

## Adjustment

At this point, we have the opportunity to adjust the national adaptation plan to ensure it meets the intended outcome. We also have obligations to report internationally on our progress.

[7] The Government prepared the first national climate change risk assessment, but progress reports and subsequent risk assessments are to be prepared by He Pou a Rangi – Climate Change Commission.

**Figure 3: Aotearoa New Zealand's adaptation process over time**




# We all have a part to play

## Adaptation is a journey we will take together.

Changing the way we do things – so our people, natural environment, built places and systems are resilient and can adapt – is an enormous challenge. But we can meet it by working together now to understand the risks, and taking action to manage them.

New Zealanders know from our vast experience with natural hazards – such as flooding and earthquakes – that we all have to prepare for them. Climate change is no different, although the range of impacts is wider than an increase in hazard events. We will all feel the effects and we all have a role in building resilience.

Central government, local government, iwi, hapū, whānau, the private sector, the research and scientific community, and communities and individuals all have different but complementary roles in our risk management system (see appendix 3). Central government cannot bear all of the costs of adaptation. Risk and costs will need to be shared between asset or property owners, their insurance companies, their banks, local government and central government.

Aotearoa is a resilient and innovative country. We need to work together to understand and prepare for the changes that will affect us.

## Central government

Central government will take a leadership role in partnership with local government. It can establish regulatory and institutional settings that support effective adaptation – including, for example, supporting the right development in the right place. It can facilitate the availability of information and data for good risk-informed decision-making, and set direction to support local government and communities in their planning. Central government can ensure climate policy is a whole-of-government approach, in which each department or agency plays a part.

Central government also manages the investment in and risks to its own assets and to infrastructure. These include schools, hospitals, police stations and prisons, as well as services such as conservation and biosecurity. It also cares for a significant amount of Aotearoa New Zealand's cultural heritage.

Central government funds post-disaster relief through mechanisms like the Toka Tū Ake EQC and the National Emergency Management Agency (NEMA). It also supports vulnerable individuals through the welfare system. Increased resilience across the country can help the Government manage those costs, as well as the costs of maintaining its own assets and infrastructure.

## Local government

Local government is at the centre of risk management planning and response because most hazard events occur at the local or regional scale. Climate change is felt locally, so local government will maintain its central role in helping communities to understand and respond together. Many communities and sectors are already collaborating to plan for a changing climate. Councils have statutory responsibilities to avoid or mitigate natural hazards and to have regard to the effects of climate change when making certain decisions. They are also responsible for civil defence and emergency management, and improving community resilience through public education and local planning. Their functions and duties relating to natural hazards include:

- land-use planning under the Resource Management Act 1991, including national direction
- civil defence as outlined in the Civil Defence Emergency Management Act 2002 and civil defence emergency management (CDEM) group plans
- asset management based on the Soil Conservation and Rivers Control Act 1941 and councils' long-term plans and infrastructure strategies developed under the Local Government Act 2002
- building regulation based on the Building Act 2004
- disclosure of hazard information as required by the Local Government Official Information and Meetings Act 1987.

Councils also own assets, including infrastructure and forests, that are at risk from climate impacts.

Investment by local government in improved resilience can reduce the costs of new and improved infrastructure, support communities to pay rates, and reduce the likelihood of high-cost interventions such as managed retreat.

Many councils are already addressing the impacts, and proactively integrating climate risk into current and future planning.

## Māori

Māori play a unique role in adaptation – as Tiriti partners, tangata whenua and kaitiaki.

Māori as tangata whenua (people of the land) and kaitiaki (guardians) of their ancestral and cultural landscape will be affected by climate change. Certain whānau, hapū and iwi will be disproportionately affected, as will Māori interests, values, practices and wellbeing.

In accordance with the principles of Te Tiriti o Waitangi, the Government and Māori will need to make decisions together in a way that balances kāwanatanga (the Government's right to govern) with rangatiratanga (the Māori right to make decisions for Māori). Mātauranga Māori (indigenous knowledge) and an indigenous worldview will provide a valuable lens for planning and considering solutions.

The platform for Māori climate action in the first national adaptation plan will be a key mechanism for empowering Māori to play a role in adaptation planning for Māori, by Māori.

Iwi across the country are also showing how we can adapt and thrive in a changing climate. In December 2021, South Taranaki iwi Ngaa Rauru Kiitahi published Ka Mate Kaainga Tahi, Ka Ora Kaainga Rua – The Ngaa Rauru Kiitahi Climate Change Strategy. The strategy outlines how the iwi will work with others in the community to better adapt to the impacts of climate change and reduce emissions. Similarly, the Te Arawa Climate Change Working group is working to protect cultural infrastructure and communities through the Te Ara ki Kōpū: Te Arawa Climate Change Strategy.

## Private sector

The private sector will face adaptation challenges. Businesses will need to strengthen their resilience to climate risks, including risks to their assets. Investment in resilience can both reduce risks and create new opportunities. Direct investment in adaptation can strengthen the resilience of infrastructure, production systems and supply chains. Good risk management includes understanding and developing strategies to manage these risks. Businesses may also find economic opportunities from better managing their risks, such as benefiting from new technologies and markets.

Banks and insurers may be exposed through their mortgage portfolios and liabilities. They can encourage resilience-building actions through their advice to customers, by providing loans or build-back-better post-event payments, and by sending market signals via their lending and insurance policies.

## Research and scientific community

The research and scientific community can also contribute to adaptation. Adaptation decisions at all levels must be based on the best available science. Producing that science and making it accessible to address climate risk – by reducing vulnerability, building adaptative capacity and increasing long-term resilience – is a cornerstone of advancing Aotearoa New Zealand's adaptation action. The research strategy in chapter 11: Implementing the plan provides guidance on research to help us on our adaptation journey.

## Communities and individuals

Climate change is increasingly affecting daily life – for example, rising costs due to disrupted supply chains, power cuts due to extreme weather, and the need to evacuate homes due to flooding or fires. Communities and individuals need to be involved in adaptation. Good information about the risks and impacts will help them make informed choices.

Individual asset owners will need to manage risks to their own assets – reducing risk, minimising the impacts of natural hazards when they occur, and avoiding adding to risk through poor development choices.



**CASE STUDY**
**Climate Leaders Coalition**

In many areas, the private sector is already taking action to manage risks from climate change. One example is the Climate Leaders Coalition (the Coalition).

The Coalition brings together more than 100 chief executives from various industries who have committed their organisations to taking voluntary action on climate change. The Coalition's mission is to respond through collective, transparent and meaningful action. For 2022, one of the Coalition's focus areas is adaptation. This means understanding the risks businesses will face and planning for these to help build resilience.

In 2021, close to a third of the signatories assessed and disclosed their risks, and more than half are working to disclose soon. Among the signatories, 80 per cent are already considering risks in their investments and planning. The Task Force on Climate-related Financial Disclosures framework is their preferred approach to assessing risks, and more than a third are either fully or partially compliant with it (as at April 2021).

By making the consideration and management of climate risk part of their operations, as well as reducing emissions, businesses are planning now for the future.

# Adapting in partnership with Māori

Upholding the principles of Te Tiriti o Waitangi is a central aspect of the Government's long-term adaptation strategy. That means the Government will develop adaptation responses in partnership with Māori – including elevating te ao Māori and mātauranga Māori in the adaptation process – and empower Māori in planning for Māori, by Māori. The platform for Māori climate action provided for in the first national adaptation plan will be central to establishing a foundation for this partnership.

Many Māori communities are located in rural and remote locations, and are particularly vulnerable to the effects of climate change on their homes, infrastructure and sites of cultural significance to Māori – including marae, urupā (burial grounds), waahi tapu (sacred sites) and mahinga kai (food gathering sites). In the Tairāwhiti rainfall event in March 2022, Anaura Bay – a coastal community with a high Māori population – was cut off due to widespread flooding and road slips. Hinetamatea marae suffered significant damage and part of the urupā was washed out to sea. Similar stories of other remote communities – in Mohaka, Raupunga, Tolaga Bay, the Waikato, and the Wairua Lagoons – of road closures, power cuts, kaimoana contamination and the potential for further displacement were told in submissions and workshops during the consultation phase of this plan.

Mātauranga Māori at a hapū and iwi level will be critical to informing local and central government climate adaptation responses.

The Government will work together with Māori to support Māori to explore adaptation options for Māori, led by Māori as part of Action 3.3 Establish a platform for Māori climate action.

The Government recognises that its Tiriti partners have a worldview that sits outside western interpretations. It has commissioned Ihirangi to provide an indigenous worldview of the national adaptation plan – which is represented by the Rauora framework – to help facilitate its work in partnership with Māori.

The Rauora framework (figure 4) is published alongside this strategy and in chapter 2: Our first national adaptation plan 2022–28. It brings together Māori values and principles into an indigenous worldview of climate change. The Rauora framework is a lens through which the adaptation strategy and national adaptation plans will be progressed.

How the Rauora framework will inform our journey will be established in partnership with Māori through the platform for Māori climate action (action 3.3). The platform is a vehicle for both mitigation and adaptation action and is therefore also a key action in the emissions reduction plan. This is consistent with the Rauora principle of interconnectedness.

The Rauora framework is also a foundation from which iwi, hapū and whānau can apply their own mātauranga-a-iwi (knowledge with an iwi-specific base).

The notion of whenua ora, tangata ora, mauri ora recognises that the land, people and associated life forces are interconnected. In this way, a well land is a well people, and so too are the life forces of these components of the world healthy. The notion of kaitiakitanga is implicit in this approach, where Māori continue to strengthen their stewardship of the environment.

The Rauora framework supports and promotes transformative approaches, resilience building and supporting measures. It elevates and celebrates the contributions indigenous values and mātauranga Māori can bring to climate action.

**Figure 4:** **Rauora: A climate change framework**

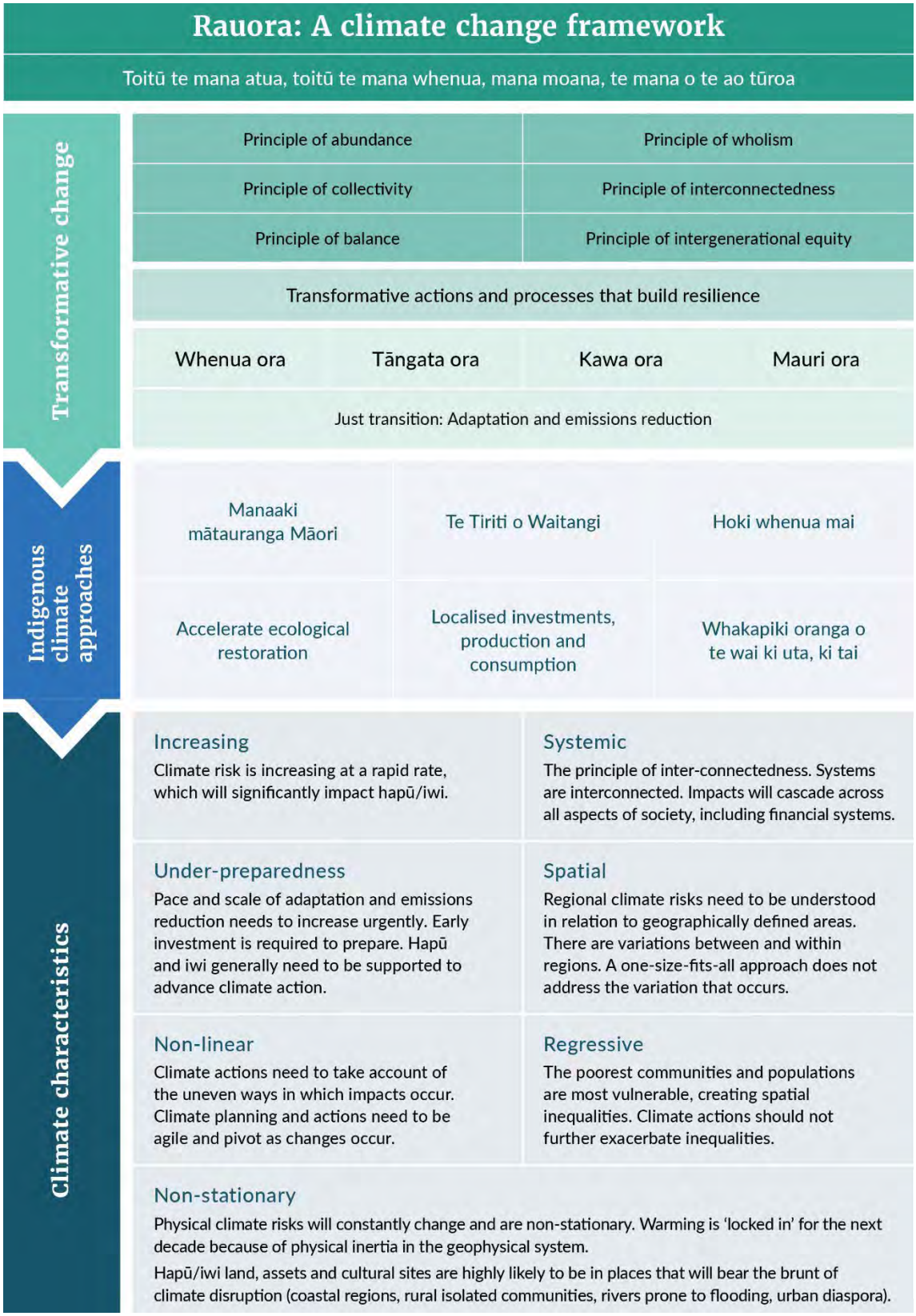




*Image: Karina Hunt*

**CASE STUDY**
**Ngaa Rauru Kiitahi Climate Change Strategy**

Climate action for Ngaa Rauru Kiitahi, a small iwi in south Taranaki, is encapsulated in their recent climate change strategy. The iwi and the Ministry for the Environment co-developed this as a case study in understanding the complexities of climate change for small post-settlement governance entities.

The strategy is entitled *Ka Mate Kaainga Tahi, Ka Ora Kaainga Rua: When a place of abode retires, another as prepared emerges*. This whakatauākī (proverb) refers to values from the iwi's own ancestral pathways – preparedness, agility, resilience and future thinking – that ensure safety and survival.

Preparing a second place of abode sits in a broader context: extreme weather conditions and projected flooding patterns will affect marae, communities, hapū, culturally significant assets and businesses. Climate change is viewed as a phenomenon that will affect every facet of their lives. The strategy is more than an environmental plan; it includes social, economic, ecological and cultural implications.

> "We have a responsibility to whanau, hapuu, marae and the iwi, to ensure that we are still here in 1,000 years' time." (Mike Neho, Tumu Whakarae, iwi chair, Ngaa Rauru Kiitahi)

The strategy is informed by a Ngaa Rauru Kiitahi conceptual framework known as Te Kawa Ora, which promotes a balance between all things. The environment is viewed as an extension of iwi through whakapapa. To this end, relationships within the iwi and externally with others, including the environment, are viewed as fundamental to the approach. The strategy challenges the iwi to reharness their own tikanga (custom), kawa (protocol) and mātauranga-a-iwi (knowledge with an iwi-specific base) to advance climate action.

Developments include their papakāinga, partnerships in the energy sector, land purchases for new businesses, expanding alternative food sources and regenerating local flora and fauna.

Partnerships and alliances, capability and capacity building, and planning, implementation, research and evaluation are the cornerstones of this strategy. All are built on a foundation of Ngaa Raurutanga (the totality of customs, traditions, history and shared knowledge of members of the Ngaa Rauru iwi).

# Our adaptation journey must be equitable

No two communities will experience climate change in the same way. Inequity arises through multiple domains, including income, housing, employment and accessibility. Climate change can also increase existing inequities. For example, some groups are more susceptible to harm due to where they live – such as coastal communities. Others may be disproportionately affected by financial impacts or lack the resources to adapt – such as low-income and beneficiary households – or have specific adaptation needs – such as older people and disabled people. Some regions are at risk from coastal erosion and flooding, while others are already dealing with drought. Tangata whenua face the loss of wāhi tapu (sacred sites) and taonga species.

Our adaptation strategy and national adaptation plans must support New Zealanders in ways that recognise their unique needs, values and circumstances.

### Some New Zealanders are more vulnerable than others

Māori as tangata whenua are particularly sensitive to climate impacts on the natural environment for social, economic, cultural and spiritual reasons. Many Māori depend on primary industries for their livelihoods. In some places, climate change may alter patterns of use of mahinga kai (food-gathering sites) or rongoā crops (medicinal plants), and coastal impacts could disrupt access to marae or wāhi tapu.

Different groups experience extreme events and disaster responses differently. Older people may be more reluctant to evacuate their homes, because of income and accessibility and/or mobility issues, and may suffer from the loss of cultural and social networks. Ethnic minorities are more vulnerable in disaster responses due to language and integration barriers.

If communities need to shift, low-income groups have less choice about where to relocate and are less able to move elsewhere. Mobility-compromised and disabled people have specific needs that can be overlooked in the planning of new community locations and accessible housing.

Some groups feel the psychological and physical impacts of climate change more than others. Young people and children are more prone to psychological impacts from extreme events, while women are more vulnerable to domestic and sexual violence, which can increase in times of disaster. The mental health of members of farming and rural communities can be affected by the disruptions to livelihoods and loss of social cohesion.

Those with poorer health outcomes, such as Māori and Pacific people, children and older people, may also physically suffer more from increased heat and disease.

New Zealanders are already experiencing the impacts of climate change. As these impacts increase, there is a risk that existing vulnerabilities will deepen.

An equitable transition for all New Zealanders is important. To ensure that our transition is equitable, fair and inclusive, we will need to:

- uphold Te Tiriti o Waitangi, work in partnership with Māori to address climate risk, maximise opportunities and avoid disproportionately affecting Māori or locking in existing inequities
- work inclusively with affected groups to understand their needs
- take opportunities to reduce inequalities and support communities and regions to promote resilience in line with local objectives
- prioritise support to those most affected and least able to adapt, particularly lower-income households
- set clear, stable policies that provide predictability for communities and businesses, allowing them time to plan, respond and seize opportunities
- support workers to adapt by transitioning to quality jobs at lower risk from the effects of climate change
- ensure adaptation decisions balance the need to avoid abrupt and disruptive changes with the need for early action to address near-term risks, reduce costs over time and avoid an inequitable burden on future generations.

## Adaptation goals

The Government has identified the following goals that underpin this long-term adaptation strategy:

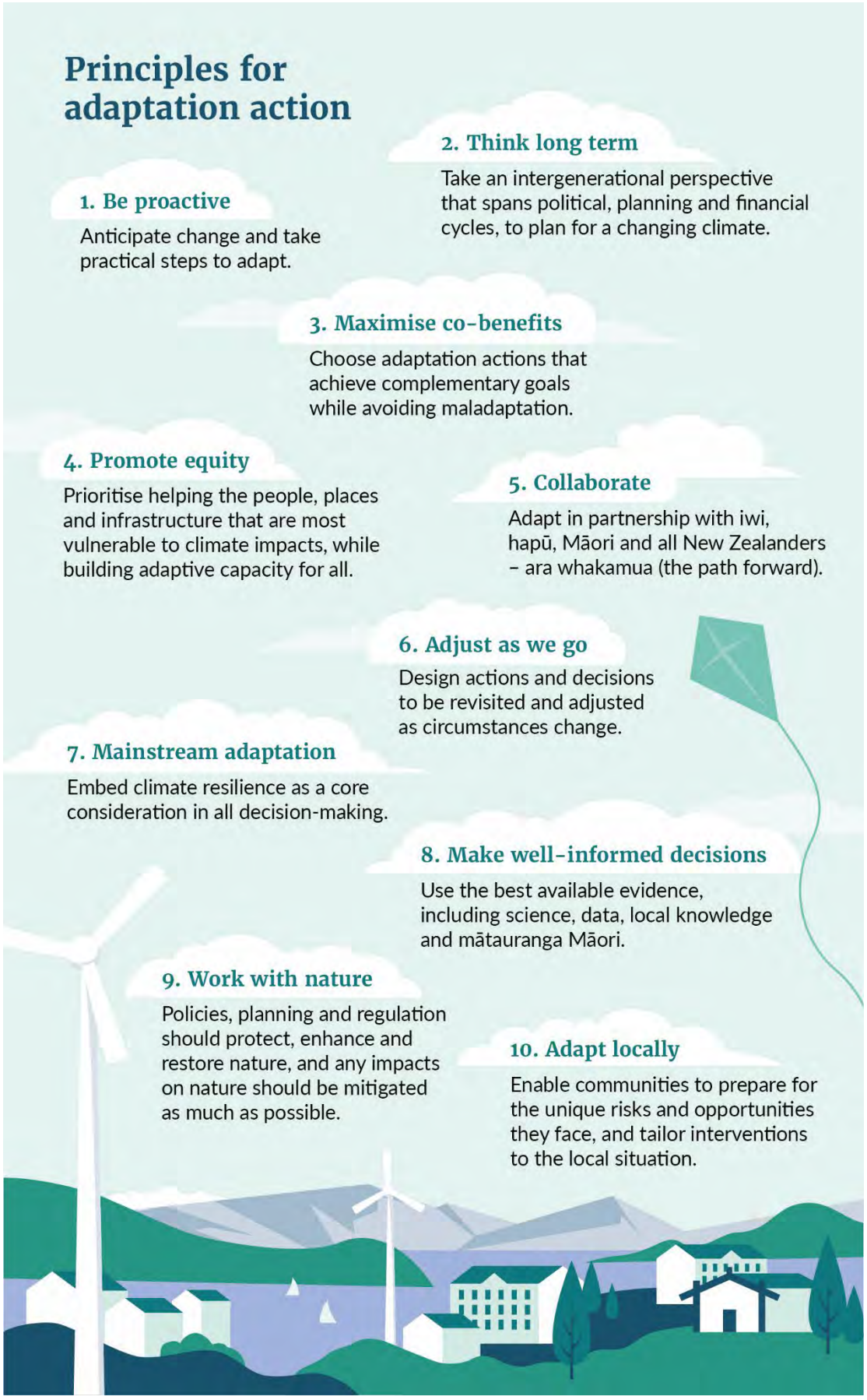
- reduce vulnerability to the impacts of climate change – this means reducing the sensitivity and susceptibility of people and systems to climate impacts
- enhance adaptive capacity and consider climate change in decisions at all levels – this means helping people, institutions and systems to adjust to climate change by building their capacity to respond and embedding climate resilience across and through all levels of government
- strengthen resilience – this means taking action that strengthens the way people and systems cope with immediate climate impacts, as well as building capacity for learning and transformational adaptation.

These goals are consistent with the global goal on adaptation under the Paris Agreement and should be implemented in an interlinked and systemic way.

Aotearoa is also a signatory to several international agreements that support action to reduce vulnerability and enhance resilience. These include the Sendai Framework for Disaster Risk Reduction 2015–2030 and the 2030 Agenda for Sustainable Development, as well as agreements under the United Nations Framework Convention on Climate Change (UNFCCC) process, including the Paris Agreement.

The Government has also identified ten principles that underpin the long-term adaptation strategy (figure 5). These principles reflect the need for our adaptation strategy to be intergenerational, flexible, proactive, responsive, holistic and inclusive – drawing on elements of the Rauora framework. These goals and principles underpin the priorities and adaptation actions in this first national adaptation plan. They will guide the implementation of this plan, and future national adaptation plans.

**Figure 5: Principles guiding our adaptation strategy**



CHAPTER 2:

# Our first national adaptation plan 2022–28



# Chapter 2: Our first national adaptation plan 2022–28

| Our first national adaptation plan 2022–28 |
| --- |
| This chapter introduces Aotearoa New Zealand's first national adaptation plan for 2022–28. |
| This chapter outlines:<br>• the risks Aotearoa New Zealand will face from climate change, including the ten most significant risks across the domains identified in the National Climate Change Risk Assessment 2020<br>• the structure of this plan, including:<br>– the Government's four priorities for addressing those risks<br>– the five outcome areas in which climate resilience will be embedded across Government<br>– the objectives of the plan<br>– the types of actions contained in the plan. |

## A Government-led plan for all New Zealanders

This national adaptation plan is the first in a series of national adaptation plans that will be developed every six years in response to national climate change risk assessments prepared by He Pou a Rangi – Climate Change Commission. It is the first step towards meeting the Government's long-term vision and goals for a climate-resilient Aotearoa New Zealand.

This plan is a Government-led plan for all New Zealanders that brings together existing actions and proposed future work into a multi-year work programme. Together, these set out what central government will do over the next six years to enable all levels of government, sectors and communities and all New Zealanders to better understand the risks and take action to address them.

### We have a clear picture of the risks for 2020–26

The actions in this plan are strongly guided by the National Climate Change Risk Assessment 2020. This identifies:

- 43 priority risks that Aotearoa faces from climate change
- an urgency profile for each risk, and the responses that would help address each risk
- the ten most significant risks – these are the two most urgent risks in each of the five domains (natural (N), human (H), economy (E), built (B) and governance (G)) – see figure 6.

**Figure 6: The ten most significant risks Aotearoa will face from climate change in 2020–26, by domain**



### Natural

Risks to coastal ecosystems, including the intertidal zone, estuaries, dunes, coastal lakes and wetlands, due to ongoing sea-level rise and extreme weather events.

Risks to indigenous ecosystems and species from the enhanced spread, survival and establishment of invasive species due to climate change.



### Human

Risks to social cohesion and community wellbeing from displacement of individuals, families and communities due to climate change impacts. *

Risks of exacerbating existing inequities and creating new and additional inequities due to differential distribution of climate change impacts. *



### Economy

Risks to governments from economic costs associated with lost productivity, disaster relief expenditure and unfunded contingent liabilities due to extreme events and ongoing, gradual changes.

Risks to the financial system from instability due to extreme weather events and ongoing, gradual changes.



### Built

Risks to potable water supplies (availability and quality) due to changes in rainfall, temperature, drought, extreme weather events and ongoing sea-level rise. *

Risks to buildings due to extreme weather events, drought, increased fire weather and ongoing sea-level rise. *



### Governance

Risks of maladaptation across all domains due to the application of practices, processes and tools that do not account for uncertainty and change over long timeframes.

Risks that climate change impacts across all domains will be exacerbated because current institutional arrangements are not fit for climate change adaptation.

* The risk has disproportionate impacts on Māori.

# Structure of the plan

## Four priorities to address the risks

The national adaptation plan is required to address the most significant risks identified by the risk assessment. The actions in this plan will help to address all 43 risks, as well as the risk to the telecommunications network.

The plan sets out four priorities for action:

- **Priority 1:** Enabling better risk-informed decisions (chapter 3).
- **Priority 2:** Ensuring our planning and infrastructure investment decisions drive climate-resilient development in the right locations (chapter 4).
- **Priority 3:** Adaptation options including managed retreat (chapter 5).
- **Priority 4:** Embedding climate resilience in all government strategies and policies (chapters 6–10).

## Outcome areas

To address specific realms of risk, this plan sets out five 'outcome areas' where targeted action is needed. These broadly align with the domains identified in the risk assessment:

- natural environment (NE)
- homes, buildings and places (HBP)
- infrastructure (INF)
- communities (C)
- economy and financial system (EF).

## Objectives

The Government has identified a series of objectives for addressing the risks identified in the risk assessment. These objectives relate to either:

- system-wide issues or
- specific 'outcome areas'.

**Table 1: System-wide and outcome area objectives of the plan**

| Area | Code | Objectives |
|---|---|---|
| System-wide | SW1 | Legislation and institutional arrangements are fit for purpose and provide clear roles and responsibilities |
| | SW2 | Robust information about climate risks and adaptation solutions are accessible to all |
| | SW3 | Tools, guidance and methodologies enhance our ability to adapt |
| | SW4 | Unlocking investment in climate resilience |
| Natural environment | NE1 | Ecosystems which are healthy and connected, and where biodiversity is thriving |
| | NE2 | Robust biosecurity reduces the risk of new pests and diseases spreading |
| | NE3 | Support working with nature to build resilience |
| Homes, buildings and places | HBP1 | Homes and buildings are climate resilient, and meet social and cultural needs |
| | HBP2 | New and existing places are planned and managed to minimise risks to communities from climate change |
| | HBP3 | Māori connections to whenua and places of cultural value are strengthened through partnerships |
| | HBP4 | Threats to cultural heritage arising from climate change are understood and impacts minimised |
| Infrastructure | INF1 | Reduce the vulnerability of assets exposed to climate change |
| | INF2 | Ensure all new infrastructure is fit for a changing climate |
| | INF3 | Use renewal programmes to improve adaptive capacity |
| Communities | C1 | Enable communities to adapt |
| | C2 | Support vulnerable people and communities |
| | C3 | Support communities when they are disrupted or displaced |
| | C4 | The health sector is prepared and can support vulnerable communities affected by climate change |
| Economy and financial system | EF1 | Sectors, businesses and regional economies can adapt. Participants can identify risks and opportunities and take action |
| | EF2 | A resilient financial system underpins economic stability and growth. Participants can identify, disclose and manage climate risks |

## Actions

The actions throughout this plan are designed to achieve these objectives – and many actions will help us achieve more than one objective. Many actions are system-wide, because climate risks are interconnected and affect the broader systems of our society.

The Table of actions provides a comprehensive list of actions in this plan. The actions are mapped to the relevant risks identified by the National Climate Change Risk Assessment 2020 and the Government's system-wide and outcome area objectives. The Table of actions also identifies the lead agency responsible for the action, the relevant Government portfolio, the status (current or proposed) of the action, timeframe and implementation measures.

Chapters 3–10 identify critical actions, supporting actions and proposed actions.

- Critical actions are the actions that will make the most difference and we must start now.
- Supporting actions are either less urgent, or are dependent on the critical actions.
- Future work programmes are proposed actions that reflect current thinking about what will be needed in future.

All critical and supporting actions are current, which means they have funding and mandate. Future work programmes are proposed, which means whether they go ahead, and in what form, will depend on a range of factors. These include the critical or supporting actions they depend on, the need for those actions, and funding decisions, including future budget decisions.

Adaptation planning requires a flexible approach that can accommodate change but keep us moving in the right direction. Inevitably, actions in the later years of this plan are less clearly defined. Over time, decisions will be made on which proposals to progress and when, and whether new proposals are required. These decisions will be made as the results of earlier actions become clearer.

Many of the actions in this plan are interrelated and will help address multiple risks, priorities and objectives. This reflects the interconnected nature of climate issues. It also underscores the importance of taking a flexible approach to the future work programme.

Chapter 11, the final chapter in this plan, addresses implementation of the plan.

CHAPTER 3:

# Enabling better risk-informed decisions



# Chapter 3: Enabling better risk-informed decisions

| Enabling better risk-informed decisions | |
|---|---|
| **Government agencies with actions in this chapter** | • Commerce Commission<br>• Department of Internal Affairs (DIA)<br>• External Reporting Board (XRB)<br>• Financial Markets Authority (FMA)<br>• Ministry for Culture and Heritage (MCH)<br>• Ministry for the Environment (MfE)<br>• Ministry for Primary Industries (MPI)<br>• Ministry of Business, Innovation and Employment (MBIE)<br>• National Emergency Management Agency (NEMA)<br>• National Institute of Water and Atmospheric Research (NIWA)<br>• Standards New Zealand<br>• Stats NZ<br>• Te Puni Kōkiri – Ministry of Māori Development (TPK)<br>• Te Tūāpapa Kura Kāinga – Ministry of Housing and Urban Development (HUD)<br>• Te Waihanga New Zealand Infrastructure Commission<br>• Te Whatu Ora – Health New Zealand<br>• Toitū Te Whenua Land Information New Zealand (LINZ)<br>• Toka Tū Ake EQC<br>• Treasury (TSY) |
| **Why these actions are important for building resilience** | With access to up-to-date and relevant information, tools, methodologies and guidance, all New Zealanders can assess the exposure and vulnerability of their homes, businesses and communities to current and future climate hazards. |
| **Significant risks addressed in this chapter**<br>G = Governance | All significant risks are addressed by this chapter, in particular:<br>• G1: Risk of maladaptation across all domains due to the application of practices, processes and tools that do not account for uncertainty and change over long timeframes. |
| **Objectives relevant to critical actions**<br>SW = System-wide<br>C = Communities<br>INF = Infrastructure<br>EF = Economy and financial system | • SW1: Legislation and institutional arrangements are fit for purpose and provide clear roles and responsibilities.<br>• SW2: Robust information about climate risks and adaptation solutions are accessible to all.<br>• SW3: Tools, guidance and methodologies enhance our ability to adapt.<br>• C1: Enable communities to adapt.<br>• INF1: Reduce the vulnerability of assets exposed to climate change<br>• EF2: A resilient financial system underpins economic stability and growth. Participants can identify, disclose and manage climate risks. |
| **Critical actions relevant to this chapter** | • Provide access to the latest climate projections data to give New Zealanders the information they need to assess climate risk.<br>• Design and develop risk and resilience and climate adaptation information portals to provide the public with natural hazard risk information, climate data and information for climate decision-making.<br>• Establish the platform for Māori climate action to enable Māori to actively participate in policy design and tangata Māori climate actions, and support hapū, iwi and Māori to develop strategies and action plans for adaptation and mitigation. |

| Enabling better risk-informed decisions | |
|---|---|
| | • Raise awareness of climate hazards to make emergency preparedness a part of everyday life.<br>• Help businesses make decisions that better recognise climate-related risks, realise opportunities and attract more investment, through the climate-related disclosures programme.<br>• Improve natural hazard information on Land Information Memoranda (LIMs) to help people make better-informed decisions about natural hazard risks when buying a property.<br>• Deliver a rolling programme of targeted adaptation guidance to enable decision makers to assess and plan to manage climate-related risks.<br>• Develop guidance to support asset owners to evaluate, understand and manage the impacts and risks of climate change on their physical assets and the services they provide. |

# Information, guidance, tools and methodologies are needed to enable good decisions

All New Zealanders need to be making decisions that take into account climate change – across all aspects of our lives. The impacts of climate change will affect where we want to live, how we farm, where we invest in infrastructure, how we run our businesses, where we invest our money, where we allow new development, and how we protect our properties and keep ourselves safe. These are but a few examples.

### Climate hazards and risks

Climate hazards are the potential occurrence of a climate-related event or evolving trend or gradual physical impact that may cause damage and loss to human and natural systems.

Climate risk is the combination of a climate hazard with the exposure and vulnerability of a human or ecological system to the hazard.

To make good decisions in the face of climate change, we need to be able to assess our climate risk, which means the extent we are exposed to, are sensitive to and are able to respond to climate hazards. We have a significant amount of information on how the climate is expected to change in Aotearoa New Zealand that can be used to assess risk. However, the way that information is collected and managed is inconsistent and it can be hard to find and use. We also need datasets that better respond to iwi, hapū and Māori needs for information.

The National Climate Change Risk Assessment 2020 highlighted that we have limited tools and guidance on how to make decisions under uncertainty that take into account change over long timeframes. The Climate Change Adaptation Technical Working Group identified that, to adapt effectively, we need to: be informed about how the climate is changing and what this means; have the appropriate tools; and take dynamic action to proactively reduce exposure and vulnerability.

In response, this plan provides key information, guidance, tools and methodologies that can help us understand and assess our risk and develop suitable adaptation strategies, policies and solutions. It is the Government's priority to make sure all New Zealanders – Māori, councils, communities, businesses and households – have what they need to make better, risk-informed decisions, despite the uncertainty that climate change brings.

### A range of data is needed to assess climate consequences

Climate data include current and expected biophysical changes, such as changes to temperature, sea level and precipitation. With geospatial data, it is possible to map current and projected impacts and build baselines for long-term analysis – such as light detection and ranging (LIDAR), Earth observations, and topographic and geographic data.

When combined, these data can help to generate modelling and scenario-planning tools tailored to the needs of different users. With those tools, users can then assess climate consequences in areas such as health, employment, tourism, businesses and terrestrial and freshwater ecosystems.



**CASE STUDY**
**Wellington's digital twin**

A digital twin is a visual representation that looks and behaves like the real world; it can be used to make better decisions. As humans mostly process information visually, the digital twin helps people understand how a location works, how it will fare as the climate changes and what the outcomes of policy decisions will be.

Wellington City Council has developed a digital twin that functions as an interactive, virtual model of the capital. Built from a wide range of data – including GIS maps and city-wide sensors – it can be used to display the past, present and future city.

The council is now using this digital twin to co-design climate change adaptation solutions with Wellingtonians. It will connect mātauranga Māori, city planning data, climate science and community values.

The project will communicate the complexities of climate impacts and adaptation planning in an accessible way. The approach encourages participation, as decision makers and other Wellingtonians will be able to clearly understand local impacts.

Because the technology will be free, the project will empower Wellington's indigenous communities, businesses and organisations to adapt together.

# Significant risks

The actions in this chapter help reduce all risks identified by the National Climate Change Risk Assessment 2020. In particular, it addresses a risk related to the governance domain (G):

- G1: Risk of maladaptation across all domains due to the application of practices, processes and tools that do not account for uncertainty and change over long timeframes.

# Objectives

The Government has identified a range of objectives relevant to its priority to enable risk-informed decisions. These are:

- system-wide objectives – which are about making sure all New Zealanders have access to information, tools and guidance
- objectives for three outcome areas (see chapter 8: Infrastructure, chapter 9: Communities and chapter 10: Economy and financial system)

Table 2 shows the Government's objectives that guide this priority, across the different systems and outcome areas.

**Table 2: Government objectives relating to critical actions to enable risk-informed decisions**

| Code | Objective | Explanation |
|---|---|---|
| SW1 | Legislation and institutional arrangements are fit for purpose and provide clear roles and responsibilities | Use legislation or regulation to:<br>• enable clear, adaptive decision-making<br>• appropriately allocate responsibilities. |
| SW2 | Robust information about climate risks and adaptation solutions are accessible to all | • Combine data into meaningful information for different contexts.<br>• Create datasets that better respond to iwi, hapū and Māori needs. |
| SW3 | Tools, guidance and methodologies enhance our ability to adapt | • Manage risk by making decisions despite uncertainty.<br>• Use the right tools, guidance and methodologies to manage climate risks.<br>• Allow for uncertainty when planning for future risk. |
| C1 | Enable communities to adapt | • Enable communities to provide resources and take action for their unique situation.<br>• Build and share knowledge of local issues in culturally appropriate ways.<br>• Support community engagement in decisions.<br>• Provide information on adaptation options. |
| INF1 | Reduce the vulnerability of assets exposed to climate change | • Understand where infrastructure assets and their services are exposed and vulnerable to climate impacts.<br>• Prioritise the risk management of assets so that services can continue if disruption occurs. |
| EF2 | A resilient financial system underpins economic stability and growth. Participants can identify, disclose and manage climate risks | • Financial entities can identify, disclose and manage the risks to their business.<br>• Insurance access and affordability is understood and managed. |

# Actions to enable New Zealanders to make better risk-informed decisions

Adaptation decisions are complex and often taken under conditions of uncertainty. In response, the Government has developed a range of initiatives that will enable New Zealanders to make decisions that will reduce their vulnerability to the impacts of climate change and build resilience in their communities, properties and businesses.

Eight critical actions will provide information, scenarios and guidance. Some actions apply to all New Zealanders while others are targeted at specific sectors and groups.

To provide robust information about climate risks, action 3.2: Design and develop risk and resilience and climate adaptation information portals will collate and deliver the vast range of data, information and knowledge needed to make adaptation decisions for all users. Action 3.1: Provide access to the latest climate projections data will make data to calculate future climate risk available to all New Zealanders, as the most up-to-date regional and local climate projections data are produced from the IPCC's global projections data.

Action 3.3: Establish a platform for Māori on climate action will help define, measure and implement a national Māori climate strategy and action plan. It will activate kaupapa Māori, tangata Māori solutions that build climate resilience.

Action 3.4: Raise awareness of climate hazards and how to prepare will provide public education campaigns and information to help communities make emergency preparedness a part of everyday life.

Through action 3.7: Deliver a rolling programme of targeted adaptation guidance, a range of users will be provided with non-statutory guidance. This guidance will help them use decision-making tools and scenarios, assess risks and prepare adaptation plans.

Action 3.8: Develop guidance for assessing risk and impact on physical assets and the services they provide will ensure infrastructure asset owners are supported to evaluate the risks to their assets. This will reflect leading practice and international standards, and existing sector-specific Aotearoa guidance.

From 2023, about 200 of Aotearoa New Zealand's largest financial market participants will be required to analyse and publicly disclose their climate-related risks and opportunities each year under action 3.5: Support high-quality implementation of climate-related disclosures and explore expansion. This will provide information that enables redirection of funding away from high-risk investments and towards climate-resilient activities.

Action 3.6: Improve natural hazard information on Land Information Memoranda will ensure property owners can assess their exposure to natural hazards when buying a property.

The supporting actions and future work programmes in this chapter will give businesses and communities more specific information, guidance and tools to drive action (eg, see action 3.7.7: Produce guidance for preparing adaptation plans and action 3.7.3: Produce guidance for dynamic adaptive pathways planning). It provides frameworks and guidance for assessing vulnerabilities and resilience for the health and building sector (eg, see action 3.25: Design methodology for risk assessments of public buildings and action 3.28: Assess healthcare service resilience). Programmes are being implemented to develop new knowledge and understanding of climate impacts and consequences (eg, action 3.29: Produce an adaptation professional development programme for key audiences). Support is provided for specific sectors and groups, such as farming, property owners and community housing providers.

## Addressing inequity

Climate change will exacerbate existing inequities and create new ones. Understanding where these vulnerabilities exist, and how they may emerge, is key to effective adaptation.

Action 3.2: Design and develop risk and resilience and climate adaptation information portals will consider how the risk and resilience and climate adaptation information portals will collect and make available data and information on social and equity risks and support the assessment of climate vulnerability. This will include the exposure and sensitivity of disproportionately affected groups such as Māori and Pacific peoples, older people and children, disabled people, isolated communities, women and low-income groups.

Action 3.8: Develop guidance for assessing risk and impact on physical assets and the services they provide will consider the needs of groups who may be disproportionally affected or who are least able to adapt. Asset owners assessing impacts on infrastructure will need to consider how emergency services differ for those whose lives will be threatened if they have no power supply.

## Critical actions

### Action 3.1: Provide access to the latest climate projections data

**Timeframe:** Years 1–2 (2022–24)
**Lead agency:** NIWA
**Relevant portfolio:** Climate Change
**Primarily supports:** Objective SW2
**Status:** Current

The National Institute of Water and Atmospheric Research (NIWA) Projections Project is working to make the global climate projections from the most recent Intergovernmental Panel on Climate Change (IPCC) report (AR6 WG1) more applicable to Aotearoa. This will give New Zealanders the regional and local climate projections data they need to assess future climate risk and make adaptation decisions.

By January 2023, national climate projection datasets for Aotearoa will be available.

### Action 3.2: Design and develop risk and resilience and climate adaptation information portals

**Timeframe:** Years 1–6 (2022–28)
**Lead agencies:** Toka Tū Ake EQC; MfE
**Relevant portfolios:** Toka Tū Ake EQC; Climate Change
**Primarily supports:** Objective SW2
**Status:** Current

The Ministry for the Environment (MfE) and Toka Tū Ake EQC (EQC) are scoping the development of the risk and resilience and climate adaptation information portals. This will give the public natural hazard risk information, and provide access to climate data and information.

The joint goal is to develop one portal that will be a national 'self-service' information site. It will offer a comprehensive view of Aotearoa New Zealand's climate and natural hazard risks, at the individual community, local regional and national levels.

Separate portals are currently being scoped to meet end-user needs.

The portal(s) will address gaps in Aotearoa New Zealand's ability to use, translate and make hazard risk data, including climate data, easily accessible. This will enable those who access the portal(s) to make risk-informed decisions and as a result improve current and long-term natural hazard risk management and climate adaptation.

The portal(s) will use information, data and modelling capability that Toka Tū Ake EQC owns or funds, and data held by others, including government agencies.

The information needs for adaptation are vast and can be relevant to all groups (eg, climate projections) and specific to different groups.

All New Zealanders must be able to understand and assess their risk and have possible options to reduce it. Information will therefore also include strategies and frameworks to help communities make risk-informed decisions and design their adaptation solutions. The Government will work with users to define information needs and test available tools and guidance.

Toka Tū Ake EQC will be delivering the first phase of the risk and resilience portal by the end of 2022.

By the end of 2023, a design scope and delivery plan for the adaptation information component, or portal, will be complete and user needs defined.

### Action 3.3: Establish a platform for Māori climate action

**Timeframe:** Years 1–2 (2022–24)
**Lead agency:** MfE
**Relevant portfolio:** Climate Change
**Primarily supports:** Objective SW1
**Status:** Current

The platform for Māori climate action is the key mechanism through which the Government is looking to build a climate response partnership with Māori. It will build Te Tiriti partnership and greater recognition of Māori rights and interests, including Treaty settlement commitments, into the climate response.

The platform will build on three focus areas:

- embed partnership and representation – to uphold Te Tiriti principles, processes and mechanisms will be resourced and designed alongside Māori to help tangata whenua to actively participate in the climate response
- support Māori-led strategy and alignment – to elevate te ao Māori within the climate response, Māori will be supported to define, measure and implement a national Māori climate strategy and action plan
- activate kaupapa Māori, tangata Māori solutions – to enable community action, kaupapa Māori, tangata Māori actions and solutions for the climate emergency will be funded.

The platform will be set up in two phases:

- establish an interim ministerial advisory committee to:
  - support immediate strategic advice and expertise across climate response policy and work programmes that impact Māori
  - advise on a more enduring representative platform to help advance an equitable transition for Māori
- transition the platform to a more enduring form, developed with Māori, to provide a governance presence and strategic advice in emissions reduction plans and national adaptation plans over the longer term.

By the end of 2022, the Interim Ministerial Committee will be established. By 2024, phase two of the platform for Māori climate action will be developed.

### Action 3.4: Raise awareness of climate hazards and how to prepare

**Timeframe:** Years 1–6 (2022–28)
**Lead agency:** NEMA
**Relevant portfolio:** Emergency Management
**Primarily supports:** Objective C1
**Status:** Current

Enable and work with communities, including rural communities, iwi and Māori, organisations and others to make emergency preparedness a part of everyday life through public awareness and advice. Examples are public education campaigns and resources, such as GetReady.govt.nz, and tailored information for those who face additional challenges. This will help communities to understand the hazards and support them to take action before, and during, an emergency.

By the end of March 2024, a public education strategy will be developed for natural hazards, and there will be increased availability of information on preparedness for extreme weather events.

### Action 3.5: Support high-quality implementation of climate-related disclosures and explore expansion

**Timeframe:** Years 1–6 (2022–28)
**Lead agencies:** MfE and MBIE, supported by the XRB and FMA
**Relevant portfolios:** Climate Change; Commerce and Consumer Affairs
**Primarily supports:** Objective EF2
**Status:** Current

The Financial Sector (Climate-related Disclosures and Other Matters) Amendment Act 2021 requires about 200 of Aotearoa New Zealand's largest financial market participants to analyse and publicly disclose their climate-related risks and opportunities each year. The purpose is to ensure the effects of climate change are routinely considered in decisions for business, investment, lending and insurance. As the risks and opportunities are more accurately factored into pricing and become more transparent, we expect this will shift investment away from high-risk areas, and towards a sustainable, low-emissions and financially stable economy.

We will also explore extending the mandatory disclosures regime to cover a broader range of activities – for example, public entities at the national and local level.

Key actions to support implementation are led by the Ministry for the Environment (MfE) and the External Reporting Board (XRB). They include promoting industry-led, sector-level climate scenario analysis; facilitating access to climate data; and working with international organisations to support clear, comparable and consistent climate disclosures.

The Financial Markets Authority (FMA) will be responsible for independent monitoring and enforcement of the disclosures regime. The FMA will also provide guidance about compliance expectations, and reporting on monitoring activities and findings.

The Government will decide whether to extend mandatory disclosure requirements to public entities by 2024.

### Action 3.6: Improve natural hazard information on Land Information Memoranda

**Timeframe:** Years 1–4 (2022–26)
**Lead agency:** DIA
**Relevant portfolio:** Local Government
**Primarily supports:** Objective C1
**Status:** Current

Changes to legal requirements for Land Information Memoranda (LIMs) will help people make better-informed decisions about natural hazard risk when buying a property. It will give councils greater certainty about what hazard information to include on the LIM. This will link to the suite of information and data portals that communities will have about the risks.

By end of 2023, legislative changes will likely have been made to the Local Government Official Information and Meetings Act 1987 to provide for improved natural hazard disclosure in LIMs.

### Action 3.7: Deliver a rolling programme of targeted adaptation guidance

**Timeframe:** Years 1–6 (2022–28)
**Lead agency:** MfE
**Relevant portfolio:** Climate Change
**Primarily supports:** Objective SW3
**Status:** Current/proposed

The Government will roll out a programme of non-statutory guidance for decision makers to assess and manage climate risks. This could also support regulatory requirements to be developed through the National Planning Framework.

#### *3.7.1: Promote the use of the Aotearoa New Zealand Climate Change Projections guidance*

**Timeframe:** Years 1–2

An update for Aotearoa that highlights changes from the 2021 AR6 IPCC.12 report. The update will enable stakeholders to quickly assess where they may need to adapt their risk management plans to account for the latest science.

#### *3.7.2: Produce adaptation guidance for central government policy makers*

**Timeframe:** Years 1–2

A methodology for central government to ensure it considers adaptation in new policy and services. This will avoid increased exposure or vulnerability to climate impacts.

#### *3.7.3: Produce guidance for dynamic adaptive pathways planning (DAPP)*

**Timeframe:** Years 1–2

A guide for central and local government on how to plan for adaptation in a context of uncertain climate futures.

#### *3.7.4: Produce guidance on using different socio-economic scenarios for adaptation planning*

**Timeframe:** Years 1–2

Assists central and local government and businesses to consider future socio-economic scenarios when assessing climate risks, and planning how to manage them.

***3.7.5: Regularly update adaptation guidance for local government***

**Timeframe:** Years 1–4

Supports local government to consider adaptation in planning and decisions. This will include guidance on communicating scientific and technical information to communities, and on making climate decisions.

***3.7.6: Produce guidance on integrating mātauranga Māori into adaptive planning and working with mana whenua***

**Timeframe:** Years 3–4

Helps central and local government effectively engage with hapū, iwi and Māori when managing risk and planning for adaptation.

***3.7.7: Produce guidance for preparing adaptation plans***

**Timeframe:** Years 1–4

Enables communities and different audiences, sectors and levels of government to produce their own adaptation plans, using a standard approach under conditions of uncertainty in climate projections. This could include interpreting downscaled projections.

***3.7.8: Regularly update the guide to local climate change risk assessments***

**Timeframe:** Years 5–6

Sets out a step-by-step process for local risk assessments. It will be updated on a six-yearly cycle after the release of each national climate change risk assessment. It supports local government to conduct their own assessments, to better understand the risks their regions face.

### Action 3.8: Develop guidance for assessing risk and impact on physical assets and the services they provide

**Timeframe:** Years 2–3 (2023–24)
**Lead agency:** Te Waihanga
**Relevant portfolio:** Infrastructure
**Primarily supports:** Objective INF1
**Status:** Current

Te Waihanga will scope and deliver guidance for asset owners to evaluate risks to their physical assets and the services they provide. This will help them understand, and subsequently manage, the impacts of climate change on existing and new assets.

The guidance will be process-based, and therefore apply to all infrastructure assets, in all geographies. It may include steps to:

- identify the stresses and shocks that could affect assets over time, and their potential impact on asset operation
- determine the critical components of the asset, or resources required for operation, to prioritise impact assessment and resilience planning
- determine what impacts mean for planned emergency levels of service, and how these might affect critical customers and vulnerable communities.

The guidance will be designed to integrate into enterprise risk management systems, so climate risks become increasingly assessed alongside other natural and systemic risks. It will also purposefully reflect the obligations of lifeline utilities under the Civil Defence Emergency Management Act 2002, so climate risk and impact assessment does not become an additional administrative burden.

The methodology will consider the needs of all groups who may be disproportionally affected, or are least able to adapt, including Māori, people of lower socio-economic status, disabled people, women, older people, youth and migrant communities.

The guidance will reflect leading practice, and leverage international standards and guidance, and sector-specific Aotearoa guidance, where this exists.

By 2026, the guidance will be published.

## Supporting actions

### Action 3.9: Complete the Data Investment Plan project

**Timeframe:** Years 1–6 (2022–28)
**Lead agency:** Stats NZ
**Relevant portfolio:** Statistics
**Primarily supports:** Objective SW2
**Status:** Current

The Data Investment Plan project recently completed a stocktake of essential datasets across central government and prioritised data gaps for investment. The data gaps may be filled by acquiring new data or making existing data fit for purpose.

### Action 3.10: Assess socio-economic and climate vulnerability for Māori

**Timeframe:** Year 1 (2022/23)
**Lead agency:** TPK
**Relevant portfolio:** Māori Development
**Primarily supports:** Objective C2
**Status:** Current

This action will collect and analyse social data against climate data to determine where support for resilience is most needed. This will enable the Government to better understand what support is needed to strengthen resilience for Māori communities.

### Action 3.11: Implement the National Disaster Resilience Strategy

**Timeframe:** Years 1–6 (2022–28)
**Lead agency:** NEMA
**Relevant portfolio:** Emergency Management
**Primarily supports:** Objective SW1
**Status:** Current

The National Emergency Management Agency (NEMA) will design a pathway to give effect to the National Disaster Resilience Strategy's vision, goals and objectives. The vision is for a disaster-resilient nation that acts proactively to manage risks and to build resilience in a way that contributes to the wellbeing and prosperity of all.

### Action 3.12: Improve how science, data and knowledge are used to inform emergency management

**Timeframe:** Years 1–6 (2022–28)
**Lead agency:** NEMA
**Relevant portfolio:** Emergency Management
**Primarily supports:** Objective SW2
**Status:** Current

The National Emergency Management Agency's 2021 Science Strategy will be used to create a framework for scientific engagement, promotion and influence for risk reduction, readiness, response and recovery. Research, data, mātauranga Māori, local knowledge and technical expertise will inform strategic decisions on emergency management, and explore practical interventions to improve disaster resilience.

### Action 3.13: Provide a forestry planning and advisory service

**Timeframe:** Years 1–6 (2022–28)
**Lead agency:** MPI
**Relevant portfolio:** Forestry
**Primarily supports:** Objective NE1
**Status:** Current

The forestry planning and advisory service will help to reduce climate risks by providing data-informed advice and planning tools. Advice will be on both harvest and non-harvest forestry – for example, to help decision makers consider where land is available for new forestry; where restoration, regeneration and reversion may be needed; and where unsuitable land may need to be retired from forestry, including conversion from plantation to indigenous forestry.

The advisory service will support vulnerable groups such as rural communities, producers and Māori with land management, economic development and job creation.

### Action 3.14: Deliver the Integrated Farm Planning Programme

**Timeframe:** Years 1–3 (2022–25)
**Lead agency:** MPI
**Relevant portfolio:** Agriculture
**Primarily supports:** Objective NE1
**Status:** Current

The Integrated Farm Planning Programme will provide a framework for farmers and growers to incorporate all their key farming areas, including greenhouse gases, into their farm planning. The goal is to enable a farmer or grower, using their preferred data-collection tool, platform or system, to meet all regulatory and business needs within a single framework.

The programme funds a career pathways scheme, providing more advisors skilled in whole-of-farm planning. This includes climate change advice, and a fund for industry, catchment and similar initiatives to increase the uptake of integrated farm planning.

The programme brings together many broader work programmes, including greenhouse gas farm planning, a biodiversity planning module, upskilling for primary industry advisors, planning for adverse events and resilience, and increased data sharing in the primary sector. These programmes will underpin adaptation across the sectors. The new Ministry for Primary Industries (MPI) On Farm Support services will also guide integrated farm planning, including how to use greenhouse gas calculators and other tools.

### Action 3.15: Design and implement the Farm Monitoring Programme

**Timeframe:** Years 1–2 (2022–24)
**Lead agency:** MPI
**Relevant portfolio:** Agriculture
**Primarily supports:** Objective EF1
**Status:** Current

The Farm Monitoring Programme collects farm-level information from up to 2,000 dairy, sheep and beef, deer, arable and horticulture farms/orchards. Detailed information on physical, production, financial and environmental aspects from each farm is collected to determine how the farm is performing. Farm Environmental Plans and nutrient budgets are created for each farm.

Quality data will inform decision-making to enable improved farm management decisions and profitability, while considering compliance and regulations to assist greenhouse gas reductions. This data helps farmers adapt to climate change by determining optimal stocking rates, diversifying crop rotations, improving soil quality, reducing off-farm flows of nutrients, and implementing more efficient farm practices to improve performance.

### Action 3.16: Improve consumer understanding of property insurance pricing and risks

**Timeframe**: Year 1 (2022/23)
**Lead agency**: Treasury
**Relevant portfolio**: Finance
**Primarily supports**: Objective EF2
**Status**: Current

Information sheets will help consumers identify, manage or even reduce their climate risks. This links to the work on Land Information Memoranda (LIMs), as greater disclosure can help people make better decisions on where to buy and build property.

### Action 3.17: Support and promote the integration of climate adaptation and mitigation in new and revised standards commissioned by third parties

**Timeframe:** Years 2–6 (2023–28)
**Lead agency:** Standards NZ
**Relevant portfolio:** Infrastructure
**Primarily supports:** Objective INF3
**Status:** Current

At the beginning of each relevant project, Standards NZ may bring adaptation and mitigation to the attention of the committee members of a standard it has commissioned. This may help improve resilience in existing and new assets, by guiding industry practice in asset design and operation.

### Action 3.18: Review electricity and gas networks' management of climate risk and resilience

**Timeframe:** Years 1–6 (2022–28)
**Lead agency:** Commerce Commission
**Relevant portfolio:** Commerce and Consumer Affairs
**Primarily supports:** Objective INF3
**Status:** Current

The Commerce Commission reviews many of the aspects of regulated electricity and gas networks' performance. The Commission is currently consulting on amending the asset management plan requirements for electricity distributors so that sector stakeholders can better understand distributors' risk management, including managing network resilience challenges posed by climate change. From time to time, the Commission will publish reviews of aspects of regulated networks' plans, to support them to improve their approach to managing risk and building adaptive capacity, and to provide more confidence that their related expenditure forecasts are robust.

### Action 3.19: Develop Te Ara Paerangi – Future Pathways programme for the research, science and innovation system

**Timeframe:** Years 1–6 (2022–28)
**Lead agency:** MBIE
**Relevant portfolio:** Research, Science and Innovation
**Primarily supports:** Objective SW2
**Status:** Current

Te Ara Paerangi – Future Pathways programme for the research, science and innovation system will position the system for the future. This includes focusing resources on national goals, such as climate change, and addressing other issues facing the research system, such as how best to honour Tiriti obligations, system funding and incentives, workforce and institutional design.

### Action 3.20: Continue prioritising research and investment in climate-related science

**Timeframe:** Years 1–6 (2022–28)
**Lead agency:** MBIE
**Relevant portfolio:** Research, Science and Innovation
**Primarily supports:** Objective EF1
**Status:** Current

The Government has a range of science funding programmes that support innovative adaptation by pushing the boundaries of knowledge and transferring this knowledge. These include:

- Vision Mātauranga Capability Fund, which aims to unlock the science and innovation potential of Māori knowledge, resources and people
- the Endeavour Fund for scientific research, run by the Ministry for Business, Innovation and Employment (MBIE). For example, in 2020 the Endeavour Fund awarded the National Institute of Water and Atmospheric Research (NIWA) $15 million over five years to produce Aotearoa New Zealand's first consistent national flood hazard and risk assessment (Mā te Haumaru ō Nga Puna Wai ō Rākaihautū Ka Ora Mo Ake Tonu: Increasing Flood Resilience Across Aotearoa). This will identify risks and help communities and sectors take early action to reduce costs over time by showing where flooding is likely, and by identifying the vulnerability of communities and assets
- the STRAND project, an interdisciplinary Royal Society of New Zealand Marsden Fund project led by the University of Otago. This is exploring climate risks to residential property values across space and time, and the implications for financial stability
- the Whakahaura Extreme Events and the Emergence of Climate Change programme is studying extreme weather in climate and weather systems, in hydrological, biological and economic systems
- Strategic Science Investment Funds. Examples include:
  - the Antarctic Science Platform, which improves scientific understanding of pressing issues such as climate change and ecosystem resilience
  - the Enhancing Land Use Platform, which supports research that enables New Zealanders to better measure and manage their land resources, reduce greenhouse gas emissions and manage the environmental impacts of land use
  - the Weather and Climate Hazards Platform, which improves understanding of large-scale weather and climate systems through numerical prediction techniques, monitoring and advanced measurement (eg, predicting extreme weather events and impacts and assessing climate adaptation and mitigation)
  - the Deep South National Science Challenge. This 10-year research programme, finishing in 2024, aims to improve understanding of Aotearoa New Zealand's changing climate. It will aid timely decisions on adaptation by building Aotearoa's evidence base and providing sectors and communities with insights and information. This is part of addressing gaps in our knowledge and building our monitoring capabilities. There are key inputs to decisions at all levels of society on how to adapt.

In addition, there are other climate-related science funding programmes across government, such as MPI's Sustainable Land Management and Climate Change and Greenhouse Gas Inventory research programmes (see action 10.6: Continue delivering the Sustainable Land Management and Climate Change and Greenhouse Gas Inventory research programme).

# Future proposed work programmes

### Action 3.21: Develop mātauranga Māori indicators of climate impacts on the natural environment

**Timeframe:** Years 1–2 (2022–24)
**Lead agency:** MfE
**Relevant portfolio:** Environment
**Primarily supports:** Objective NE1
**Status:** Proposed

Mātauranga Māori indicators will enable monitoring and evaluation of impacts on biodiversity, mahinga kai, flora, fauna and human health. This will create data baselines that centralise indigenous knowledge and values, and can be used in environmental assessments.

### Action 3.22: Work with community housing providers to enable effective climate hazard response

**Timeframe**: Years 2–4 (2023–26)
**Lead agency**: HUD
**Relevant portfolio**: Public Housing
**Primarily supports**: Objective HBP1
**Status**: Proposed

This will provide better data and information on the exposure of community housing providers to climate risks. An action programme will increase the resilience of community housing by supporting strategies for emergency management and long-term adaptation. In turn, this will reduce exposure of community housing tenants to climate risks. The scheme will also focus on working with Māori and Pacific providers. It will help increase resilience in ways that are culturally appropriate, and respond to the needs of Māori and Pacific recipients.

### Action 3.23: Develop 3D coastal mapping

**Timeframe:** Years 1–6 (2022–28)
**Lead agency:** LINZ
**Relevant portfolio:** Land Information
**Primarily supports:** Objective SW2
**Status:** Proposed

Coastal mapping comprises detailed 3D mapping of the coastal zone and the upgrade and addition of Global Navigation Satellite System (GNSS) sites in the coastal zone. The purpose is to assess the impacts of sea-level rise and model the impacts of tsunami and storm surges on communities, infrastructure and biodiversity.

### Action 3.24: Produce new tools and guidance specific to mātauranga Māori and mātauranga indicators

**Timeframe:** Years 3–4 (2024–26)
**Lead agency:** MfE
**Relevant portfolio:** Climate Change
**Primarily supports:** Objective SW2
**Status:** Proposed

These resources will be developed in partnership with hapū, iwi and Māori, to help them take action in their communities and to inform decisions. This action will provide targeted guidance on planning in uncertain conditions.

### Action 3.25: Design methodology for risk assessments of public buildings

**Timeframe:** Years 3–4 (2024–26)
**Lead agency:** MBIE
**Relevant portfolio:** Building and Construction
**Primarily supports:** Objective HBP1
**Status:** Proposed

Developing a methodology for risk assessment based on the property resilience research (see action 5.7: Reduce and manage the impacts of climate hazards on homes and buildings), to address matters such as cultural and heritage values and seismic hazard risks, will support decision-making.

This will help owners of public buildings assess and understand climate risks and implement adaptation strategies.

### Action 3.26: Produce guidance for disaster risk management for cultural heritage

**Timeframe:** Years 2–5 (2023–27)
**Lead agency:** MCH
**Relevant portfolio:** Culture and Heritage
**Primarily supports:** Objective HBP4
**Status:** Proposed

This action will improve disaster risk management for cultural heritage through guidance on reducing risks before, during and after disasters.

### Action 3.27: Develop a framework for assessing exposure and vulnerability of taonga/cultural assets to climate change

**Timeframe:** Years 1–4 (2022–26)
**Lead agency:** MCH
**Relevant portfolio:** Culture and Heritage
**Primarily supports:** Objective HBP4
**Status:** Proposed

Working with partners (including iwi), the Ministry for Culture and Heritage (MCH) will identify national and local information on taonga/cultural assets, both tangible and intangible. It will identify gaps in knowledge, information needs and governance. It will develop a framework to identify valued cultural heritage and the actual and potential exposure and vulnerability of cultural heritage to climate change. The framework will take a broad and inclusive approach, recognising the ways in which different communities identify, access and participate in what is culturally important to them.

### Action 3.28: Assess healthcare service resilience

**Timeframe:** Years 1–2 (2022–24)
**Lead agency:** Te Whatu Ora – Health New Zealand
**Relevant portfolio:** Health
**Primarily supports:** Objective C4
**Status:** Current

The aim of this action is to understand the healthcare service's vulnerability to climate events, and consider physical risks to infrastructure, and changes in illness patterns and vulnerability. This will help to ensure communities can continue to access the healthcare services they need, even in the face of climate change adversity.

### Action 3.29: Produce an adaptation professional development programme for key audiences

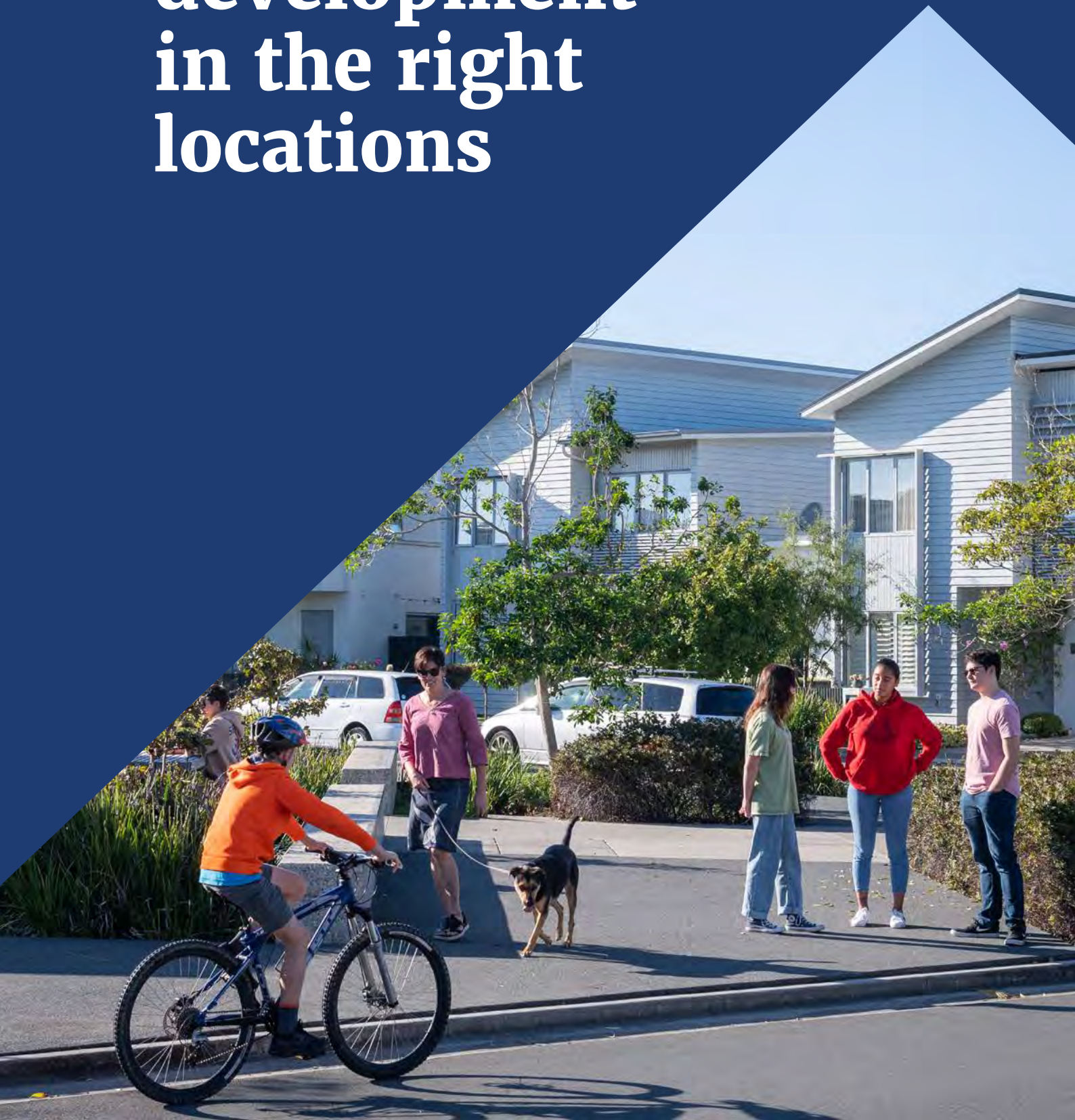
**Timeframe:** Years 4–5 (2025–27)
**Lead agency:** MfE
**Relevant portfolio:** Climate Change
**Primarily supports:** Objective SW2
**Status:** Proposed

This will target building capability and help circulate new tools and guidance among different audiences. It will encourage uptake and effective use by practitioners and others working on climate adaptation.

06

CHAPTER 4:

# Driving climate-resilient development in the right locations



# Chapter 4: Driving climate-resilient development in the right locations

| Driving climate-resilient development in the right locations | |
|---|---|
| **Government agencies with actions in this chapter** | • Department of Internal Affairs (DIA)<br>• Kāinga Ora<br>• Ministry for the Environment (MfE)<br>• Te Manatū Waka Ministry of Transport (MOT)<br>• Te Tūāpapa Kura Kāinga – Ministry of Housing and Urban Development (HUD)<br>• Treasury (TSY)<br>• Waka Kotahi NZ Transport Agency |
| **Why these actions are important for building resilience** | The built environment has a long lifespan. Therefore, decisions about how and where we develop new buildings, infrastructure and communities matter now.<br>The actions in this chapter will ensure our decision-making frameworks for planning and infrastructure investment guide climate-resilient development in the right locations and account for changing risks – such as exposure to sea-level rise, flooding, heat stress, coastal inundation and wildfire. |
| **Significant risks addressed in this chapter**<br>B= Built<br>G = Governance | • B1: Risk to potable water supplies (availability and quality) due to changes in rainfall, temperature, drought, extreme weather events and ongoing sea-level rise.<br>• B2: Risks to buildings due to extreme weather events, drought, increased fire weather and ongoing sea-level rise.<br>• G1: Risk of maladaptation across all domains due to the application of practices, processes and tools that do not account for uncertainty and change over long timeframes.<br>• G2: Risks that climate change impacts across all domains will be exacerbated because current institutional arrangements are not fit for climate change adaptation. Institutional arrangements include legislative and decision-making frameworks, coordination within and across levels of government and funding mechanisms. |
| **Objectives relevant to critical actions**<br>SW = System-wide<br>NE = Natural environment<br>HBP = Homes, buildings, places<br>INF = Infrastructure | • SW1: Legislation and institutional arrangements are fit for purpose and provide clear roles and responsibilities.<br>• NE1: Ecosystems which are healthy and connected, and where biodiversity is thriving.<br>• HBP1: Homes and buildings are climate resilient, and meet social and cultural needs.<br>• HBP2: New and existing places are planned and managed to minimise risks to communities from climate change.<br>• INF2: Ensure all new infrastructure is fit for a changing climate.<br>• INF3: Use renewal programmes to improve adaptive capacity. |
| **Critical actions relevant to this chapter** | • Reform the resource management system to support resilient homes, buildings and places, and encourage future growth and development in the right locations (not prone to climate hazards).<br>• Set direction on natural hazard risk management and climate adaptation through the National Planning Framework.<br>• Establish an initiative for resilient public housing. |

| Driving climate-resilient development in the right locations | |
|---|---|
| | • Ensure funding decisions for housing and urban development, including Māori housing, consider climate hazards.<br>• Reform institutional arrangements for water services to deliver better health and wellbeing outcomes for our communities and protect our environment for generations to come.<br>• Integrate adaptation into Treasury decisions on infrastructure, to ensure decision-making for new assets and across major renewal or upgrade programmes considers climate risks.<br>• Integrate adaptation into Waka Kotahi decision-making. |

# Planning and infrastructure investment decisions drive climate-resilient development

The National Climate Change Risk Assessment 2020 identified that our regulatory frameworks and institutions do not always account for changing risks. The Climate Change Adaptation Technical Working Group identified that Aotearoa needs a planned approach and clear roles and responsibilities for adaptation. We need to make sure our decision-making frameworks for planning and infrastructure investment are updated now so that they drive climate-resilient development in the right locations.

The way we design and grow our places today will affect our ability to withstand the impacts of climate change over the coming decades – and influence patterns of exposure and vulnerability. New development provides opportunities to transform our built environment and ensure our communities and infrastructure are resilient, well located and use best-practice adaptive design. This will substantially reduce the costs of retrofitting in the future and increase our adaptive capacity to live, and thrive, despite the challenges of a changing climate. Development includes both new homes and infrastructure, as well as retrofitting existing buildings, redeveloping public spaces and maintaining and renewing existing infrastructure.

How and where we build needs to be considered on a case-by-case basis. We can be proactive and choose to direct development away from areas that are susceptible to extreme hazards such as sea-level rise, flooding, coastal inundation and wildfire. However, avoidance is not always possible and the benefits of development now may outweigh the benefits of avoiding future climate risk. Regardless of where we develop, there will be some level of climate risk. The right adaptation strategies can reduce risk to a tolerable level (see Chapter 5: Adaptation options including managed retreat).

Adapting early can deliver co-benefits that we can begin to take advantage of – improved health and wellbeing, more affordable and accessible infrastructure services, warmer and drier homes and the opportunity to address existing inequities. The Rauora framework reinforces this approach, calling for a sustainable and responsible ecosystem-based approach within the limits required to restore abundance and ensure intergenerational equity.

Our planning and investment systems are critical in supporting this transformation and building our adaptive capacity. They will guide how we use our land and resources, including the form, location and type of development.

For example:

- our planning system can guide risk-informed decisions, including enabling development in the best locations and considering adaptive responses
- regulations can create standards for climate-resilient buildings and infrastructure
- investment decisions should support the delivery of climate-resilient development.

How and where we develop has long-term impacts due to the lifespan of the built environment. The buildings and infrastructure assets we have now will be the same ones we have as the impacts of climate change are felt across the motu. We have the opportunity to understand likely impacts and begin to adapt now – for example, with infrastructure that strengthens climate resilience.

## Significant risks

This chapter addresses the following significant risks identified by the National Climate Change Risk Assessment 2020:

- in the built environment domain (B):
  - B1: Risk to potable water supplies (availability and quality) due to changes in rainfall, temperature, drought, extreme weather events and ongoing sea-level rise
  - B2: Risks to buildings due to extreme weather events, drought, increased fire weather and ongoing sea-level rise.
- in the governance domain (G):
  - G1: Risk of maladaptation across all domains due to the application of practices, processes and tools that do not account for uncertainty and change over long timeframes
  - G2: Risk that climate change impacts across all domains will be exacerbated because current institutional arrangements are not fit for climate change adaptation. Institutional arrangements include legislative and decision-making frameworks, coordination within and across levels of government and funding mechanisms.

## Objectives

The Government has identified a range of objectives for its priority to deliver a climate-resilient built environment. These are:

- system-wide objectives – enabling the right decisions to be made
- objectives for two outcome areas (see Chapter 7: Homes, buildings and places and Chapter 8: Infrastructure).

Table 3 shows the Government's objectives that guide this priority, across the different systems and outcome areas.

**Table 3: Government objectives relevant to critical actions to deliver a climate-resilient built environment**

| Code | Objective | Explanation |
|---|---|---|
| SW1 | Legislation and institutional arrangements are fit for purpose and provide clear roles and responsibilities | • Use legislation or regulation to:<br>– enable clear, adaptive decision-making<br>– appropriately allocate responsibilities. |
| HBP1 | Homes and buildings are climate resilient, and meet social and cultural needs | • Reduce exposure to climate hazards and support businesses and communities to understand and respond to climate risks.<br>• Improve homes and buildings so they can withstand the expected range of temperatures, rainfall and wind, and to improve energy and water efficiency.<br>• Conserve valued cultural heritage. |
| HBP2 | New and existing places are planned and managed to minimise risks to communities from climate change | • Improve resilience through effective planning, urban design and management.<br>• Avoid development in places that may be more exposed to climate hazards.<br>• Support existing places to adapt.<br>• Relocate people and assets where risks are too high to manage otherwise. |
| INF1 | Reduce the vulnerability of assets exposed to climate change | • Understand where infrastructure assets and their services are exposed and vulnerable to climate impacts.<br>• Prioritise the risk management of assets so that services can continue if disruption occurs. |
| INF2 | Ensure all new infrastructure is fit for a changing climate | • Consider long-term climate impacts when we design and invest in infrastructure, so the right infrastructure is in the right places.<br>• Understand future adaptation options and finance them, as part of the investment in new infrastructure to build capacity to adapt. |
| INF3 | Use renewal programmes to improve adaptive capacity | • Consider long-term climate impacts when making decisions to maintain, upgrade, repair or replace existing infrastructure. |

# Local government should act now to drive climate-resilient development in the right locations

The effects of climate change are being felt now. During the transition to the new system, councils need to avoid locking in inappropriate land use or closing off adaptation pathways before the new resource management system takes full effect.

Councils have existing functions and powers that can be used to avoid, mitigate or manage the impacts of natural hazards. These functions can support climate-resilient development in the right locations.

In particular, councils must recognise and provide for the management of significant risks from natural hazards as a matter of national importance in exercising their functions and powers under the Resource Management Act 1991 (RMA). Both regional and territorial authorities have functions under the RMA that relate to avoiding or mitigating natural hazards.

The National Policy Statement on Urban Development (NPS-UD) also supports climate-resilient development. For example, under the NPS-UD, some councils are required to, and others may, prepare future development strategies (FDS).[1] FDS can help drive climate-resilient development in the right locations. FDS spatially identify where long-term urban growth should happen, considering other inputs like constraints on development. RMA planning documents must have regard to an FDS, and must give effect to the NPS-UD.

The Urban Development Act 2020 (UDA) sets up a framework for delivering comprehensive large-scale urban development. The powers provided by the UDA allow multiple aspects of the urban environment to be changed with greater certainty, integration and speed which would support enabling adaptation to the effects of climate change. Under this Act, Kāinga Ora can determine whether to initiate a specified development project process, or can be directed to do so by Ministers. However, any party can propose a development project to Kāinga Ora. Councils are able to work with Kāinga Ora to identify opportunities for climate-resilient development using the UDA as a tool.

Further, regional and territorial authorities must give effect to the New Zealand Coastal Policy Statement (NZCPS) 2010, which provides strong direction to avoid new development, redevelopment or changes in land use that would increase the risk of harm or adverse effects from coastal hazards.

However, clear direction about how to guide development in response to climate change outside of coastal areas has not yet been developed. Further, councils face significant pressure to enable further development to meet housing requirements. Through consultation on this plan, councils have asked central government to give them a stronger mandate for assessing and managing climate risk, and to support them to make decisions informed by that risk during the transition to a new resource management system.

To assist local government make good decisions about where and how to develop in the face of climate risk, the Government published interim guidance on the use of new sea-level rise projections in July 2022. The interim guidance updates the *Coastal hazards and climate change: Guidance for local government* (coastal hazards guidance). A full update to the coastal hazards guidance will be published in 2023.

The interim guidance is non-statutory. However, from 30 November 2022, councils will be required to 'have regard to' this plan when making or changing regional policy statements or regional or district plans. For that reason, this plan directs councils as follows.

When making or changing policy statements or plans under the RMA, including to give effect to the provisions of the NZCPS, councils should use the recommended climate change scenarios outlined below, as a minimum:

[1] Councils listed as Tier 1 or 2 local authorities in the Appendix to the NPS-UD must prepare a future development strategy (3.12(1) NPS-UD). Councils not listed in the Appendix may choose to prepare future development strategies (3.12(4) NPS-UD).

- to screen for hazards and risks in coastal areas, use the Shared Socioeconomic Pathway scenario for fossil fuel intensive development (SSP5-8.5) where available, or the Representative Concentration Pathway RCP8.5,[2] to 2130
- for detailed hazard and risk assessments in coastal and non-coastal areas, use both the middle-of-the-road scenario (SSP2-4.5) and the fossil fuel intensive development scenario (SSP5-8.5) where available, RCP4.5 and RCP8.5, to 2130, for areas at high risk of being affected, adding the relevant rate of vertical land movement locally. Where SSP2-4.5 and SSP5-8.5 are not available, use RCP4.5 and RCP8.5 to 2130, adding the relevant rate of vertical land movement locally
- for all other climate hazards and risks, use the most recent downscaled climate projections for Aotearoa.

In addition, councils should stress test plans, policies and strategies using a range of scenarios as recommended in the interim guidance and the National Climate Change Risk Assessment Framework, as relevant to the circumstance.

These recommended climate scenarios reflect the latest global climate projections released in the Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report (AR6 WG1) (2021) and NZSeaRise.

## Actions to drive climate-resilient development in the right locations

Our planning and investment systems shape how decisions are made on the form and location of our built environment, and how infrastructure is funded, financed and used. When investment and planning decisions are made in an integrated way and informed by national objectives, they can help us achieve well-functioning, resilient places. Reforming the planning system is an opportunity to provide a framework and process that respond to climate challenges and support risk-informed decision-making.

This plan outlines the steps the Government will take over the next six years to align its investment strategies with resilience and low-emissions objectives. The Government will reform legislation, institutions, guidance and practices to ensure central and local government, along with private individuals, developers and investors, make better decisions about where to locate new or intensified development.

Action 4.1: Reform the resource management system will be a main driver of the location and form of development. A key objective of the reform is to better prepare for adapting to climate change and risks from natural hazards. The resource management system as a whole will deliver this objective, with each part contributing to improve resilience in a different way.

The Natural and Built Environments Act will provide a foundation for decisions that will reduce climate risk. The National Planning Framework will provide further detail about how to achieve those outcomes – for example, planning for natural hazards and considering future climate risks when identifying areas for development.

[2] Representative Concentration Pathways should be used only where climate data is otherwise not reported under Shared Socioeconomic Pathways – for example, downscaled regional climate projections reported in Climate Change Projections for New Zealand.

The Spatial Planning Act will include requirements for developing Regional Spatial Strategies. These will identify hazard zones and guide development to the most appropriate locations. They could also identify opportunities to increase adaptive capacity – for example, catchment-scale measures to reduce the impact of flooding on the built environment. These reforms will also guide private investment in development to appropriate locations.

Access to the best available climate information is key to effective consideration of climate risk and balancing competing demands in the planning system. Actions in chapter 3: Enabling better risk-informed decisions will ensure that central and local government, along with developers, asset owners and private individuals, have the information, tools and guidance they need to make decisions about the most appropriate location, form and design of new developments and enable confident long-term investments.

## Addressing inequity

Action 4.5: Reform institutional arrangements for water services will establish new water entities that will work with councils and communities to deliver better health and wellbeing outcomes for communities. The reform will require entities to establish a consumer forum(s) to assist with effective and meaningful consumer and community engagement. The forum(s) will enable the Government to understand consumer needs, including the needs of communities disproportionately impacted by a reduction of water quality and quantity. These include small and rural communities; hapū, iwi and Māori; households that depend on rainwater tanks; and children, older New Zealanders and disabled people who are more vulnerable to the health impacts of poor water quality.

Occupants of public and Māori housing can be more susceptible to other impacts of climate change. The Government will also support the resilience of Māori and public housing. For example, action 4.3: Establish an initiative for resilient public housing and action 4.4: Embed adaptation in funding models for housing and urban development, including Māori housing, will help reduce the vulnerability of public housing tenants and Māori to climate hazards by adapting existing buildings and ensuring new dwellings are well designed and well located.

# Critical actions

### Action 4.1: Reform the resource management system

**Timeframe:** Year 1 (2022/23)
**Lead agency:** MfE
**Relevant portfolio:** Environment
**Primarily supports:** Objective SW1
**Status:** Current

In early 2021, the Government announced its intention to repeal the Resource Management Act 1991 and replace it with a Natural and Built Environments Act, a Spatial Planning Act and a Climate Adaptation Act.

The Government's objectives for the reform include better preparation for adaptation and risks from natural hazards, and better mitigation of emissions contributing to climate change.

Resource management reform will be essential to supporting the resilience of homes, buildings and places. It will encourage planning for future growth and development in the right locations, and not in areas prone to climate hazards. The changes will require local government; central government; hapū, iwi and Māori; and communities to plan together how areas will adapt. The reform will provide tools to stop increasing exposure in areas of high or increasing risk, and facilitate the retreat of communities, homes and infrastructure where risks are intolerable.

Among the changes to enable long-term adaptation are:

- a National Planning Framework providing strategic direction and guidance on how to achieve the climate outcomes in the Natural and Built Environments Act
- clear signalling or initiation of adaptation responses, including retreat, through Regional Spatial Strategies that identify hazard zones and areas where adaptation may be necessary
- powers and processes to address ownership of property that is retreated from in the Climate Adaptation Act (or Natural and Built Environments Act)
- more comprehensive support for implementation.

In 2023, the Natural and Built Environments Act and the Spatial Planning Act are expected to be passed.

### Action 4.2: Set national direction on natural hazard risk management and climate adaptation through the National Planning Framework

**Timeframe:** Years 1–6 (2022–28)
**Lead agency:** MfE
**Relevant portfolio:** Environment
**Primarily supports:** Objective SW1
**Status:** Current

The National Planning Framework will set clear direction for local authorities on how to achieve the climate resilience outcomes in the Natural and Built Environments Act. It will set out methods and requirements for planning for natural hazards and considering future climate risks. The first iteration of the National Planning Framework will contain hazard risk assessment methodologies and direction. This will aid the development of Regional Spatial Strategies (the first products developed as part of a sequential roll out of the new resource management system). This direction will be integrated with direction on other outcomes across the natural and built domains.

The draft National Planning Framework will be released for consultation shortly after the Natural and Built Environments Act is passed.

### Action 4.3: Establish an initiative for resilient public housing

**Timeframe**: Years 1–2 (2022–24)
**Lead agency**: Kāinga Ora
**Relevant portfolio**: Housing
**Primarily supports**: Objective HBP1
**Status**: Current

A framework for public housing assets will be developed to determine the actions to adapt new and existing assets. This will help reduce exposure of public housing tenants to climate hazards.

The action will also increase the resilience of public housing. It will identify where retrofitting is needed, and ensure dwellings are well located. It will promote effective planning and the design of resilient infrastructure as part of public housing work.

Kāinga Ora is assessing risk exposure and increasing understanding of the assumptions and limitations of the data used in this assessment.

By 2024, a decision-making framework will be in use to determine adaptation actions for both new and existing assets.

### Action 4.4: Embed adaptation in funding models for housing and urban development, including Māori housing

**Timeframe:** Years 1–4 (2022–26)
**Lead agency:** HUD
**Relevant portfolio:** Housing
**Primarily supports:** Objectives HBP1 and HBP2
**Status:** Current

Existing funding programmes for urban development and housing, including Māori housing, will be updated to consider the costs of existing and future climate hazards. New funding programmes may be created if there are gaps.

This will help ensure funding for urban growth considers climate hazards (eg, new infrastructure is well located and designed to perform under changing climatic conditions). This action will also result in reviewing funding for new development so that government-funded housing, including Māori housing, can cope with extreme events and the changing climate.

By 2024, the Ministry of Housing and Urban Development (HUD) will have begun reviewing funding programmes it administers and amending them to appropriately consider climate-related risk.

### Action 4.5: Reform institutional arrangements for water services

**Timeframe:** Years 1–2 (2022–24)
**Lead agency:** DIA
**Relevant portfolio:** Local Government
**Primarily supports:** Objective SW1
**Status:** Current

The Government will create new water entities that will work with councils and communities to improve health and wellbeing outcomes for our communities and protect our environment for generations to come. The National Climate Change Risk Assessment 2020 identified risk to potable water as the most urgent risk from climate change. The Government is considering how the proposed new entities will manage climate risk. The reforms will bring a more consistent approach and more certainty about who makes decisions.

The Water Services Entities Bill includes provisions relevant to how the new water services entities will manage climate risk.

If the Bill is enacted in its current form, one of the statutory objectives of the new entities will be to "deliver water services in a sustainable and resilient manner that seeks to mitigate the effects of climate change and natural hazards".

The Bill will also enable the responsible minister to issue a government policy statement on water services. This document may set out expectations about the contribution of water services entities to the outcomes sought by the Government in a number of areas, including climate change mitigation and adaptation, and water security. The entities will be required to give effect to any government policy statements when performing their functions.

By 2024, legislation to establish water services entities will be enacted (to enable them to become operational from 1 July 2024).

### Action 4.6: Integrate adaptation into Treasury decisions on infrastructure

**Timeframe:** Years 1–5 (2022–27)
**Lead agency:** Treasury
**Relevant portfolio:** Infrastructure
**Primarily supports:** Objective INF2
**Status:** Current

The Treasury publishes a range of guidance for central government departments and other entities on investment management and state sector performance. It will integrate consideration of climate risks and future adaptation into this guidance. This will help ensure that planning for new assets, renewals and major upgrades will:

- include climate risks in the strategic case, and early assessment of the options
- include options to build adaptive capacity (eg, nature-based solutions)
- incorporate the full cost of adaptation over the life of an asset into decision-making
- set up durable investment management systems to respond to, fund and finance climate action.

The changes to process, and the development of tools, will leverage the system-wide and infrastructure-specific data, tools and guidance being developed as part of the national adaptation plan.

By 2024, advice on the best way forward, and any associated budget bid or Cabinet decisions, will be complete and future implementation measures defined.

### Action 4.7: Integrate adaptation into Waka Kotahi decision-making

**Timeframe:** Years 1–6 (2022–28)
**Lead agencies:** Waka Kotahi; MOT
**Relevant portfolio:** Transport
**Primarily supports:** Objective INF3
**Status:** Current

Waka Kotahi will incorporate adaptation in the Investment Decision Making Framework, its structured approach to decisions on investment in land transport. This will include business case development and risk assessment. Also embedded will be an intervention hierarchy, which considers integrated planning, demand management, and the best use of existing networks before developing new infrastructure.

By 2024, Waka Kotahi will integrate adaptation into planning, investment and decision-making for the National Land Transport Programme.

## Supporting actions

### Action 4.8: Amend the Environmental Reporting Act 2015 to allow better measurement of environmental change

**Timeframe:** Years 1–2 (2022–24)
**Lead agency:** MfE
**Relevant portfolio:** Environment
**Primarily supports:** Objective NE1
**Status:** Current

This work seeks to improve how the Ministry for the Environment (MfE) monitors, manages, accesses and reports on the environment. The amendments will extend the Environmental Reporting Act's functionality and breadth so that environmental reports have more impact.

CHAPTER 5:

# Adaptation options including managed retreat



# Chapter 5: Adaptation options including managed retreat

| Adaptation options including managed retreat | |
|---|---|
| **Government agencies with actions in this chapter** | • Department of Conservation (DOC)<br>• Department of Internal Affairs (DIA)<br>• Ministry for Culture and Heritage (MCH)<br>• Ministry for the Environment (MfE)<br>• Ministry of Business, Innovation and Employment (MBIE)<br>• National Emergency Management Agency (NEMA)<br>• Te Tūāpapa Kura Kāinga – Ministry of Housing and Urban Development (HUD)<br>• Te Waihanga New Zealand Infrastructure Commission<br>• Transpower<br>• Treasury (TSY) |
| **Why these actions are important for building resilience** | Many of our communities are already experiencing natural hazard events such as flooding, and these are expected to increase over time. The actions in this chapter will support councils, communities, businesses and individuals to consider and understand the range of adaptation options available in their area. These include building resilience at a local property level, as well as managed retreat, where necessary. |
| **Significant risks addressed in this chapter**<br>H = Human<br>B = Built<br>G = Governance | • H1: Risks to social cohesion and community wellbeing from displacement of individuals, families and communities due to climate change impacts.<br>• B1: Risk to potable water supplies (availability and quality) due to changes in rainfall, temperature, drought, extreme weather events and ongoing sea-level rise.<br>• B2: Risks to buildings due to extreme weather events, drought, increased fire weather and ongoing sea-level rise.<br>• G1**:** Risk of maladaptation across all domains due to the application of practices, processes and tools that do not account for uncertainty and change over long timeframes.<br>• G2: Risks that climate change impacts across all domains will be exacerbated because current institutional arrangements are not fit for climate change adaptation. Institutional arrangements include legislative and decision-making frameworks, coordination within and across levels of government and funding mechanisms. |
| **Objectives relevant to critical actions**<br>SW = System-wide<br>HBP = Homes, buildings, places<br>INF = Infrastructure<br>EF = Economy and financial system | • SW1: Legislation and institutional arrangements are fit for purpose and provide clear roles and responsibilities.<br>• SW2: Robust information about climate risks and adaptation solutions are accessible to all.<br>• SW4: Unlocking investment in climate resilience.<br>• NE3: Support working with nature to build resilience.<br>• HBP1: Homes and buildings are climate resilient, and meet social and cultural needs.<br>• HBP3: Māori connections to whenua and places of cultural value are strengthened through partnerships.<br>• HBP4: Threats to cultural heritage arising from climate change are understood and impacts minimised.<br>• INF1: Reduce the vulnerability of assets exposed to climate change |

| Adaptation options including managed retreat | |
|---|---|
| | • INF3: Use renewal programmes to improve adaptive capacity.<br>• EF2: A resilient financial system underpins economic stability and growth. Participants can identify, disclose and manage climate risks. |
| **Critical actions relevant to this chapter** | • Pass legislation to support managed retreat to enable relocation of assets from at-risk areas.<br>• Review the future for local government to ensure the system is equipped for agile, sustainable and anticipatory decision-making.<br>• Complete a case study to explore co-investment for flood resilience with the West Coast Regional Council, Buller District Council and local iwi.<br>• Develop options for home flood insurance to support community resilience to the consequences of extreme weather events and facilitate recovery.<br>• Publish the programme of work on how Aotearoa meets the costs of climate change and invests in resilience.<br>• Scope a resilience standard or code for infrastructure to encourage risk reduction and resilience planning in existing and new assets.<br>• Help building owners, renters and new home builders reduce and manage the impacts of climate hazards on homes and buildings.<br>• Support kaitiaki communities to adapt and conserve taonga/cultural assets.<br>• Prioritise nature-based solutions in our planning and regulatory systems to address the climate and biodiversity crises together. |

# Existing development faces increasing risk

Although the appropriate location, form and design of new development in the right places will help future-proof our communities, many communities are already under threat from natural hazard events – which will increase over time. Successful adaptation to the impacts of natural hazards and climate change will be vital to the future health and wellbeing of our communities.

In our existing places, people can work together to reduce risk through social networks, nature-based and hard-engineering solutions, through upgrades to existing buildings and infrastructure to withstand more extreme climatic conditions, and by being better prepared. Councils and communities should consider the full range of adaptation options for areas under threat.

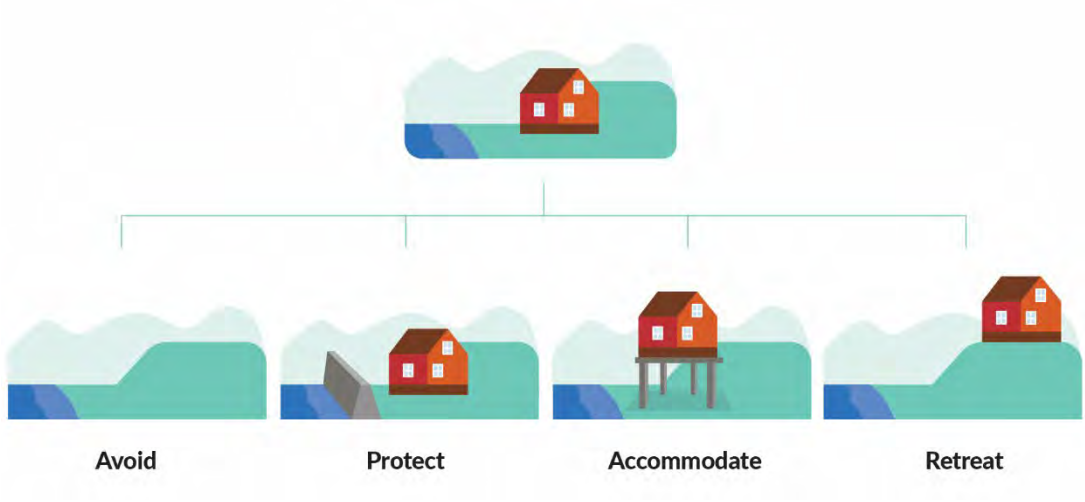
These include:

- avoiding risk – for example, by locating development away from areas prone to hazard
- protecting assets from risk – for example, by building protective structures such as sea walls
- accommodating risk – for example, by incorporating adaptation options into the design of developments
- retreating from risk – for example, by relocating existing development away from high-risk areas.

Figure 7 illustrates these options. Avoiding risk is primarily covered by Chapter 4: Driving climate-resilient development in the right locations.

A hybrid approach that uses different adaptation options may be appropriate, and the suite of adaptation options used may change over time. The most appropriate adaptation options will be different for every community or project. A place-based and risk-based approach should ensure the options adopted will meet the specific needs and circumstances of the community. Working with communities to assess these options means that decisions made as to which options will be adopted for a particular community are robust and are well supported and understood by that community.

**Figure 7: Adaptation options – avoid, protect, accommodate, retreat**




Councils and communities can consider a range of planning options that can either avoid or delay the need for relocation. Restricting further development or particular uses of land through planning rules – for example, zoning – can prevent further exposure to risk. This approach can also signal that an area may not be viable for development in the longer term. Standards can be set – through rules and consent conditions – to improve the resilience of development in areas exposed to risk. Examples of these types of standards could include minimum floor heights and flood-proofing requirements.

In some highly exposed areas, the risk from natural hazard and climate impacts may become intolerable. Inundation of buildings and infrastructure will start to occur, leading to direct damage and loss of some facilities like roads or other lifeline services, and public open space. In some cases, the risks may reach a threshold where relocation will need to be considered.

### Managed retreat

Managed retreat is an approach to reduce or eliminate exposure to intolerable risk. It enables people to relocate assets, activities and sites of cultural significance (to Māori and non-Māori), away from areas at risk from climate change and natural hazards.

For communities in areas of high risk, managed retreat is an adaptation option. It is usually not considered in isolation from other options, especially when planning for future rather than current impacts of climate change. In some cases, retreat may be a last resort, and in all cases the costs and benefits will need to be carefully weighed.

See action 5.1: Pass legislation to support managed retreat.

# Significant risks

This chapter addresses the following significant risks identified by the National Climate Change Risk Assessment 2020:

- in the human domain (H):
  - H1: Risks to social cohesion and community wellbeing from displacement of individuals, families and communities due to climate change impacts.
- in the built domain (B):
  - B1: Risk to potable water supplies (availability and quality) due to changes in rainfall, temperature, drought, extreme weather events and ongoing sea-level rise
  - B2: Risks to buildings due to extreme weather events, drought, increased fire weather and ongoing sea-level rise
- in the governance domain (G):
  - G1: Risk of maladaptation across all domains due to the application of practices, processes and tools that do not account for uncertainty and change over long timeframes
  - G2: Risks that climate change impacts across all domains will be exacerbated because current institutional arrangements are not fit for climate change adaptation. Institutional arrangements include legislative and decision-making frameworks, coordination within and across levels of government and funding mechanisms.

# Objectives

The Government has identified a range of objectives for laying the foundations for adaptation, including managed retreat. These are:

- system-wide objectives – laying the foundations for the right decisions
- objectives for four outcome areas (see chapter 6: Natural environment, chapter 7: Homes, buildings and places, chapter 8: Infrastructure and chapter 10: Economy and financial system).

Table 4 sets out the objectives that guide this priority area, across the different systems and outcome areas.

**Table 4: Government objectives relevant to critical actions for laying the foundations for adaptation options including managed retreat**

| Code | Objective | Explanation |
|---|---|---|
| SW1 | Legislation and institutions are fit for purpose and provide clear roles and responsibilities | • Use legislation or regulation to:<br>– enable clear, adaptive decision-making<br>– appropriately allocate responsibilities. |
| SW2 | Robust information about climate risks and adaptation solutions are accessible to all | • Combine data into meaningful information for different contexts.<br>• Create datasets that better respond to iwi, hapū and Māori needs. |

| Code | Objective | Explanation |
|---|---|---|
| SW4 | Unlocking investment in climate resilience | • Ensure that investment from public and private sources is available to respond to growing risks from climate change.<br>• Encourage early investment to help reduce overall costs in the long term. |
| NE3 | Support working with nature to build resilience | • Restoring and protecting indigenous ecosystems, identifying sites that need buffers against climate risks and supporting communities in understanding nature-based solutions as a choice for adaptation. |
| HBP1 | Homes and buildings are climate resilient, and meet social and cultural needs | • Reduce exposure of existing homes and buildings to climate hazards and support businesses and communities to understand and respond to climate risks.<br>• Improve homes and buildings so they can withstand the expected range of temperatures, rainfall and wind, and to improve energy and water efficiency.<br>• Conserve valued cultural heritage. |
| HBP3 | Māori connections to whenua and places of cultural value are strengthened through partnerships | • Support initiatives that identify and respond to climate risks specific to iwi, hapū and Māori.<br>• Work in partnership with hapū, iwi and Māori on Māori-led adaptation solutions.<br>• Identify and embed Māori knowledge, identity and values in urban design and construction to manage climate hazards.<br>• Increase the resilience of cultural heritage, to strengthen the ties between whānau, hapū and iwi and their whenua. |
| HBP4 | Threats to cultural heritage arising from climate change are understood and impacts minimised | • Understand where cultural heritage sites are, their values, who they are important to and how climate change could affect them.<br>• Understand how the loss of cultural heritage can affect social, cultural, spiritual and economic wellbeing, including for Māori, and the positive role of cultural heritage in adaptation and wellbeing.<br>• Improve disaster management for cultural heritage.<br>• Enable communities to maintain and protect their taonga and assets.<br>• Protect and conserve cultural heritage through appropriate regulation. |
| INF1 | Reduce the vulnerability of assets exposed to climate change | • Understand where infrastructure assets and their services are exposed and vulnerable to climate impacts.<br>• Prioritise the risk management of assets so that services can continue if disruption occurs. |
| INF3 | Use renewal programmes to improve adaptive capacity | • Prioritise the risk management of existing assets so that services can continue if disruption occurs.<br>• Consider long-term climate impacts when making decisions to maintain, upgrade, repair or replace existing infrastructure. |
| EF2 | A resilient financial system underpins economic stability and growth. Participants can identify, disclose and manage climate risks | • Financial entities can identify, disclose and manage the risks to their business.<br>• Insurance access and affordability is understood and managed. |

# Actions to provide new tools and powers to respond to existing risk

The Government is rolling out a number of major reforms and processes to help New Zealanders respond to existing climate risks, and consider the full range of adaptation options. The resource management reforms are at the centre of that programme of work. These will:

- require local and central government; hapū, iwi and Māori; and communities to plan together how their areas will adapt
- provide planning tools to halt increasing exposure in high-risk areas and facilitate the retreat of communities, homes and infrastructure where risks are intolerable
- support adaptation decision-making by setting out methods and requirements for councils when planning for natural hazards and considering future climate risks through the National Planning Framework
- increase integration between land-use planning and investment decisions. This means that decisions around zoning or other planning mechanisms can occur at the same time as investment and infrastructure planning.

Action 5.1: Pass legislation to support managed retreat will help to implement decisions to retreat once these have been made. This legislation will be developed in partnership with hapū, iwi and Māori and in collaboration with a range of stakeholders that will use it.

Local government is on the front line in preparing for and dealing with climate impacts and risks. To help local government respond to climate risk, action 5.2: The Future for Local Government review will consider changes to local government funding and financing to ensure viability and sustainability, fairness and equity, and maximum wellbeing. The review will also consider when local authority funding should be shared across local government, or with other partners, and when central government co-funding might be justified.

The Government has heard from New Zealanders, and particularly local government, that they are interested in how the new tools and powers being developed might change where costs fall and how costs can be met. To provide greater clarity, the Government will publish the programme of ongoing work across government, which will inform how Aotearoa meets the costs of climate change and invests in resilience (see action 5.5: Publish the programme of work on how Aotearoa meets the costs of climate change and invests in resilience).

Other actions in this plan will also send signals about risk and opportunities, to help manage risks and redirect investment towards resilient projects and products. These include action 3.1: Provide access to the latest climate projections data and action 3.5: Support high-quality implementation of climate-related disclosures and explore expansion. These signals will impact on how adaptation costs will be met and can help to unlock investment.

Action 5.1: Pass legislation to support managed retreat will help to implement decisions to retreat once these have been made. This legislation will be developed in collaboration with a range of stakeholders who will use it, and in partnership with hapū, iwi and Māori, who have particular considerations in relation to whenua Māori and Tiriti considerations.

## Addressing inequity

Legislation for managed retreat will need to consider how to minimise risks to social cohesion, which can be worsened when communities need to relocate. It must consider unique challenges for low-income groups and mobility-compromised and disabled people when faced with having to shift. One way of doing this is to provide certainty about the process and the opportunities for people and communities to engage.

The Government will work with stakeholders and partners to draw lessons from existing situations of high risk. This will make sure the managed retreat legislation delivers what is needed for councils and communities to deal with issues on the ground. While developing the legislation, the Government will consider how current tools can support managed retreat before new legislation (for managed retreat and resource management reform) comes into force.

## Critical actions

### Action 5.1: Pass legislation to support managed retreat

**Timeframe:** Years 1–2 (2022–24)
**Lead agency:** MfE
**Relevant portfolio:** Climate Change
**Primarily supports:** Objective SW1
**Status:** Current

The Government will develop legislation to address the complex technical, legal and financial issues associated with managed retreat as described by the Resource Management Review Panel. This legislation is being progressed through the development of the Climate Adaptation Act.

It will draw lessons from existing situations of high risk to make sure it delivers what is needed for councils and communities dealing with issues on the ground. There will be consideration of how current tools and mechanisms can support managed retreat in advance of new legislation – both for managed retreat and for resource management reform more generally – coming into force.

By the end of 2023, the Government is expecting to introduce the Climate Adaptation Bill, setting out the managed retreat framework.

### Action 5.2: The Future for Local Government review

**Timeframe:** Year 1 (2022/23)
**Lead agency:** DIA
**Relevant portfolio:** Local Government
**Primarily supports:** Objective SW1
**Status:** Current

In 2021, the Minister of Local Government started an independent review of the future for local government.

Adaptation will bring new challenges and opportunities to local governance. The system must be equipped for agile, sustainable and proactive decision-making and implementation. The review is likely to include recommendations on what local government does, how it does it and how it pays for it. This will include what should change in funding and financing to ensure viability and sustainability, fairness and equity, and maximum wellbeing. The review will look at when local authority funding obligations should be shared across local government or with other partners, and when central government co-funding might be justified – as is recommended by the Productivity Commission and He Pou a Rangi – Climate Change Commission for large challenges or shocks, and local services with national benefits.

In mid-2023, the Local Government Review Panel will provide the Minister of Local Government with its final report and recommendations for improving the local governance system. Following this, the Government will decide how to respond to the panel's recommendations.



*Image: Hawke's Bay Regional Council*

**CASE STUDY**
**Clifton to Tangoio Coastal Hazards Strategy 2120**

Coastal communities around Aotearoa are increasingly affected by hazards like coastal inundation (flooding by the sea) and coastal erosion. The Hawke's Bay region is considered to have one of the highest levels of coastal risk exposure. Natural disasters, storms, coastal erosion and inundation along the region's 353-kilometre coastline continue to damage property and threaten people's safety and wellbeing.

In developing the Clifton to Tangoio Coastal Hazards Strategy 2120, the Hawke's Bay Regional Council, Hastings District Council and Napier City Council have worked with local iwi and coastal community representatives to take a proactive, locally led approach to identifying and responding to coastal hazards over the next 100 years. It has been an opportunity for councils to work together on a complex cross-boundary issue to address community concerns.

The strategy identifies coastline areas that may be affected by coastal hazards over the short to long term, and the risks to public and private property, cultural sites and areas, recreation and infrastructure services. It uses the dynamic adaptive pathways planning (DAPP) framework, which presents adaptation solutions as options in a series of future pathways.

Further work is needed to answer questions about how to share the costs of adaptation solutions, and where to allocate the roles and responsibilities for implementing the strategy.

### Action 5.3: Complete case study to explore co-investment for flood resilience

**Timeframe:** Year 1 (2022)
**Lead agency:** DIA
**Relevant portfolio:** Local Government
**Primarily supports:** Objective SW2
**Status:** Current

The Department of Internal Affairs (DIA) is working with the National Emergency Management Agency (NEMA), the West Coast Regional Council, the Buller District Council and local iwi to explore options to increase flood resilience in Westport. This case study will focus on the challenges facing small local authorities and vulnerable communities in funding flood risk management. It will also highlight the challenges of repeat flooding and climate impacts on an existing community that is located on a flood plain with limited flood defences in place. The case study below describes the current situation in Westport.

In June 2022, ministers will receive a strategic business case from the Buller District Council and West Coast Regional Council on a package of flood resilience options to reduce flood risk in Westport.

### Action 5.4: Develop options for home flood insurance

**Timeframe:** Years 1–2 (2022–23)
**Lead agency:** Treasury
**Relevant portfolios:** Finance; Toka Tū Ake EQC
**Primarily supports:** Objective EF2
**Status:** Current

Insurance supports New Zealanders' resilience to extreme weather events by facilitating recovery. It does so by paying out for losses and reducing the risk that the Government has to design ad hoc, post-event interventions to help communities recover. Home insurance could also bring other benefits, including signalling risk through underwriting and pricing, and giving homeowners peace of mind.

Work is underway to increase understanding of the scale and timing of changes to the insurance market arising from greater use of risk-based pricing by insurers and flooding exacerbated by climate change. This work includes exploring options to support access and affordability of flood insurance. The Government intends to develop options that ensure home flood insurance continues to play an appropriate role in supporting community resilience.

How effectively flood risks are managed in Aotearoa, including adapting to the changing climate, will influence the scale and timing of any insurance issues. This work has important links with other risk management and adaptation initiatives to keep communities safe. These initiatives reduce communities' exposure to flooding by giving them a better understanding of the risk they face, avoiding development in flood-prone locations, and increasing investment in flood protection.

By the end of 2022, the Government will have received advice on flood insurance options and agreed to next steps. Further implementation measures will depend on the Government's decisions on options.



*Image: Nomad Audio & Video*

**CASE STUDY**

## Adapting to flood risk in Westport

The Westport community is facing significant challenges in adapting to the effects of flooding and climate change. Severe floods in July 2021 and February 2022 caused widespread damage to homes and infrastructure, and the Buller District Council required central government funding to help with the recovery.

The July 2021 event was the largest direct measurement of a river flow ever recorded in Aotearoa. It flooded over 400 houses, incurred insurance costs of around $56 million, and made it necessary to create a temporary housing area for those who could not return to their homes.

Modelling suggests the Westport community is at high risk of more floods, with climate change expected to increase their frequency and severity. Repeated flooding has heightened community concerns about reducing the risk and protecting assets and livelihoods.

### Investment in resilience

An important adaptation action is investing more in flood risk reduction; every $1 invested in flood protection schemes results in a $6 return on investment. A number of risk reduction initiatives are underway locally: the West Coast Regional Council is developing a flood protection scheme; the combined district plan (Te Tai o Poutini Plan) proposes rezoning land to residential in less flood-prone areas together with minimum floor heights; and a local-level climate risk assessment and climate adaptation plan for the Buller District has been initiated.

### Financial challenges

Adaptation is complex and can be expensive. Local ability to fund adaptation and flood protection is likely to be a challenge, as many among the population have very low incomes as measured by the socio-economic deprivation index. Meeting these costs may be beyond the financial capacity of the ratepayers and councils.

### More equitable funding

Central government (through the Department of Internal Affairs and the National Emergency Management Agency) is partnering with local councils and iwi to explore new funding and financing models for co-investing in flood risk reduction and climate adaptation for Westport. This includes looking at how costs could be more equitably shared between central and local government, and between the community, private sector and other asset owners.



### THE IMPORTANCE OF CASE STUDIES

Adaptation case studies and pilot projects can:

- provide significant lessons and benefits for other communities and councils facing similar challenges
- bring the challenges to life by showing what rising sea levels and more frequent and intense floods mean for existing settlements
- show the need for a spectrum of risk reduction options, to consider and refine according to locally agreed criteria – some options might not be technically feasible and others might not be affordable or acceptable
- highlight that some actions can be short term and that others (eg, relocation or retreat) require longer-term solutions
- offer the chance to engage with communities to better understand climate impacts and when these will happen, identify mitigation actions and estimated costs, and work through the funding challenges
- highlight how government initiatives and reforms will play out locally.

### Action 5.5: Publish the programme of work on how Aotearoa meets the costs of climate change and invests in resilience

**Timeframe:** Year 1 (2022)
**Lead agencies:** MfE; Treasury
**Relevant portfolios:** Climate Change; Finance
**Primarily supports:** Objective SW4
**Status:** Current

New Zealanders share in the costs of managing natural hazard risk, through their own investment decisions, insurance, rates and taxes. Additional investment from public and private sources must also be facilitated where necessary to respond to the growing risks from climate change.

There are many processes underway that could change how New Zealanders currently share the costs of climate change. These include action 4.5: Reform institutional arrangements for water services, action 5.2: The Future of Local Government review and action 5.4: Develop options for home flood insurance.

The Government is also considering adaptation criteria for the Climate Emergency Response Fund (CERF) and is launching its Sovereign Green Bond programme (see action 5.15: Public investment in climate change initiatives). In addition, it continues to explore other options to encourage climate-positive, resilient investment. This will build on existing action 3.2: Design and develop risk and resilience and climate adaptation information portals, and action 3.5: support high-quality implementation of climate-related disclosures and explore expansion. It will communicate how this range of work is progressing across government in one place. A dedicated webpage will be kept up to date as work evolves and new actions are developed.

By the end of 2022, a dedicated webpage will be established to provide an update in one place on the range of work progressing across government.

### Action 5.6: Scope a resilience standard or code for infrastructure

**Timeframe:** Years 1–3 (2022–24)
**Lead agency:** Te Waihanga
**Relevant portfolio:** Infrastructure
**Primarily supports:** Objective INF3
**Status:** Current

Te Waihanga will scope the impact (including of costs, benefits and regulations) of a standard or code for resilient infrastructure.

This action will focus on:

- how a standard or code would encourage risk reduction and resilience planning in existing and new assets
- how to integrate resilience planning into the asset-management cycle, to maximise uptake and impact
- the role of resilience standards in enabling communities to better match their own planning and strategies to the resilience of the networks they rely on, reviewing the costs and benefits of this being a mandatory or voluntary standard.

If a standard or code proceeds, it would draw on international leading practice, the guidance for assessing impacts on physical assets and the services they provide (Action 3.8), and the general data, tools and guidance that will be part of the system-wide actions.

By 2024, stakeholder feedback on a resilience standard or code will have been received.

### Action 5.7: Reduce and manage the impacts of climate hazards on homes and buildings

**Timeframe:** Years 1–4 (2022–26)
**Lead agencies:** HUD; MBIE
**Relevant portfolios:** Housing; Building and Construction
**Primarily supports**: Objective HBP1
**Status:** Current

This action includes five components that build off one another and are necessary to inform regulatory change and other actions in this chapter. These five components are:

- collate existing information to help people adapt their homes and buildings
- carry out research to understand the impacts of climate hazards on various housing typologies, and the costs and benefits of adaptation at the property level
- develop property-level guidance based on updated climate data to inform homeowners and renters about climate impacts and their options to respond to risks
- develop an assessment framework to help building owners, developers and new home builders identify relevant climate hazards and understand their building's adaptation requirements
- investigate incentives that could help building owners to increase their building's resilience.

Work will start immediately on providing existing information to help people understand adaptation for homes and building. By August 2024, enough data will be available to inform the development of an assessment framework in years 3–4 (2024–26) and regulatory updates.

By 2024, initial research stages will have been scoped and funded and will be underway. Sufficient data will be available to inform the development of an assessment framework in years 3–4 (2024–26).

### Action 5.8: Support kaitiaki communities to adapt and conserve taonga/cultural assets

**Timeframe:** Years 1–6 (2022–28)
**Lead agency:** MCH
**Relevant portfolio:** Culture and Heritage
**Primarily supports:** Objectives HBP3 and HBP4
**Status:** Current

Work across government to ensure hapū, iwi and Māori and communities have access to information so they can plan for a changing climate and adapt their cultural assets. Support includes advice, wānanga (conferences, forums, seminars), expert assistance, information sharing and funding advice for kaitiaki to self-determine adaptation pathways.

This action will be a coordinated cross-government approach, partnering with hapū, iwi and Māori to understand the threats to cultural heritage and to support initiatives to reduce the impact.

This action will also help achieve objective HBP1 (Homes and buildings are climate resilient, and meet social and cultural needs) by adapting and conserving physical structures of cultural value. It also contributes to objective HBP4 (Threats to cultural heritage arising from climate change are understood and impacts minimised) through its focus on taonga of significant value to hapū, iwi and Māori.

By 2024, the Ministry for Culture and Heritage (MCH) will have started working with relevant partners on how improvements can be made to support and access to information on cultural assets to assist kaitiaki to self-determine adaptation pathways.

### Action 5.9: Prioritise nature-based solutions

**Timeframe:** Years 1–6 (2022–28)
**Lead agencies:** DOC; MfE
**Relevant portfolios:** Environment; Conservation
**Primarily supports:** Objective NE3
**Status:** Current

To address the climate and biodiversity crises together, the Government will prioritise nature-based solutions in planning and regulations, where possible, for both carbon removals and climate change adaptation. It will also investigate how to best ensure that climate change policy and planning use a biodiversity lens to prioritise nature-based solutions.

By 2024, a framework will be developed, and prioritising of nature-based solutions in regulations and planning will be underway and future implementation measures confirmed.

## Supporting actions

### Action 5.10: Develop and implement the Transpower Adaptation Plan

**Timeframe:** Years 1–5 (2022–27)
**Lead agency:** Transpower
**Relevant portfolio:** Energy and Resources
**Primarily supports:** Objective INF3
**Status:** Current

The Transpower Adaptation Plan will outline how Transpower will adapt to climate change through the design, delivery and operation of the national grid. It will address exposed assets and new investment in infrastructure, and consider adaptation in maintenance and development programmes.

Transpower will consider multiple risks to the national grid from climate hazards, including coastal inundation, increased frequency of high-impact flood and wind events, and accelerated erosion.

### Action 5.11: Encourage and support the evaluation of climate risks to landfills and contaminated sites

**Timeframe:** Years 1–2 (2022–24)
**Lead agency:** MfE
**Relevant portfolio:** Environment
**Primarily supports:** Objective INF1
**Status:** Current

Coastal inundation and flooding could be a significant risk to existing and closed landfills and contaminated sites across the country. At least 110 closed landfills are vulnerable to sea-level rise.

The Ministry for the Environment (MfE) has helped councils develop a tool to evaluate climate risks for landfills and contaminated sites. This may make it easier for local government to evaluate these risks and support planning to address them.

### Action 5.12: Explore funding options to support the investigation and remediation of contaminated sites and landfills vulnerable to the effects of climate change

**Timeframe:** Years 4–6 (2025–28)
**Lead agency:** MfE
**Relevant portfolio:** Environment
**Primarily supports:** Objective INF1
**Status:** Current

The liability of legacy landfill remediation generally sits with territorial authorities, which have variable ability to pay, particularly in smaller local government areas. Considering this, the Government has agreed to consider how best to support the funding of remediation.

Access to funding will help to turn risk assessment into risk reduction, and ensure remediation occurs before inundation risks become a reality. The scope of the current Contaminated Sites Remediation Fund does not cover climate impacts.

### Action 5.13: Connect communities to wider response and recovery support

**Timeframe:** Years 1–6 (2022–28)
**Lead agency:** NEMA
**Relevant portfolio:** Emergency Management
**Primarily supports:** Objective C3
**Status:** Current

This action will continue work with central and local government, communities (including rural communities), iwi, organisations and others to support effective, integrated disaster response and recovery. Communities affected by disasters will be assisted by networks that are locally led, regionally coordinated and nationally supported.

### Action 5.14: Support the development of definitional tools to encourage greater investment in 'green' projects

**Timeframe:** Years 1–3 (2022–25)
**Lead agency:** MfE
**Relevant portfolio:** Climate Change
**Primarily supports:** Objective SW2
**Status**: Current

This will support the development of a 'green' taxonomy to identify a common definition of climate and nature-positive investments. This could help guide businesses that are investing in both adaptation and mitigation to protect against greenwashing. If aligned with best practice, it could support greater international investment in Aotearoa New Zealand's climate-resilient projects, including nature-based solutions.

### Action 5.15: Public investment in climate change initiatives

**Timeframe:** Years 1–6 (2022–28)
**Lead agency:** Treasury
**Relevant portfolio:** Finance
**Primarily supports:** Objective SW3
**Status:** Current

The Government is supporting climate change objectives through its approach to the public finance system. This includes the establishment of the Climate Emergency Response Fund (CERF) and the Sovereign Green Bond (Green Bond) programme.

In 2021, the Government established the CERF with an initial $4.5 billion down payment, funded with cash proceeds from the New Zealand Emissions Trading Scheme (NZ ETS).

Government agencies can submit bids to the CERF, primarily through the annual Budget process, to access funding to support climate change initiatives.

In Budget 2022, the CERF was focused on the emissions reduction plan. However, for future Budgets the Government will consider extending the scope of the CERF to fund measures to support climate change adaptation.

In November 2021, the Government announced plans to issue Sovereign Green Bonds (Green Bonds) from 2022 onwards. Green Bonds provide financing for low-emission or environmental projects. Money raised from the Green Bonds will be used to support projects that help reach our climate objectives. Subject to market conditions and progress of establishment activity, final details of the Green Bond programme will be announced mid-2022 and then Green Bonds will be issued in late 2022.

### Action 5.16: Identify options to increase the integration of nature-based solutions into urban form

**Timeframe**: Years 1–2 (2022–24)
**Lead agency**: HUD
**Relevant portfolio**: Housing
**Primarily supports**: Objective HBP2
**Status**: Proposed

This work will build on indigenous knowledge and new research to produce new data and insights on nature-based solutions such as vegetation (eg, street trees and green roofs) and water elements (eg, open canals and waterways). This includes understanding barriers and identifying ways to accelerate nature-based solutions through changes to urban form and development. Findings will be progressed through action 4.1 Reform the resource management system and action 7.5: Update housing and urban settings. Given the already inequitable distribution of nature-based solutions such as trees and green spaces in our cities, this action will also carefully consider impacts on equity.

This action will help reduce the impact of climate events, such as flooding and heatwaves, in our urban areas to improve outcomes for people, communities and biodiversity. It will also help to ground urban adaptation in mātauranga Māori, and recognise that its outcomes already draw on fundamental Māori values.

CHAPTER 6:

# Natural environment



# Chapter 6: Natural environment

| Natural environment | |
|---|---|
| **Government agencies with actions in this chapter** | • Department of Conservation (DOC)<br>• Ministry for Primary Industries (MPI)<br>• Ministry for the Environment (MfE)<br>• New Zealand Customs Service (NZ Customs) |
| **Why these actions are important for building resilience** | A healthy and diverse natural environment will withstand climate change impacts. We can make this happen by reducing human-induced pressures, reducing predator and browser activities, and restoring ecosystems. When ecosystems are healthy, they buffer us from the impacts and contribute to our social, economic and cultural wellbeing. |
| **Significant risks addressed in this chapter**<br>N = Natural | • N1: Risks to coastal ecosystems, including the intertidal zone, estuaries, dunes, coastal lakes and wetlands, due to ongoing sea-level rise and extreme weather events.<br>• N2: Risks to indigenous ecosystems and species from the enhanced spread, survival and establishment of invasive species due to climate change. |
| **Objectives relevant to critical actions**<br>NE = Natural environment | • NE1: Ecosystems which are healthy and connected, and where biodiversity is thriving.<br>• NE2: Robust biosecurity reduces the risk of new pests and diseases spreading.<br>• NE3: Support working with nature to build resilience. |
| **Critical actions relevant to this chapter** | • Implement the Department of Conservation (DOC) Climate Change Adaptation Action Plan (CCAAP) to assess ecosystem and species vulnerability to climate impacts, and the adaptation actions to enhance their resilience.<br>• Engage with councils on how climate impacts on coastal ecosystems can be reduced by implementing the New Zealand Coastal Policy Statement.<br>• Implement Te Mana o te Taiao – Aotearoa New Zealand Biodiversity Strategy to ensure the protection, restoration and sustainable use of biodiversity in Aotearoa.<br>• Implement the proposed National Policy Statement on Indigenous Biodiversity to protect, maintain and restore indigenous biodiversity.<br>• Deliver climate, biodiversity and wider environmental outcomes through an integrated work programme.<br>• Implement key freshwater management programmes to ensure water availability, security and healthy waterways.<br>• Implement the National Policy Statement on Freshwater Management 2020 to ensure the healthy functioning of freshwater ecosystems and reduce negative impacts from land use.<br>• Deliver biosecurity actions to protect our indigenous ecosystems and economy from invasive species. |

# Why we need to take action

**A resilient natural environment can buffer the impacts of climate change for human and natural systems.**

The natural environment encompasses indigenous and non-indigenous species in natural and modified terrestrial, freshwater and marine environments. It includes all ecosystems in environments from mountains to the sea (ki uta ki tai).

Due to our geographical isolation, many of Aotearoa New Zealand's indigenous plants and wildlife exist nowhere else on Earth: we have a unique diversity of species.

Our taonga species and ecosystems[1] make a significant contribution to global biodiversity and underpin the way we are seen worldwide. Internationally, the biodiversity crisis and the climate crisis are acknowledged to be closely linked.

All aspects of life in Aotearoa rely on a thriving natural environment. It is essential for our physical and mental health, water security, culture and economy. The natural environment contributes to climate resilience by buffering climate impacts, improving wellbeing and sequestering carbon. These linkages are acknowledged in Te Mana o te Taiao – Aotearoa New Zealand Biodiversity Strategy 2020.[2]

From the perspective of te ao Māori, the natural environment is interconnected through genealogical links to all facets of the environment, including Papatūānuku (earth mother), Ranginui (sky father), Tāne mahuta (forests) and Tangaroa (sea). When the environment is unwell, this affects our health and wellbeing.

A thriving natural environment is more resilient to climate change because it can recover from, and absorb, disturbances and has the capacity to reorganise into similar ecosystems. Addressing climatic and human-induced pressures on the environment is key to a thriving and resilient natural system.

## Pressure on coastal ecosystems

Aotearoa New Zealand's coastal ecosystems and species are vulnerable to gradual and extreme changes in climate. Sea-level rise puts pressure on coastal ecosystems and forces them to move inland where possible, or submerges them where landward migration is not possible.

Subdivisions and urban development reduce the availability of sites for landward migration by ecosystems and species as sea levels rise, and reduce bird habitat.

Although coastal ecosystems tend to adapt well to natural hazards, the increase in frequency and intensity of climate events gives them less time to recover.

Reducing human pressures and planning for ecosystem corridors are the best ways to enable coastal ecosystems to respond to climate change.

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1 Endemic to New Zealand are unique species of bat, frog and insect, ancient tuatara, flightless birds and beech forests.

2 Department of Conservation. 2020. *Te Mana o te Taiao – Aotearoa New Zealand Biodiversity Strategy 2020.* Wellington.

## Spread of pests and diseases

Our natural systems are already under pressure from exotic pests and diseases, which threaten indigenous biodiversity and species crucial to trade. Climate change increases the chance of established pests spreading further, reproducing faster and having greater adverse impacts on biodiversity. It also increases the risk of new invasive pests and diseases becoming established.

By strengthening our border biosecurity system and supporting pest management programmes, we will be able to identify and manage the risks from new and established pests early. Identifying areas and species vulnerable to shifts in pest distribution will also help manage this risk.

## Impacts on hapū, iwi and Māori

Te ao Māori principles and way of life are likely to be compromised by changes in the natural environment due to climate change. Whakapapa is the intergenerational obligation of caring for the environment, empowering Māori to actively care for and preserve the natural world, ensuring that it is used sustainably by present and future generations.

Climate risks in the natural environment affect Māori cultural, economic and spiritual wellbeing. Climate change will affect culture and customs relating to mahinga kai (food-gathering sites) and urupā (burial grounds), as well as economic opportunities through cascading impacts on tourism and agriculture. The loss of vulnerable species and ecosystems will disturb relationships Māori have with these living taonga.



*Image: Ministry for Primary Industries*

**CASE STUDY**
**Queensland fruit fly**

In future, climate change is likely to create conditions that enable the Queensland fruit fly (Q-fly) to establish in Aotearoa. This insect pest can cause serious harm, making over 100 types of fruits and vegetables inedible. It is seen as one of the most significant biosecurity threats to our horticultural industries.

In 2015, the first breeding population of Q-fly was detected in Auckland. The response to this detection resulted in the disposal of more than 530 tonnes of fresh produce, and the cost of the operation amounted to approximately $13.6 million. The ongoing national surveillance trap network (since 1986) has proven effective in detecting Q-fly early in Aotearoa, enabling a quick and immediate response to minimise the impacts on our environment and trade. About 7,900 traps in the national surveillance network have been placed throughout the country, in locations where there is a high risk that Q-fly will enter and become established. This initiative has helped prevent the establishment of a Q-fly population to date.

Ongoing research is essential in providing information on how to run surveillance programmes (including climate considerations) to inform future decisions.

# Significant risks

The actions in this chapter are designed to address the 12 natural environment risks in the National Climate Change Risk Assessment 2020. They address the following significant risks:

- N1: Risks to coastal ecosystems, including the intertidal zone, estuaries, dunes, coastal lakes and wetlands, due to ongoing sea-level rise and extreme weather events
- N2: Risks to indigenous ecosystems and species from the enhanced spread, survival and establishment of invasive species due to climate change.

# Objectives

When ecosystems are healthy and diverse, they can adjust more effectively to climate threats.

The natural environment has high ecological integrity because human-induced pressure has eased and restoration efforts have been successful. Ecological corridors protect our biodiversity and enable species and ecosystems to move across landscapes as the climate changes. By understanding the impacts of these changes and reducing pressures, we give ecosystems more time to adjust to new climate threats.

Nature-based solutions buffer against climate impacts, while also fostering wellbeing, sequestering carbon and increasing biodiversity.

The Government has identified three objectives to support a resilient natural environment, which in turn will support resilient communities.

**Table 5: Government objectives to support a resilient natural environment**

| Code | Objective | Explanation |
|---|---|---|
| NE1 | Ecosystems that are healthy and connected, and where biodiversity is thriving | • Biodiversity, ecosystems and dynamic land and sea environments are strengthened.<br>• Ecosystem health improves, ecosystems and species have room to move, and human pressures lessen.<br>• The natural environment can best respond to climate impacts if it is intact and connected. Its natural diversity, and ecological and physical processes, are supported and enhanced. |
| NE2 | Robust biosecurity reduces the risk of new pests and diseases spreading | • Plants and animals are more resilient through the control of invasive pests and diseases, and the risk of these establishing and spreading is reduced. |
| NE3 | Support working with nature to build resilience | • Indigenous ecosystems are restored and protected, sites that need buffers against climate risks are identified and communities are supported in understanding nature-based solutions as a choice for adaptation. |

# Actions to support a thriving natural environment

Critical actions to support a natural environment that is healthy and diverse, and that can adjust more effectively to climate threats are set out below and also in chapter 3: Enabling better risk-informed decisions, chapter 4: Driving climate-resilient development in the right locations and chapter 5: Adaptation options including managed retreat.

These actions include:

- providing advice to landowners about restoration and regeneration of indigenous forest (action 3.13: Provide a forestry planning and advisory service)
- helping farmers plan to support biodiversity (action 3.14: Deliver the Integrated Farm Planning Programme)

- developing mātauranga Māori indicators of climate impacts on the natural environment, which will facilitate baseline datasets for monitoring climate impacts on the natural environment. These in turn will be used for environmental assessments and will centralise indigenous knowledge and values in adaptation monitoring and assessment (action 3.21: develop mātauranga Māori indicators of climate impacts on the natural environment)
- prioritising nature-based solutions, which will ensure such solutions for climate adaptation will be considered in the Government's planning and regulatory systems where possible (action 5.9: Prioritise nature-based solutions)
- prioritising the health of water bodies and freshwater in Aotearoa to ensure these ecosystems have the capacity to adapt to climate impacts (action 6.7: Implement the National Policy Statement for Freshwater Management 2020).

## Addressing inequity

**Programmes targeted at water security and biosecurity will make the natural environment more resilient and support Māori, food and fibre producers and rural communities.**

Actions across this chapter will help to protect the natural environment for future generations, while enabling disproportionately impacted people and communities to adapt to changes and build resilience.

The spread of new pests and diseases could affect the wellbeing, customary practices, cultural identity and social cohesion of Māori communities and may threaten indigenous biodiversity. Action 6.8: Deliver a collection of actions run by Biosecurity New Zealand will help protect taonga species and support the wellbeing and cultural identity of Māori.

Climate change can create new habitats for tree species and make existing habitats unsuitable. Māori may be disproportionately affected because they own 40 per cent of the commercial forest. Action 3.13: Provide a forestry planning and advisory service and action 6.12: Implement the Sustainable Land Management Hill Country Erosion Programme will support Māori to meet aspirations for their land and help them make good adaptation decisions.

Landowners, food and fibre businesses and rural communities are especially vulnerable to both acute climate events and more gradual climate change impacts that affect water availability and security. These effects also limit options for landowners to implement climate-resilient land uses, including owners of underdeveloped land (much of which is Māori-owned). Action 6.6: Implement the Water Availability and Security programme will help food and fibre sectors and rural communities have appropriate access to water, and support tangata whenua aspirations. The programme will enable the transition to a sustainable food and fibre sector, and support the resilience of rural communities and the welfare of animals.

# Critical actions

### Action 6.1: Implement the Department of Conservation Climate Change Adaptation Action Plan

**Timeframe**: Years 1–4 (2022–25)
**Lead agency**: DOC
**Relevant portfolio**: Conservation
**Primarily supports**: Objective NE1
**Status**: Current

The Department of Conservation (DOC) Climate Change Adaptation Action Plan (CCAAP) is a medium-term plan, which applies to public conservation land and waters managed by DOC, as well as threatened native species and systems.

The plan aims to assess ecosystem and species vulnerability to climate impacts, and the adaptation actions to enhance their resilience. Possible actions include translocating climate-vulnerable species, and pest control to improve the resilience of native ecosystems.

By 2024, a reporting framework on the implementation of the CCAAP will be in place. DOC adaptation work progress will be reported against the framework.

### Action 6.2: Engage with councils to implement the New Zealand Coastal Policy Statement

**Timeframe:** Years 1–6 (2022–28)
**Lead agency:** DOC
**Relevant portfolios:** Conservation; Local Government
**Primarily supports:** Objective NE1
**Status:** Current

Regional policy statements, regional plans and district plans must give effect to the New Zealand Coastal Policy Statement 2010 (NZCPS). However, most councils have not yet implemented the NZCPS.

The NZCPS provides the policy mechanism for protecting indigenous biodiversity in the coastal environment, and for managing risks to coastal ecosystems (policies 11, and 24–27 NZCPS). The NZCPS's coastal hazard management mechanisms include managed retreat and nature-based solutions.

The NZCPS emphasises integrated and strategic planning for current and future activities and cumulative effects, irrespective of jurisdictional boundaries and responsibilities (policies 4 and 7 NZCPS).

By 2024, DOC will review progress on NZCPS implementation by councils.

### Action 6.3: Implement Te Mana o te Taiao – Aotearoa New Zealand Biodiversity Strategy 2020

**Timeframe:** Years 1–6 (2022–28)
**Lead agency:** DOC
**Relevant portfolio:** Conservation
**Primarily supports:** Objective NE1
**Status:** Current

Te Mana o te Taiao – Aotearoa New Zealand Biodiversity Strategy 2020 (ANZBS) is a strategic document for the protection, restoration and sustainable use of biodiversity in Aotearoa from 2020 to 2050. It guides all those who work with, or have an impact on, biodiversity, including whānau, hapū, iwi, central and local government, industry, non-government organisations, scientists, landowners and individuals.

A priority of ANZBS is to ensure efforts to tackle biodiversity loss and climate change are reciprocal. Climate-specific goals come under objective 13: Biodiversity provides nature-based solutions to climate change and is resilient to its effects. Objective 11 also responds to climate risk: Biological threats and pressures are reduced through management. There are goals relating to predator control, browser management, coastal habitat protection and restoration, as well as getting the system right and empowering action across the sector.

The first iteration of the plan was launched in April 2022 and includes actions by agencies and local government.

By 2024, the collaborative structures and channels into the biodiversity sector will be established and the second implementation plan will be launched.

### Action 6.4: Implement the proposed National Policy Statement on Indigenous Biodiversity

**Timeframe:** Years 1–6 (2022–28)
**Lead agencies:** MfE; DOC
**Relevant portfolios:** Environment; Conservation
**Primarily supports:** Objective NE1
**Status:** Current

The regulatory arm of Te Mana o te Taiao – Aotearoa New Zealand Biodiversity Strategy 2020 is the National Policy Statement for Indigenous Biodiversity (NPS-IB), currently under development. The objective of the NPS-IB is to protect, maintain and restore indigenous biodiversity.

The NPS-IB plays a part in building the resilience of biodiversity to climate change through its role in protecting, maintaining and restoring biodiversity, including requiring councils and landowners to consider creating ecological corridors.

Protections for indigenous biodiversity will be transitioned into the resource management reform in 2023. This will be a new opportunity to bring in specific adaptation policies for biodiversity and ecosystem conservation across Aotearoa.

By 2024, the NPS-IB will be in force and implementation will have begun.

### Action 6.5: Establish an integrated work programme to deliver climate, biodiversity and wider environmental outcomes

**Timeframe:** Years 1–4 (2022–26)
**Lead agencies:** DOC; MfE
**Relevant portfolios:** Conservation; Environment
**Primarily supports:** Objective NE3
**Status:** Current

The Government will establish an integrated work programme to address climate change and biodiversity loss together. This initiative will address key barriers to regenerating and protecting native ecosystems – such as the higher costs of investing in native ecosystems and lack of Aotearoa-specific evidence on non-forest carbon sequestration – and create better incentives for restoring native ecosystems. It will also investigate how private and public money intended for offsetting hard-to-reduce emissions could support both climate and biodiversity outcomes. The programme will focus on the following areas.

- Supporting restoration and protection of indigenous forests. This includes:
  - reducing the costs of native plants
  - establishing a long-term work programme to support native afforestation and restoration.
- Improving knowledge about nature-friendly carbon removals. The Government is supporting research into the carbon removal and storage potential of native ecosystems. This includes research to scope:
  - improving Aotearoa-specific estimates of organic soil emissions (undertaken by Manaaki Whenua – Landcare Research and the University of Waikato)
  - the impacts of management interventions on carbon sequestration and storage.
- Supporting native afforestation and restoration through the Carbon Neutral Government Programme. By 2025, emissions that cannot be reduced under the Carbon Neutral Government Programme must be offset. The work programme will investigate how offsetting those emissions could also promote biodiversity and wider environmental outcomes.
- Investigating incentives for public and private investment in biodiversity. This work will investigate how:
  - to remove barriers landowners face in accessing funding and information
  - investments in biodiversity can protect and enhance carbon stocks and support climate resilience.

By 2024, all actions in the work programme will be underway.

### Action 6.6: Implement the Water Availability and Security programme

**Timeframe:** Years 1–6 (2022–28)
**Lead agency:** MPI (MfE support)
**Relevant portfolio:** Agriculture
**Primarily supports:** Objective NE1
**Status:** Current

Climate change increases natural water variability, affecting access to freshwater across the country.

The Water Availability and Security programme will help food and fibre businesses and rural communities adapt to increasingly variable natural water availability through a range of complementary activities to both reduce demand and make best use of available water. It will help restore and maintain the health of waterways, taking its lead from the National Policy Statement on Freshwater Management.

By 2024, the Ministry for Primary Industries (MPI) will form a permanent team to address water availability and security in the food and fibre sectors and rural communities. This work will include partnering with Māori, rural communities and other sectors to find solutions.

### Action 6.7: Implement the National Policy Statement on Freshwater Management 2020

**Timeframe:** Years 1–6 (2022–28)
**Lead agency:** MfE
**Relevant portfolio:** Environment
**Primarily supports:** Objective NE1
**Status:** Current

Adaptation action for freshwater bodies will be achieved through local councils devising suitable plan provisions (eg, rules) to achieve a range of outcomes, and must ensure the ability to use resources (eg, land use, discharges, etc) is matched to the assimilative capacity of freshwater.

The National Policy Statement on Freshwater Management 2020 (NPS-FM 2020) applies to all freshwater, including groundwater, and will require management of freshwater in both rural and urban areas. It requires councils to give effect to Te Mana o te Wai, which prioritises the health and wellbeing of water bodies and freshwater ecosystems. Water users will adapt land-use practices in response to these and as the climate impacts become apparent. These actions will ensure the healthy functioning of freshwater ecosystems and mitigate negative impacts from land use.

By 2024, regional councils will notify plans implementing the NPS-FM 2020.

### Action 6.8: Deliver a collection of actions run by Biosecurity New Zealand

The following actions address risks to indigenous ecosystems and species that result from the greater spread, survival and establishment of invasive species. They also help build climate resilience of ecosystems generally.

#### *Action 6.8.1: Implement an on-farm biosecurity programme*

**Timeframe:** Years 1–2 (2022–24)
**Lead agency:** MPI
**Relevant portfolio:** Biosecurity
**Primarily supports:** Objective NE2
**Status:** Current

This programme aims to improve biosecurity on dairy and sheep and beef farms and create a more resilient biosecurity system. It is responsible for developing and implementing an action plan to overcome barriers and increase voluntary on-farm biosecurity practices.

By mid-2023, changes will have been measured in the four core behaviours (talk about biosecurity, show leadership, be curious to understand the risks, and make choices – recognition and reinforcement) to track programme impact against objectives.

#### *Action 6.8.2: Invest in strengthening border biosecurity*

**Timeframe:** Years 1–6 (2022–2028)
**Lead agencies:** MPI; NZ Customs
**Relevant portfolio:** Biosecurity
**Primarily supports:** Objective NE2
**Status:** Current

Two significant projects (Sea Cargo Programme and Mail Pathways Project) delivered by Biosecurity New Zealand will improve how we address the biosecurity risk from mail and sea cargo pathways. They will also protect biodiversity by identifying pest species that arrive through our international borders.

#### *Action 6.8.3: Continue the Freshwater Biosecurity Partnership Programme*

**Timeframe:** Years 1–6 (2022–28)
**Lead agency:** MPI
**Relevant portfolio:** Biosecurity
**Primarily supports**: Objective NE2
**Status:** Current

The Ministry for Primary Industries (MPI) leads the Freshwater Biosecurity Partnership Programme in partnership with the Department of Conservation (DOC), Fish and Game New Zealand, specific Māori entities, regional councils, Land Information New Zealand and various industry groups, including Genesis Energy and Meridian Energy. The programme's vision is to take collaborative action to protect Aotearoa New Zealand's freshwater from the impacts of freshwater pests. A changing climate could make more waterways vulnerable to freshwater pest establishment. The programme includes the Check Clean Dry campaign, a national social marketing campaign aimed at preventing the spread of freshwater pests.

The programme will include a focus on supporting the development of effective early-detection and control tools. It will also improve access to information about the distribution of freshwater pests, enabling the Check Clean Dry campaign to be targeted to the highest-risk locations, activities and distribution pathways.

By 2024, development and implementation of an updated Freshwater Biosecurity Partnership Programme strategy will be completed, which includes more support for collaboration on developing new or improved detection and control tools.

### *Action 6.8.4: Reduce the spread and impacts of marine pest species through the Clean Hull programme*

**Timeframe**: Years 1–6 (2022–28)
**Lead agency**: MPI
**Relevant portfolio**: Biosecurity
**Primarily supports**: Objective NE2
**Status**: Current

This involves implementing a behaviour change programme to address the risks of marine pest spread via domestic vessel movements. This will build on existing marine biosecurity partnerships in the upper North Island, upper South Island and Fiordland.

By 2024, the Clean Hull programme will be designed, and a baseline established of awareness of risks from vessel movements and current behaviours of vessel owners.

### *Action 6.8.5: Prevent the spread of wilding conifers, and contain or eradicate established areas of wilding conifers by 2030*

**Timeframe**: Years 1–6 (2022–28)
**Lead agency**: MPI
**Relevant portfolio**: Biosecurity
**Primarily supports**: Objective NE2
**Status**: Current

Established in 2016, this programme ensures a collaborative, coordinated and effective national approach to wilding conifer control. This reduces fire risk, improves water availability (including for hydropower generation), prevents the loss of productive land and preserves the biodiversity of indigenous ecosystems.

By 2024, the programme will protect 4 million hectares of land that is significantly vulnerable to invasion by controlling wilding conifer infestations.

### *Action 6.8.6: Continue the National Interest Pest Responses programme*

**Timeframe:** Years 1–6 (2022–28)
**Lead agency:** MPI
**Relevant portfolio:** Biosecurity
**Primarily supports:** Objective NE2
**Status:** Current

Nine harmful weeds are managed under the National Interest Pest Responses (NIPR) programme, with the aim of eradicating them or significantly reducing infestations. These weeds could cause serious harm to Aotearoa's environment and economy if allowed to spread.

By 2024, a technical review of each of the National Interest Pest Responses species control programmes will be completed.

### *Action 6.8.7: Invest in plant health and environmental capability facility*

**Timeframe:** Years 1–6 (2022–28)
**Lead agency:** MPI
**Relevant portfolio:** Biosecurity
**Primarily supports:** Objective NE2
**Status:** Current

Significant investment in Ministry for Primary Industry (MPI) plant health and environment work (currently in Tāmaki, Auckland) will support growth and development in the arable, forestry and horticulture sectors. It will speed up access to high-value plant varieties and cultivars, to support commercialisation of new products. Faster access to genetic material can support innovation and bring benefits such as higher yields and resilience to pests and diseases.

In November 2022, a detailed business case is submitted for Cabinet approval.

### *Action 6.8.8: Use the Animal Health Laboratory and Plant Health and Environment Laboratory*

**Timeframe**: Years 1–6 (2022–28)
**Lead agency**: MPI
**Relevant portfolio**: Biosecurity
**Primarily supports**: Objective NE2
**Status**: Current

The Animal Health Laboratory (AHL) and Plant Health Environment Laboratory (PHEL) are national reference laboratories that identify and validate suspected exotic and endemic pests and diseases affecting farm and aquatic animals. AHL diagnoses, researches and helps control wildlife diseases and PHEL identifies pests and diseases affecting plants and the environment, as well as exotic and invasive plants. They bring a better understanding of new and emerging pests and diseases that are likely to establish in a changing climate.

By January 2024, the diagnostic capabilities to manage new and suspected exotic pests and diseases through an operational research programme and collaboration with internal and international organisations will be enhanced.

## Supporting actions

### Action 6.9: Deliver Jobs for Nature to restore indigenous ecosystems

**Timeframe:** Years 1–6 (2022–28; some projects ongoing)
**Lead agencies:** MfE; DOC; MPI
**Relevant portfolios:** Environment; Conservation
**Primarily supports:** Objective NE1
**Status:** Current

This action supports more than 200 projects to restore ecosystems, control pests and mobilise community action across the country. Biodiversity can be strengthened by restoring ecosystems and reducing pests.

### Action 6.10: Implement *Revitalising the Gulf: Government action on the Sea Change Plan*

**Timeframe:** Years 1–2 (2022–24)
**Lead agencies:** DOC; MPI
**Relevant portfolios:** Conservation; Oceans and Fisheries
**Primarily supports:** Objective NE1
**Status:** Current

This initiative includes establishing 19 new areas of marine protection and an area-based fisheries plan in the Hauraki Gulf Marine Park. Other elements include restricting trawling to specified trawl corridors, protected species initiatives, active habitat restoration, marine biosecurity, aquaculture and Ahu Moana (local marine management by mana whenua and communities).

Research, monitoring and reporting will inform an adaptive management approach. Together, these actions will enhance the health of the marine ecosystem in the Hauraki Gulf / Tīkapa Moana (and therefore its resilience).

### Action 6.11: Implement the South-east Marine Protection Initiative

**Timeframe:** Years 1–2 (2022–24)
**Lead agencies:** DOC; MPI
**Relevant portfolio:** Conservation; Oceans and Fisheries
**Primarily supports:** Objective NE1
**Status:** Current

This initiative may result in 12 new areas of marine protection in the southeast waters of the South Island, co-managed by the Crown and Ngāi Tahu. It will improve the health of the marine ecosystem (and therefore its resilience) by managing impacts, and will inform future management through science, mātauranga Māori and monitoring.

### Action 6.12: Implement the Sustainable Land Management Hill Country Erosion Programme

**Timeframe:** Year 1–6 (2022–28)
**Lead agency:** MPI
**Relevant portfolio:** Forestry
**Primarily supports:** Objective NE1
**Status:** Current

The Sustainable Land Management Hill Country Erosion Programme will support regional planning for, and treatment of, erosion-prone land and, in turn, contribute to afforestation.

Afforestation can reduce soil loss and other effects from the increasing scale and magnitude of storms. It also mitigates downstream damage to infrastructure. The programme reduces the impacts of erosion and sediment deposition most acutely felt by farmers and rural communities during heavy weather events, such as the high-rainfall event on the East Coast in March 2022.

## Other actions across this plan will contribute to a resilient natural environment

Actions in other chapters that will support a resilient natural environment include:

- action 5.16: Identify options to increase the integration of nature-based solutions into urban form, which will increase biodiversity and natural areas in urban spaces
- action 8.7: Embed nature-based solutions as part of the response to reducing transport emissions and improving climate adaptation and biodiversity outcomes
- action 10.2: Strengthen fisheries rules, which includes catch limits that will enable stocks to replenish
- action 10.6: Continue delivering the Sustainable Land Management and Climate Change and the Greenhouse Gas Inventory research programmes, which will fund research and develop tools to support the farming sector and mitigate land-use impacts on freshwater.
- action 10.13: Support the implementation of Aotearoa Circle Seafood Sector Adaptation Strategy, which has a goal to enhance the resilience of the marine environment.

CHAPTER 7:

# Homes, buildings and places



# Chapter 7: Homes, buildings and places

| Homes, buildings and places | |
|---|---|
| **Government agencies with actions in this chapter** | • Ministry for Culture and Heritage (MCH)<br>• Ministry of Business, Innovation and Employment (MBIE)<br>• Te Tūāpapa Kura Kāinga – Ministry of Housing and Urban Development (HUD) |
| **Why these actions are important for building resilience** | Our homes, buildings and places are at the centre of our lives. They play a vital role in our health, wellbeing and quality of life. Many homes and buildings are in areas at risk of flooding and sea-level rise, and impacts of climate change can reduce their durability. The potential costs are high. How and where we build can help our communities adapt. |
| **Significant risks addressed in this chapter**<br>B = Built | B2: Risks to buildings due to extreme weather events, drought, increased fire weather and ongoing sea-level rise. |
| **Objectives relevant to critical actions**<br>HBP = Homes, buildings, places | • HBP1: Homes and buildings are climate resilient, and meet social and cultural needs.<br>• HBP2: New and existing places are planned and managed to minimise risks to communities from climate change.<br>• HBP3: Māori connections to whenua and places of cultural value are strengthened through partnerships.<br>• HBP4: Threats to cultural heritage arising from climate change are understood and impacts minimised. |
| **Critical actions relevant to this chapter** | • Help building owners, renters and new home builders reduce and manage the impacts of climate hazards on homes and buildings.<br>• Reduce the exposure of public housing tenants to climate hazards through a framework for adaptation options for public housing.<br>• Ensure funding decisions for urban development and housing, including Māori housing, consider climate hazards.<br>• Support kaitiaki communities to adapt and conserve taonga/cultural assets. |

## Why we need to take action

### Climate change affects our homes, buildings and places, but where and how we build can help us adapt.

Homes, buildings and places[1] are the foundation of our communities. They include the physical environment around us, the people in that environment and the interaction between the two.

The form, design and characteristics of our homes, buildings and places play a vital role in our health, wellbeing and quality of life.

[1] In the context of this outcome area, 'places' refers to urban or rural areas, ranging from neighbourhoods to towns and regions. Adaptation must address both the physical elements of a place (eg, homes, buildings, infrastructure and spaces around them) and the social elements (eg, the identity of people and communities, cultural value).

# Significant risks

The actions in this chapter address the following significant risk identified in the National Climate Change Risk Assessment 2020:

- B2: Risks to buildings due to extreme weather events, drought, increased fire weather and ongoing sea-level rise.

These actions also address:

- H5: Risks to Māori social, cultural, spiritual and economic wellbeing from loss and degradation of lands and waters, as well as cultural assets such as marae, due to ongoing sea-level rise, changes in rainfall and drought
- H8: Risks to Māori and European cultural heritage sites due to projected ongoing sea-level rise, extreme weather events and increasing fire weather.

Most of our existing homes and buildings were located without ongoing climate change in mind and built to perform under climate conditions at the time. However, as the climate changes, an increasing number of those homes and buildings are at risk of becoming less liveable or being damaged or destroyed.

For example, a warmer, wetter climate may affect the durability of building materials and the lifespan of homes and buildings. This could include an increased risk of damage due to coastal erosion, or of subsidence during intense rainfall and coastal storm surges.

Damage to existing housing stock from climate change could have knock-on effects for the country's housing supply. It could further reduce the supply and affordability of housing, weaken social cohesion and prevent communities from growing. It could also reduce access to good-quality housing for tenants, individuals (particularly women) and whānau experiencing or at risk of homelessness.

**The potential impact on our communities is high**

About 675,000 (or one in seven) people across Aotearoa live in areas that are prone to flooding, which amounts to over $100 billion worth of residential buildings. Over 72,000 people live in areas at risk of storm surges. The number of people exposed to these hazards will increase as rainfall increases, storms become more frequent and sea levels rise.

## A threat to our cultural heritage

Climate change presents risks to culture, cultural heritage, traditional knowledge and ways of life. Cultural heritage includes historic sites, structures, places and areas; archaeological sites; sites of significance to Māori, including wāhi tapu; and cultural landscapes. Many communities will face challenges in activities such as documenting and conserving their cultural heritage and managing their cultural infrastructure.

## Stresses on Māori, iwi and hapū

Climate hazards can affect homes and buildings on whenua Māori, and threaten the unique cultural and spiritual connection Māori have to whenua.

Whenua Māori and land returned through the Treaty settlement process is often on coastal fringes and lowland areas exposed to flooding, erosion and sedimentation.

Many significant cultural sites, such as marae, urupā, ancient gardens and healing places, are also along coastlines or near flood-prone rivers.




*Image: Kāinga Ora*

**CASE STUDY**
**Reducing the impact of urban heat islands**

The effects of heatwaves are felt more in urban areas because they absorb, produce and retain more heat. Vehicles and buildings generate heat, and the dark, paved surfaces that typically cover urban areas absorb heat. These surfaces also allow fewer plants to grow. This reduces the cooling effects of shading and evaporation, and worsens air pollution.

The resulting urban heat-island effect can increase temperatures in cities relative to their surrounding areas. Heat absorbed throughout the day is then released in the evening, raising night-time temperatures and worsening the effects of heatwaves.

**Why the heat-island effect is an issue for people**

Being exposed to extreme heat for prolonged periods puts stress on the body and can worsen health conditions. Heatwaves have widespread negative impacts on health, wellbeing and levels of comfort, especially for older people and those who may not be able to pay to cool their homes. Extreme heat caused by climate change is likely to intensify Māori and Pasifika health inequities. It can also increase prenatal health issues.

**Current and future actions**

Building design, materials and urban planning can mitigate the heat-island effect. Planting more trees and using nature-based solutions for infrastructure help to cool urban areas. These simple and effective solutions are used around the world. They also have other benefits, such as:

- reducing greenhouse gas emissions
- enhancing mauri of land and water
- enhancing biodiversity
- improving human health and wellbeing.

Over time, these strategies and other actions in the national adaptation plan will help to reduce the heat-island effect.

**Urban Ngahere scheme**

Kāinga Ora's Urban Ngahere scheme is a large-scale urban development in Māngere, which has relatively low canopy coverage* (only 8 per cent). Kāinga Ora is partnering with the community, mana whenua and Auckland Council to increase the coverage, reduce inequality and uplift the mauri of the Māngere whenua and people.

Auckland Council's Urban Ngahere Strategy also aims to increase canopy coverage across Auckland more generally to 30 per cent.

*Canopy coverage is the total area of tree crowns projected onto the ground.

# Objectives

## Resilient homes, buildings and places allow us to thrive.

The Government has identified four objectives to help make our homes, buildings and places resilient to the changing climate and support people and communities to thrive.

**Table 6: Government objectives to build resilient homes, buildings and places**

| Code | Objective | Explanation |
|---|---|---|
| HBP1 | Homes and buildings are climate resilient, and meet social and cultural needs | • Reduce exposure to climate hazards and support businesses and communities to understand and respond to climate risks.<br>• Improve homes and buildings so they can withstand the expected range of temperatures, rainfall and wind and to improve energy and water efficiency.<br>• Conserve valued cultural heritage. |
| HBP2 | New and existing places are planned and managed to minimise risks to communities from climate change | • Improve resilience through effective planning, urban design and management.<br>• Avoid development in places that may be more exposed to climate hazards.<br>• Support existing places to adapt.<br>• Relocate people and assets where risks are too high to manage otherwise. |
| HBP3 | Māori connections to whenua and places of cultural value are strengthened through partnerships | • Support initiatives that identify and respond to climate risks specific to iwi and Māori.<br>• Work in partnership with hapū, iwi and Māori on Māori-led adaptation solutions.<br>• Identify and embed Māori knowledge, identity and values in urban design and construction to manage climate hazards.<br>• Increase the resilience of cultural heritage, to strengthen the ties between whānau, hapū and iwi and their whenua. |
| HBP4 | Threats to cultural heritage arising from climate change are understood and impacts minimised | • Understand where cultural heritage sites are, their values, who they are important to and how climate change could affect them.<br>• Understand how the loss of cultural heritage can affect social, cultural, spiritual and economic wellbeing, including for Māori, and the positive role of cultural heritage in adaptation and wellbeing. |

| Code | Objective | Explanation |
|---|---|---|
| | | • Improve disaster management for cultural heritage.<br>• Enable communities to maintain and protect their taonga and assets.<br>• Protect and conserve cultural heritage through appropriate regulation. |

## Actions to increase the resilience of homes, buildings and places

As shown in table 7 below, the actions critical to achieving the objectives relating to homes, buildings and places are set out in chapter 3: Enabling better risk-informed decisions, chapter 4: Driving climate-resilient development in the right locations and chapter 5: Adaptation options including managed retreat. These the actions work together to increase the resilience of our homes, buildings and places.

**Table 7: Actions related to homes, buildings and places are located throughout the national adaptation plan**

| HOMES, BUILDINGS AND PLACES ARE RESILIENT TO A CHANGING CLIMATE, SO THAT PEOPLE AND COMMUNITIES CAN THRIVE | | | |
|---|---|---|---|
| **HBP1**<br>**Homes and buildings are climate resilient, and meet social and cultural needs** | **HBP2**<br>**New and existing places are planned and managed to minimise risks to communities from climate change** | **HBP3**<br>**Māori connections to whenua and places of cultural value are strengthened through partnerships** | **HBP4**<br>**Threats to cultural heritage arising from climate change are understood and impacts minimised** |
| **CRITICAL ACTIONS** | | | |
| **Action 4.4:** Embed adaptation in funding models for housing and urban development, including Māori housing | | **Action 5.8:** Support kaitiaki communities to adapt and conserve taonga/cultural assets | |
| **Action 4.3:** Establish an initiative for resilient public housing<br>**Action 5.7:** Reduce and manage the impacts of climate hazards on homes and buildings | | | |
| **ACTIONS THAT SUPPORT HOMES, BUILDINGS AND PLACES OBJECTIVES** | | | |
| **Action 4.1:** Reform the resource management system | | | |
| | **Action 5.16:** Identify options to increase the integration of nature-based solutions into urban form | | |
| **FUTURE PROPOSED WORK PROGRAMMES RELEVANT TO HOMES, BUILDINGS AND PLACES OBJECTIVES** | | | |
| **Action 3.22:** Work with community housing providers to enable effective climate hazard response<br>**Action 3.25:** Design methodology for risk assessments of public buildings<br>**Action 7.4:** Update regulatory requirements to ensure buildings are designed and constructed to withstand more extreme climate hazards<br>**Action 7.6:** Manage potential impacts of adaptation related to regulatory change | **Action 7.5:** Update housing and urban settings | **Action 7.2:** Partner with Māori landowners to increase the resilience of Māori-owned land, homes and cultural sites<br>**Action 7.3:** Partner with Māori to support Māori-led approaches to adaptation planning | **Action 3.26:** Produce guidance for disaster risk management for cultural heritage<br>**Action 3.27:** Develop a framework for assessing exposure and vulnerability of taonga/cultural assets to climate change<br>**Action 7.1:** Research how cultural heritage contributes to community wellbeing and climate change adaptation |

For example, action 4.1: Resource management reform is a critical enabling action to ensure our objectives for homes, buildings and places are met. It will:

- support effective spatial planning by directing growth to the most appropriate locations
- provide an opportunity to ensure planning decisions are informed by hazard risk assessments, and that our planning decisions do not continue to increase the exposure of homes and buildings to climate-related hazards
- set out a framework to manage retreat and relocate communities, homes and buildings where risks are seen as intolerable.

Action 5.7: Reduce and manage the impacts of climate hazards on homes and buildings is critical because it will provide the information, research and guidance needed to inform New Zealanders about risks to the property they own or rent. This will also inform other actions:

- action 3.22: Work with community housing providers to enable effective climate hazard response
- action 3.25: Design methodology for risk assessments of public buildings
- action 7.4: Updates to regulatory requirements to ensure buildings are designed and constructed to withstand more extreme climate conditions
- action 7.5: Update housing and urban settings, which will help ensure the built environment is designed to cope with a changing climate.

The Government will ensure funding and investment decisions for housing and urban development consider climate-related hazards through the following actions:

- action 4.3: Establish an initiative for resilient public housing
- action 4.4: Embed adaptation in funding models for housing and urban development, including Māori housing
- action 5.16: Identify options to increase the integration of nature-based solutions into urban form.

It will also support kaitiaki communities to adapt and conserve taonga and cultural assets (action 5.8), which will work alongside the following actions:

- action 3.26: Produce guidance for disaster risk management for cultural heritage
- action 3.27: Develop a framework for assessing exposure and vulnerability of taonga/cultural assets to climate change
- action 7.1: Research how cultural heritage contributes to community wellbeing and climate change adaptation.

The Government will partner with Māori to increase the resilience of Māori-owned land, homes and cultural sites (action 7.2), and to support Māori-led approaches to adaptation planning (action 7.3).

### Existing work programmes that support these actions

Work is underway to ensure the Government's interventions to increase housing supply, affordability and quality are taking climate change into account. For example, the Government Policy Statement on Housing and Urban Development signals the strategic direction for adaptation.

The Government has recently amended its objectives for the Urban Growth Agenda to sharpen the focus on climate impacts and responses. The National Māori Housing Strategy, MAIHI Ka Ora, also stresses the importance of maintaining a connection to whenua and includes sustainability as a pou (priority area).

Other work in progress is helping to initiate and support adaptation for the building and construction sector. For example, the Building for Climate Change work programme will support actions in the national adaptation plan to increase adaptation and resilience. It is also connected to the work on emissions reduction and seismic resilience.

The building and construction sector will be supported in the transition to resilient homes and buildings. The Government's emissions reduction plan has committed to support workforce transition to ensure the sector can build for climate change (emissions reduction plan action 12.5.4). Key initiatives under this action include:

- coordinate and facilitate building and construction workforce planning and sector education across government
- explore support or training for workers who may need to meet new requirements
- explore direct supports, such as targeted funding, behaviour change and site-based opportunities, to grow skills and attract people to the workforce.

This action will also ensure adaptation is reflected in workforce support to develop more resilient homes and buildings, and provide the opportunity to partner with business, industry professionals and workers.

## Addressing inequity

### Resilient homes, buildings and places for vulnerable communities.

Well-performing homes and buildings are essential to the social, economic and cultural wellbeing of New Zealanders. The impact of climate hazards on homes, buildings and places can be devastating for those affected. Climate hazards can cause injuries, loss of life, loss of possessions and disruption to businesses and services. Individuals, businesses and communities can incur costs related to moving out of homes and buildings and of cleaning up or repairing damage. These impacts can have a long-term effect on wellbeing. They will be especially difficult for disadvantaged communities to overcome, and there is a risk that existing inequities will be exacerbated if that difficulty is not addressed.

For this reason, it is critical that adapting our homes and buildings to be resilient, be fair, equitable and inclusive and helps our most vulnerable communities thrive.

The actions outlined in this chapter aim to ensure we can support New Zealanders to continue to enjoy healthy, safe and well-functioning places to live, work and come together as a community. This means focusing on supporting already vulnerable communities, such as public and community housing tenants.

Actions will also ensure we do not lock in or exacerbate future impacts on communities, such as accessibility issues, and that we manage potential impacts of regulatory change. The Government is committed to working in partnership with Māori to support adaptation for Māori, by Māori.

# Future proposed work programmes

### Action 7.1: Research how cultural heritage contributes to community wellbeing and climate change adaptation

**Timeframe:** Years 1–4 (2022–26)
**Lead agency:** MCH
**Relevant portfolio:** Culture and Heritage
**Primarily supports:** Objective HBP4
**Status:** Proposed

This research will look at the value of cultural heritage in building and sustaining communities, and how this links to community resilience and wellbeing.

### Action 7.2: Partner with Māori landowners to increase the resilience of Māori-owned land, homes and cultural sites

**Timeframe:** Years 1–4 (2022–26)
**Lead agency:** HUD
**Relevant portfolio:** Māori Housing
**Primarily supports:** Objective HBP3
**Status:** Proposed

This work will be progressed in partnership with Māori landowners to produce resources and tools to improve understanding of climate-related risks and increase the resilience of housing on Māori land. It will promote mātauranga Māori and increase the resilience of Māori-owned land, homes and cultural sites. As this work progresses, it may link to action 4.1: Reform the resource management system.

### Action 7.3: Partner with Māori to support Māori-led approaches to adaptation planning

**Timeframe**: Years 3–4 (2024–26)
**Lead agency**: HUD
**Relevant portfolio**: Māori Housing
**Primarily supports**: Objective HBP3
**Status**: Proposed

This work will be progressed in partnership with Māori to support Māori-led adaptation planning – for example, in the new resource management system. This will support Māori-led adaptation solutions and the use of mātauranga Māori and Māori urban design principles in response to climate hazards. It will also promote Māori-led planning and support the adaptation of places managed by whānau, hapū and iwi.

### Action 7.4: Update regulatory requirements to ensure buildings are designed and constructed to withstand more extreme climate hazards

**Timeframe:** Years 3–6 (2024–28)
**Lead agency:** MBIE
**Relevant portfolio:** Building and Construction
**Primarily supports:** HBP1
**Status:** Proposed

Updated forward-looking climate data and modelling (action 3.2: Design and develop risk and resilience and climate adaptation information portals) will be used to:

- update Building Code performance requirements
- identify and add climate hazards not currently in the Building Code
- produce guidance and tools to help people meet new performance requirements.

This action will improve the quality of buildings and make them more resilient to future climate impacts. It will also consider costs and distributional impacts, and explore regulatory changes that could support the adaptation of existing buildings. Action 7.6 Manage potential impacts of adaption related to regulatory change will support those communities that are most impacted by this regulatory change.

### Action 7.5: Update housing and urban settings

**Timeframe:** Years 3–6 (2024–28)
**Lead agency:** HUD
**Relevant portfolio:** Housing
**Primarily supports:** Objective HBP2
**Status:** Proposed

Current strategies, programmes and regulations will be reviewed to ensure housing and urban environments are fit for the changing climate. For example, this could lead to updated requirements for homeowners and landlords, or for public and community housing. This will be informed by later actions to reduce and manage the impacts of climate hazards on homes and buildings (action 5.7), and identify options to increase the integration of nature-based solutions into urban form (action 5.16).

This action will help ensure the built environment is designed and planned to cope with extreme events and the changing climate. It will also help ensure rules about the quality of private and public housing and tenancies consider climate change and remain fit for purpose.

### Action 7.6: Manage potential impacts of adaptation related to regulatory change

**Timeframe:** Years 5–6 (2026–28)
**Lead agency:** MBIE
**Relevant portfolio:** Building and Construction
**Primarily supports:** Objective HBP1
**Status:** Proposed

Vulnerable communities, such as those living along the coast or those with low incomes, may require additional support to adapt their homes and buildings. The Government will monitor the effects of action 5.7: Reduce and manage the impacts of climate hazards on homes and buildings and action 7.4: Update regulatory requirements to ensure buildings are designed and

constructed to withstand more extreme climate hazards to identify who these regulatory changes may adversely affect.

Future actions could include advice or guidance to support local initiatives, and offering incentives. These actions will also consider the distributional impacts from emissions reductions.

This action will address negative impacts of regulatory changes for buildings, and manage barriers to adaptation by the public.

## Other actions across this plan will contribute to resilient homes, buildings and places

A range of other actions will support the resilience of homes, buildings and places, including the following.

- System-wide reforms will encourage a long-term and proactive view to account for climate change. Actions that improve data and information and provide tools and guidance will inform and incorporate data and information about reducing and managing the impacts of climate hazards on homes and buildings (action 5.7: Reduce and manage the impacts of climate hazards on homes and buildings).
- Natural environment actions (chapter 6) to strengthen ecosystems and promote indigenous knowledge will complement actions to increase the resilience of homes, buildings and places that are alongside the natural environment or include natural sites.
- Infrastructure (chapter 8) plays a key role by connecting communities and places and allowing for goods and services to be distributed. It also supports new development and housing, and helps communities to thrive. For example, action 3.8: Develop guidance for assessing risk and impact on physical assets and the services they provide will support the adaptation of transport and energy networks. That, in turn, will complement the design methodology for risk assessments of public buildings, which includes a focus on social infrastructure, such as schools, hospitals and other public assets.
- A number of actions for communities (chapter 9: Communities) will increase social cohesion. This will help communities to identify climate hazards, including those relevant to homes, buildings and places. For example, action 3.6: Improve natural hazard information on Land Information Memoranda (LIMs) will raise awareness of climate hazards at the property level.
- The actions on insurance availability and affordability (see chapter 10: Economy and financial system) will consider options to keep insurance for homes and buildings available and affordable. This will support recovery after extreme weather events.

CHAPTER 8:

# Infrastructure



# Chapter 8: Infrastructure

| Infrastructure | |
|---|---|
| **Government agencies with actions in this chapter** | • Commerce Commission<br>• Ministry of Business Innovation and Employment (MBIE)<br>• Te Manatū Waka Ministry of Transport (MOT)<br>• Te Waihanga New Zealand Infrastructure Commission<br>• Waka Kotahi NZ Transport Agency |
| **Why these actions are important for building resilience** | Infrastructure provides the services New Zealanders need for all areas of life. The actions in this chapter will help ensure these services remain resilient in the face of climate change. Resilient infrastructure supports adaptation in communities and businesses and protects the wellbeing of future generations. |
| **Significant risks addressed in this chapter**<br>B = Built | B1: Risk to potable water supplies (availability and quality) due to changes in rainfall, temperature, drought, extreme weather events and ongoing sea-level rise. |
| **Objectives relevant to critical actions**<br>INF: Infrastructure | • INF1: Reduce the vulnerability of assets exposed to climate change.<br>• INF2: Ensure all new infrastructure is fit for a changing climate.<br>• INF3: Use renewal programmes to improve adaptive capacity. |
| **Critical actions relevant to this chapter** | • Develop guidance to support asset owners to evaluate, understand and manage the impacts and risks of climate change on their physical assets and the services they provide.<br>• Scope a resilience standard or code for infrastructure to encourage risk reduction and resilience planning in existing and new assets.<br>• Integrate adaptation into Treasury decisions on infrastructure to ensure decision-making for new assets and across major renewal or upgrade programmes considers climate risks.<br>• Develop and implement the Waka Kotahi Climate Adaptation Plan to enable climate-resilient transport networks and journeys, connecting people, products and services for a thriving Aotearoa. |

## Why we need to take action

### Infrastructure underpins our society. It provides the services we depend on to live, work, learn and play.

These services include:

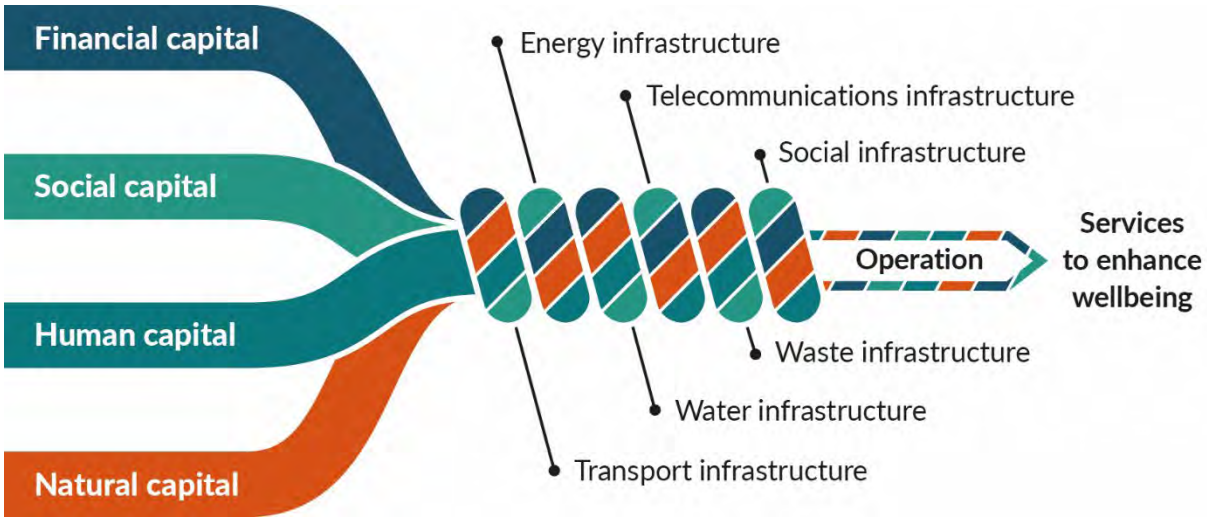
- **energy** – energy generation and distribution networks, including electricity, and liquid and gaseous fuels
- **telecommunications** – communication networks, including voice and data transfer and storage
- **transport** – land transport networks, ports and airports
- **water** – wastewater, stormwater, drinking water and irrigation networks, including sources of water (eg, dams, rivers, reservoirs and groundwater), and water bodies into which stormwater and wastewater are discharged
- **waste** – resource recovery and landfill assets for managing waste

- **social** – education and training facilities; health and aged care facilities; community assets such as libraries, stadiums and community centres; the Defence estate; justice assets such as courts, prisons and remand centres; and social housing (figure 8).

For Māori, cultural infrastructure is important and is represented in social and cultural systems such as iwi, hapū and whānau. Associated physical and spiritual structures such as marae and urupā are also important.

Just as physical infrastructures of roads, telecommunication systems and energy systems must be resilient, so must cultural infrastructure for Māori.

**Figure 8: Types of infrastructure**




Source: Adapted from Te Waihanga. 2020. Infrastructure under one roof: Standardising how we think about the shared services around us – Discussion Document. Wellington. New Zealand Infrastructure Commissions Te Waihanga.

# Significant risks

Climate change will affect all of our infrastructure, directly and indirectly, including supply chain disruptions, physical impacts and changes in demand.

The actions for infrastructure in this plan are designed to achieve the three infrastructure objectives outlined in table 8 and address the built environment risks in the National Climate Change Risk Assessment 2020. In particular, they begin to address:

- B1: Risk to potable water supplies (availability and quality) due to changes in rainfall, temperature, drought, extreme weather events and ongoing sea-level rise.

# Objectives

### Resilient infrastructure protects and enhances the wellbeing of all New Zealanders.

The Government has identified three objectives for the infrastructure sector.

**Table 8: Government objectives to build resilient infrastructure**

| Code | Objective | Explanation |
|---|---|---|
| INF1 | Reduce the vulnerability of assets exposed to climate change | • Understand where infrastructure assets and their services are exposed and vulnerable to climate impacts.<br>• Prioritise the risk management of assets so that services can continue if disruption occurs. |
| INF2 | Ensure all new infrastructure is fit for a changing climate | • Consider long-term climate impacts when we design and invest in infrastructure, so the right infrastructure is in the right places.<br>• Understand future adaptation options and finance them as part of the investment in new infrastructure to build capacity to adapt. |
| INF3 | Use renewal programmes to improve adaptive capacity | • Consider long-term climate impacts when making decisions to maintain, upgrade, repair or replace existing infrastructure. |

# Infrastructure asset owners are best placed to manage climate risk

Infrastructure asset owners include central and local government and the private sector, onshore and offshore (table 9). This means there is a range of drivers underpinning the sectors' collective response to climate change.

Important drivers for action in the private sector include board fiduciary duty, NZX rules, and investor sentiment on corporate responsibility and non-financial risk management. For Crown entities, government priorities and policy, as well as board fiduciary duty, will help direct responses. Local government decisions reflect long-term plans and will be influenced by the ability and willingness of ratepayers to pay.

Many asset owners have existing duties as lifeline utilities (table 9) under the Civil Defence Emergency Management Act 2002 to "function to the fullest possible extent, even though this may be at a reduced level, during and after an emergency" (s. 60 (a)).[1] Many asset owners may be beginning to consider climate-related risks as part of fulfilling their responsibilities as lifeline utilities.

[1] New Zealand Government. 2002. *Civil Defence Emergency Management Act 2002*. Wellington.

**Table 9: Infrastructure governance**

| Infrastructure type | Governance | Lifeline utility[2] |
|---|---|---|
| Road transport | Crown entity, central and local government | Yes |
| Rail transport | Crown entity, central and local government | Yes |
| Ports | Local government and central[3] government | Yes |
| Airports | Private sector, central and local government | Yes |
| Energy[4] | Private sector | Yes |
| Water | Local government | Yes |
| Telecommunications and digital | Public and private sector | Yes[5] |
| Waste and resource recovery | Private sector, local government | No |

2 The Civil Defence Emergency Management Act 2002 identifies the entities and sectors that represent lifeline utilities, which include many of the infrastructure classes that this section seeks to influence.

3 Defence land and infrastructure includes Defence Force camps, bases, training areas, airfields and ports.

4 Includes energy generation and energy distribution.

5 Radio New Zealand and Television New Zealand, and telecommunications network providers.



**CASE STUDY**
**RiverLink, Lower Hutt**

The RiverLink project will transform Lower Hutt through transport improvements, upgraded flood protection and urban development. The result will be a more resilient, connected and vibrant city.

The project is a partnership between Waka Kotahi NZ Transport Agency, Greater Wellington Regional Council, Hutt City Council and mana whenua Ngāti Toa Rangatira and Taranaki Whānui ki Te Upoko o Te Ika.

Improvements include:

- a new interchange at Melling (with a local road going over State Highway 2) and a river bridge, connecting to the Lower Hutt central business district
- a new pedestrian and cycle bridge linking directly to Melling Station
- new intersections and road realignments that integrate with the local network
- enhanced pedestrian and cycle routes, plus cycle storage, bus hub and park–ride facilities.

Flood protection upgrades will include:

- lowering and widening Te Awa Kairangi Hutt River, giving it more room to flow naturally and allowing more water to pass down the river during floods, as well as enabling more fish habitats to be established
- raising and upgrading the stop banks.

New spaces by the river include:

- a waterfront promenade to support the development of new cafes, restaurants and apartments
- pedestrian and cycling paths
- recreational and grass areas.

These works are also expected to lead to social and economic growth, and turn Lower Hutt into a true river-facing city.

# Actions to support climate-resilient infrastructure

All asset owners must begin the process of understanding and actively managing climate risk. Collectively, actions across this plan will support this process and help deliver on our objectives for the sector.

Chapter 7: Homes, buildings and places deals with many of the buildings and places defined as social and cultural infrastructure (figure 8), and that are included in other infrastructure types, eg, terminals and stations. Chapter 9: Communities contains adaptation of the health sector, including its built environment and the services it provides (social infrastructure).

Chapter 3: Enabling better risk-informed decisions, chapter 4: Driving climate-resilient development in the right locations and chapter 5: Adaptation options including managed retreat all include critical actions for infrastructure, as well as a number of supporting actions.

These include actions:

- that have been developed to support action at the system level, across all asset classes and geographies
- to develop adaptation plans by significant government infrastructure asset owners
- that support funding resilience activities in particular infrastructure sectors.

Additional critical and supporting actions for infrastructure are provided in this chapter. Table 10 illustrates how actions supporting the three infrastructure objectives are distributed throughout this plan.

**Table 10: Actions related to infrastructure are located throughout the national adaptation plan**

<table>
<tr><th colspan="3">OUR INFRASTRUCTURE IS RESILIENT TO A CHANGING CLIMATE, SO THAT IT PROTECTS OR ENHANCES THE WELLBEING OF ALL NEW ZEALANDERS</th></tr>
<tr><th>INF1<br>Reduce the vulnerability of assets exposed to climate change</th><th>INF2<br>Ensure all new infrastructure is fit for a changing climate</th><th>INF3<br>Use renewal programmes to improve adaptive capacity</th></tr>
<tr><td colspan="3">CRITICAL ACTIONS</td></tr>
<tr><td colspan="3">Action 3.8: Develop guidance for assessing risk and impact on physical assets and the services they provide</td></tr>
<tr><td colspan="3">Action 5.6: Scope a resilience standard or code for infrastructure</td></tr>
<tr><td></td><td colspan="2">Action 4.6: Integrate adaptation into Treasury decisions on infrastructure</td></tr>
<tr><td></td><td colspan="2">Action 8.1: Develop and implement the Waka Kotahi Climate Change Adaptation Plan</td></tr>
<tr><td colspan="3">ACTIONS THAT SUPPORT INFRASTRUCTURE OBJECTIVES</td></tr>
<tr><td colspan="2">Action 8.2: Develop the National Energy Strategy</td><td></td></tr>
<tr><td colspan="2">Action 8.3: Manage dry-year risk through the New Zealand Battery Project</td><td></td></tr>
<tr><td>Action 3.18: Review electricity and gas networks' management of climate risk and resilience<br><br>Action 5.11: Encourage and support the evaluation of climate risks to landfills and contaminated sites<br><br>Action 5.12: Explore funding options to support the investigation and remediation of contaminated sites and landfills vulnerable to the effects of climate change<br><br>Action 8.4: Provide for regulated network revenues to reflect the prudent and efficient costs of resilience</td><td colspan="2">Action 3.17: Support and promote the integration of climate adaptation and mitigation in new and revised standards commissioned by third parties<br><br>Action 4.7: Integrate adaptation into Waka Kotahi decision-making<br><br>Action 5.10: Develop and implement the Transpower Adaptation Plan<br><br>Action 8.5: Progress the Rail Network Investment Programme<br><br>Action 8.6: Invest in public transport and active transport<br><br>Action 8.7: Embed nature-based solutions as part of the response to reducing transport emissions and improving climate adaptation and biodiversity outcomes</td></tr>
<tr><td colspan="3">Action 8.8: Support knowledge sharing and the implementation of adaptation actions across the sector</td></tr>
<tr><td colspan="3">SYSTEM-WIDE ACTIONS RELEVANT TO INFRASTRUCTURE OBJECTIVES</td></tr>
<tr><td colspan="3">Action 3.1: Provide access to the latest climate projections data<br><br>Action 3.5: Support high-quality implementation of climate-related disclosures and explore expansion<br><br>Action 4.5: Reform institutional arrangements for water services<br><br>Action 9.1: Modernise the emergency management system</td></tr>
<tr><td></td><td>Action 6.6: Implement the Water Availability and Security programme<br><br>Action 10.1: Deliver the New Zealand Freight and Supply Chain strategy</td><td></td></tr>
<tr><td></td><td colspan="2">Action 4.1: Reform the resource management system</td></tr>
</table>

## Addressing inequity

Understanding and managing risk at the asset level can result in a range of benefits, in addition to resilience – for example, making infrastructure services more reliable, providing better value for money and improving social cohesion.

Actions in this outcome area have the potential to reduce inequity and improve affordability of, and access to, infrastructure services – for example, investment in public and active transport, and consideration of future energy needs through the National Energy Strategy.

Development of system-level guidance, tools and methodologies, and adaptation plans, provides the opportunity to specifically consider the needs of all groups who may be disproportionally impacted by climate change, or who are least able to adapt. These include Māori, people of lower socio-economic status, disabled people, women, older people, youth and migrant communities. The guidance for assessing risk and impacts on physical assets and the services they provide will specifically include these considerations to encourage asset owners to undertake this analysis as part of their adaptation planning.

Consideration of disproportionate impacts of climate change on infrastructure services, and the implementation of actions to create resilience and build adaptive capacity, can also support giving effect to the principles of Te Tiriti o Waitangi. In addition, there is the potential for system-level guidance, tools and methodologies, and adaptation plans, to create space for mātauranga Māori to be integrated and expressed as part of adaptation planning.

## Critical actions

### Action 8.1: Develop and implement the Waka Kotahi Climate Adaptation Plan

**Timeframe:** Years 1–6 (2022–28)
**Lead agency:** Waka Kotahi
**Relevant portfolio:** Transport
**Primarily supports:** Objective INF3
**Status:** Current

In 2022, Waka Kotahi will publish and begin applying an adaptation plan. This will outline how Waka Kotahi will adapt to climate change through the design, delivery, operation and use of the land transport system.

The plan will address exposed existing assets and new investment in infrastructure. It will also explore adaptation in maintenance programmes of the roading network, including renewals.

Waka Kotahi will consider multiple risks to the land transport system from climate hazards, including sea-level rise, flooding and landslides. It will lead, collaborate on and support land transport adaptation to enable climate-resilient transport networks and journeys, connecting people, products and services for a thriving Aotearoa.

By 2024, a reporting framework on the implementation of the adaptation plan will be developed.

## Supporting actions

### Action 8.2: Develop the National Energy Strategy

**Timeframe:** Years 1–3 (2022–24)
**Lead agency:** MBIE
**Relevant portfolio:** Energy and Resources
**Primarily supports:** Objective INF2
**Status:** Current

The Government has committed to developing an energy strategy by the end of 2024, fully collaborating and engaging with Māori and working with energy system stakeholders. The vision is for a net-zero economy in 2050, where energy is accessible and affordable, secure and reliable, and supports New Zealanders' wellbeing. The strategy addresses challenges in the energy sector and signals pathways away from fossil fuels.

### Action 8.3: Manage dry-year risk through the New Zealand Battery Project

**Timeframe:** Years 1–6 (2022–28)
**Lead agency:** MBIE
**Relevant portfolio:** Energy and Resources
**Primarily supports:** Objective INF1
**Status:** Current

The New Zealand Battery Project will assess the options for managing dry-year risk in a highly renewable electricity system. The current focus is on the feasibility of pumped hydroelectricity at Lake Onslow. The feasibility study will be completed by the end of 2022. The aim is to increase the resilience of the electricity system when hydro lakes have low inflows for long periods.

### Action 8.4: Provide for regulated network revenues to reflect the prudent and efficient costs of resilience

**Timeframe:** Years 1–6 (2022–28)
**Lead agency:** Commerce Commission
**Relevant portfolio:** Commerce and Consumer Affairs
**Primarily supports:** Objective INF1
**Status:** Current

In the Commerce Commission's next reviews of regulated price-quality paths – from 2025 for electricity networks and from 2026 for gas networks – it will consider the extent to which revenue limits should provide for different expenditure levels from the current period. This will include if expenditure levels need to change due to any increased costs of resilience to climate change, where these are based on robust forecasts. Regulated suppliers can also apply for changes to their revenue limits to better meet their particular circumstances, which could potentially include the prudent and efficient costs of resilience initiatives.

### Action 8.5: Progress the Rail Network Investment Programme

**Timeframe:** Years 1–6 (2022–28)
**Lead agencies:** MOT; Waka Kotahi
**Relevant portfolio:** Transport
**Primarily supports:** Objective INF2
**Status:** Current

KiwiRail's Rail Network Investment Programme (RNIP) is a 10-year programme of investment in Aotearoa New Zealand's rail network, to restore it to a resilient and reliable state. Mitigating climate change is a key focus within the RNIP when considering resilience projects for investment. Restoration of the national rail network to a reliable and resilient state will also reduce its vulnerability to climate hazards and provide a platform for future investment to support growth. In addition, mode neutrality (using a range of transport modes) supports resilience within the national supply chain.

### Action 8.6: Invest in public transport and active transport

**Timeframe:** Years 1–6 (2022–28)
**Lead agency:** MOT; Waka Kotahi
**Relevant portfolio:** Transport
**Primarily supports:** Objective INF3
**Status:** Current

Investment in multi-modal infrastructure can increase the resilience of the transport system and help manage the vulnerability of existing assets. More use of public transport and active modes will help reduce reliance on private vehicles. It will increase system redundancy, improve equity and support sustainable growth. Safe and attractive alternatives to driving create a more resilient transport system, support sustainable growth and reduce emissions.

### Action 8.7: Embed nature-based solutions as part of the response to reducing transport emissions and improving climate adaptation and biodiversity outcomes

**Timeframe:** Years 1–3 (2022–25)
**Lead agency:** MOT
**Relevant portfolio:** Transport
**Primarily supports:** Objective INF2
**Status:** Current

Nature-based solutions involve sustainable management and natural features and processes to tackle socio-environmental challenges such as climate change. At a local, regional and national scale these measures can reduce transport emissions and improve climate adaptation as well as biodiversity. Key initiatives include:

- considering the role of nature-based solutions in reducing transport emissions and contributing to other benefits
- ensuring transport policy and investment encourage nature-based solutions, including protecting existing carbon sinks and supporting new long-term carbon sequestration opportunities.

### Action 8.8: Support knowledge sharing and the implementation of adaptation actions across the sector

**Timeframe:** Years 1–6 (2022–28)
**Lead agency:** Te Waihanga
**Relevant portfolio:** Infrastructure
**Primarily supports:** Objective INF1
**Status:** Current

Te Waihanga will convene a regular event for local government, central government and private sector asset owners to share information on the implementation of actions in the national adaptation plan and to support alignment across the sector.

Initially, the focus may be on the scope and content of the actions on adaptation guidance that Te Waihanga has committed to in the national adaptation plan, but may also provide a forum for updates on other policy matters relevant to infrastructure asset owners.

## Other actions across this plan will contribute to resilient infrastructure

Many government work programmes will help build the resilience and adaptive capacity of new and existing infrastructure assets, and include the following actions.

- **Action 3.5: Support high-quality implementation of climate-related disclosures and explore expansion** This may require or encourage infrastructure asset owners to understand the risks and develop a management response, including decisions on where, when and how investment in new assets takes place. Currently scenarios are in development for the energy, transport and telecommunications sectors.
- **Action 4.1: Reform the resource management system** In particular, the National Planning Framework will contain climate action measures for infrastructure. This will influence the development of new assets, as well as maintenance, upgrades and major works on existing assets, in the new resource management system.
- **Action 4.5: Reform institutional arrangements for water services** Over the next 30 to 40 years, an estimated $120 billion to $185 billion upgrade of water assets will be required to meet drinking water and environmental standards, and the needs of future population distribution and land-use choices. The aim is to significantly improve the safety, quality, resilience, accessibility and performance of the three waters services in a way that is efficient and affordable for New Zealanders.
- **Action 6.6: Implement the Water Availability and Security programme** This also has implications for infrastructure planning and development. Taking a strategic approach to supply and demand at the catchment level will raise understanding of future water supply and distribution needs, and expose vulnerabilities. This will help water services decide where, when and how they deliver new assets, as well as reinforce when demand management will become critical.
- **Action 9.1: Modernise the emergency management system** Legislative work may include strengthening the duties and obligations of lifeline utilities to support continuity of services before, during and after emergencies, and may therefore influence where, when and how asset owners invest in new assets. Guidance to support understanding and managing risk (action 3.8) will support lifelines utilities to meet their obligations under the Civil Defence Emergency Management Act, as well as create adaptive capacity.
- **Action 10.1: Deliver the New Zealand Freight and Supply Chain strategy** This will present a long-term and system-wide view of the freight system that also considers climate adaptation. It will inform the Government, councils and private sector players when investing in freight infrastructure.

CHAPTER 9:

# Communities



# Chapter 9: Communities

| Communities | |
|---|---|
| **Government agencies with actions in this chapter** | • Manatū Hauora – Ministry of Health (MOH)<br>• Ministry for the Environment (MfE)<br>• Ministry of Business, Innovation and Employment (MBIE)<br>• Ministry of Defence (MOD)<br>• Ministry of Education (MoE)<br>• Ministry of Foreign Affairs and Trade (MFAT)<br>• Ministry of Social Development (MSD)<br>• National Emergency Management Agency (NEMA)<br>• New Zealand Defence Force (NZDF)<br>• Te Puni Kōkiri – Ministry of Māori Development (TPK) |
| **Why these actions are important for building resilience** | Communities are diverse, and experience the impacts of climate change in various ways. Building and maintaining strong communities will equip New Zealanders with the right tools to adapt and mitigate these impacts. Communities that are resilient in the face of climate change will be empowered to respond to risks and work together to support social, economic, and cultural wellbeing. |
| **Significant risks addressed in this chapter**<br>H = Human | • H1: Risks to social cohesion and community wellbeing from the displacement of individuals, families and communities due to climate change impacts.<br>• H2: Risks of exacerbating existing inequities and creating new and additional inequities due to differential distribution of climate change impacts. |
| **Objectives relevant to critical actions**<br>SW = System-wide<br>C = Communities | • SW1: Legislation and institutions are fit for purpose and provide clear roles and responsibilities<br>• C1: Enable communities to adapt.<br>• C2: Support vulnerable people and communities.<br>• C3: Support communities when they are disrupted or displaced.<br>• C4: The health sector is prepared and can support vulnerable communities affected by climate change. |
| **Critical actions relevant to this chapter** | • Modernise the emergency management system to improve the regulatory framework which underpins emergency management in Aotearoa.<br>• Develop the Health National Adaptation Plan to prepare the health sector to meet the needs of communities in a changing climate.<br>• Raise awareness of climate hazards to make emergency preparedness a part of everyday life. |

## Why we need to take action

### A planned response is essential for individuals and communities to adapt.

Climate change is already affecting how we live. The impacts we face will increase, so it is vital we are prepared. We will meet challenges. Individuals and communities may need to move away from high-risk areas.

We may need to think differently about property and land rights if some places become too risky to live in. We may also need to welcome people from smaller Pacific nations who have been displaced by the impacts of climate change.

Some individuals and communities are more exposed because of where they live. For example, many Māori communities are in rural areas along coastlines and near major rivers. Rural communities, including farming communities, will be disproportionately affected.

Vulnerable community members include those experiencing poverty, Pacific peoples, refugees, migrants, women, older people, disabled people and people with existing health issues. These groups will also require support to adapt.

Communities vary greatly in their connections and ability to adapt. In some areas, communities have strong connections and can withstand many external challenges and adapt. Others are more disconnected and under-resourced.

The effects of climate change will make us more reliant on one another for our practical needs, and for our emotional and spiritual wellbeing.

For this plan, **community** is defined geographically as a group of people living in the same town, suburb, area or marae/hapū. It also includes the broader meaning of social and cultural groups, such as Pacific communities, ethnic communities and minorities, older people, disabled and mobility-compromised people, low-income groups, women, rural communities, rainbow and LGBTQI+ communities, children and youth, and those experiencing deprivation, ill health or isolation. Aotearoa is home to diverse communities with different needs, interests and backgrounds.

## Significant risks

The actions in this chapter are designed to achieve these objectives and address the human domain risks in the National Climate Change Risk Assessment 2020. In particular:

- H1: Risks to social cohesion and community wellbeing from the displacement of individuals, families and communities due to climate change impacts
- H2: Risks of exacerbating existing inequities and creating new and additional inequities due to differential distribution of climate change impacts.

**Local government: Helping communities to adapt**

Local government is the system of locally elected members that represent communities and make decisions about their issues, such as managing climate impacts.

Local authorities have a responsibility to help and work with communities to prepare for, and adapt to, the physical effects of climate change.

In enabling the communities they represent to adapt, these authorities have three main roles:

- as owners of infrastructure that communities rely on for their wellbeing
- as planners and regulators of development
- as agencies closest to exposed communities.

Around Aotearoa, many councils are now working in partnership with communities and hapū, iwi and Māori. Some are also setting up dynamic adaptive pathways to engage their communities and work towards long-term solutions for highest-risk areas.

**As owners of infrastructure that communities rely on for their wellbeing**

Local authorities own much of the infrastructure that communities rely on for their day-to-day lives and livelihoods. However, many of these assets are directly at risk from sea-level rise and adverse weather events (eg, more frequent and intense storms and floods).

Authorities will need to carefully manage this infrastructure and design it with higher levels of protection, so their communities can thrive into the future. This includes three waters, local roads and other assets, such as buildings and community amenities, parks, sports fields and airports. Nature-based solutions – such as wetlands, rain gardens and swales, and green roofs and walls – can be effective against flood risk.

**As planners and regulators of development**

Local authorities have primary responsibility for managing natural hazard risk and adaptation. In particular, they are responsible for planning and regulating development.[1] Directing development away from high-risk areas will be critical to reducing the future exposure to climate risks and minimising the long-term costs of adaptation. In urban development planning, councils will need to consider both adaptation and mitigation for communities. This includes:

- achieving compact urban form that is well linked to public transport and jobs, and in areas with less exposure to climate impacts
- directing development away from areas exposed to flooding or wildfire
- requiring additional water storage in urban and rural areas as part of adapting to drought.

Local planning documents inform communities about natural hazard and climate risks via hazard maps and viewers. They also identify and can protect areas of cultural significance to hapū, iwi and Māori and communities that might be affected.

District councils also operate the Land Information Memoranda (LIM) system. This provides information to people looking to buy a property about the natural hazard or climate risks that might be associated with it.

**As agencies closest to exposed communities**

Local authorities help communities respond to climate emergencies such as flooding. Now and in future, councils will need to engage communities in reducing risk and adapting to a changing climate. They will need to lead the discussion about which actions are the best way to support the wellbeing of exposed communities.

This may require tough conversations. Options that will reduce long-run costs to communities may be unpopular among some residents in the short term. For example, a council might need to turn down requests for bigger and stronger protection structures when rising sea levels make these increasingly expensive and ineffective.

Local authorities will need to lead discussions about when and how to protect, accommodate or manage the retreat of communities from climate impacts. Some councils are already holding online conversations and in-person events to address this. Many councils have their own climate change plans, work programmes and advisors, and some have declared climate emergencies to drive action.

[1] The Resource Management Act 1991 requires local government to consider the effects of a changing climate on communities, and incorporate climate change into its frameworks, plans, projects and decision-making. All of local government is charged with meeting the current and future needs of communities for infrastructure, local public services and regulatory functions (Local Government Act 2002, section 10(1)(b)).



*Image: Otago Regional Council*

**CASE STUDY**

## Adapting at the head of Lake Wakatipu: A changing landscape

The communities on Lake Wakatipu live with a range of natural hazards that arise from the alpine environment, nearby water bodies and the geological setting.

Natural hazards, particularly flooding, will likely become more severe in future. Flooding poses a substantial threat to the settlement of Glenorchy, which has been flooded many times (significantly in November 1999 and February 2020). Projected natural changes (growth of the nearby river deltas, rising riverbed levels and the likely re-routing of the Rees River) are expected to increase these risks.

The Otago Regional Council is working with the Queenstown Lakes District Council, the local community, iwi and stakeholders on a sustainable long-term response.

### Community adaptation pathways

The Otago Regional Council is using 'adaptation pathways' to develop long-term solutions to natural hazards. The Ministry for the Environment developed this approach to support community-led projects.

Adaptation pathways account for change and complexity and follow a 10-step decision cycle: assessment (steps 1 to 4), development and implementation of an adaptation strategy (steps 5 to 8) and monitoring and review (steps 9 and 10). Community engagement is central to the cycle.

So far, the project team has carried out surveys, investigated the natural hazards and assessed cultural values. The Otago Regional Council has also engaged with the community to enable them to understand the issues, contribute to the adaptation and decide on future adaptation.

### Supporting change

From this process, the Otago Regional Council will develop an adaptation strategy for the communities. This will allow for planning with more certainty in the face of ongoing change and increasing hazard risks. The pathways approach is relatively new and has mostly been used for coastal hazards rather than in an alpine area or place with many hazards. The lessons from this project will be useful for other communities facing similar risks.

# Objectives

### Communities with high adaptive capacity are resilient to climate impacts.

The Government is putting in place initiatives to support resilient communities. This means:

- communities can make decisions and put resources into suitable adaptive actions
- government work programmes focus on ensuring no one is left behind
- communities, hapū and our Tiriti partners are engaged
- local knowledge, including mātauranga Māori, is valued
- decision-making is transparent and builds and maintains trust
- decisions support and balance rangatiratanga (self-determination) of Māori with kāwanatanga (the Government's right to govern)
- vulnerable people and communities are supported.

The Government has identified four objectives for resilient communities.

**Table 11: Government objectives for resilient communities**

| Code | Objective | Explanation |
|---|---|---|
| C1 | Enable communities to adapt | • Enable communities to provide resources and take action relevant to their unique situation; build and share knowledge of local issues in culturally appropriate ways; support community engagement and participation in decisions and provide information on adaptation options. |
| C2 | Support vulnerable people and communities | • Understand where our most vulnerable people are and what they need and value, and provide them with support, knowledge and resources. |
| C3 | Support communities when they are disrupted or displaced | • Support communities facing climate-related disruption and disasters so response and recovery can improve their wellbeing and social cohesion. |
| C4 | The health sector is prepared and can support vulnerable communities affected by climate change | • Understand future climate-related health risks and take steps early to ensure the healthcare system is ready for these shifting demands. This includes meeting the mental and social wellbeing needs of whānau and communities in emergencies, and supporting them to recover, adapt and thrive. |

# Actions to support resilient communities

This chapter focuses on new actions to support resilient communities. However, a number of existing work programmes across central government can support the resilience of communities, including Whānau Ora projects, and funding and work programmes such as Rural Assistance Payments and Oranga Marae. Critical and supporting actions to support resilient communities are also set out in chapter 3: Enabling better risk-informed decisions, and chapter 5: Adaptation options including managed retreat. They include:

- Action 3.4: Raise awareness of climate hazards and how to prepare
- Action 3.6: Improve natural hazard information on Land Information Memoranda
- Action 3.10: Assess socio-economic and climate vulnerability for Māori
- Action 3.28: Assess healthcare service resilience
- Action 5.13: Connect communities to wider response and recovery support.

## Addressing inequity

**Actions must recognise and support the unique needs, values and circumstances of our communities.**

Aotearoa is home to a range of diverse communities with different needs, interests and backgrounds. Some may be disproportionately affected by climate change, such as rural communities; those suffering from poverty; hapū, iwi and Māori; Pacific peoples; migrants; women; older people; and disabled people.

Examples of actions that will help mitigate disproportionate effects on these groups include:

- Action 3.10: Assess socio-economic and climate vulnerability for Māori
- Action 9.4: Implement the Climate Migration Action Plan
- Action 9.5: Continue with the reform of the health and disability system
- Action 9.8: Continue to overhaul the welfare system.

## Critical actions

### Action 9.1: Modernise the emergency management system

**Timeframe:** Years 1–6 (2022–28)
**Lead agency:** NEMA
**Relevant portfolio:** Emergency Management
**Primarily supports:** Objective SW1
**Status:** Current

The National Emergency Management Agency (NEMA) plans to modernise emergency management, including through legislative reforms, working with communities and organisations, clearer roles and responsibilities, and a strengthened partnership with Māori. This work seeks to improve the regulatory framework that underpins emergency management in Aotearoa. It will also sharpen the focus on disproportionately affected groups by strengthening community resilience.

By 2024, new emergency management legislation will be adopted, and a national emergency management plan and improved guidance will be provided across the emergency management system.

### Action 9.2: Develop the Health National Adaptation Plan

**Timeframe**: Year 1 (2022/23)
**Lead agency**: MOH
**Relevant portfolio**: Health
**Primarily supports**: Objective C4
**Status**: Current

The Health National Adaptation Plan (HNAP) will complement the national adaptation plan and be supported by regional climate health action plans developed by the health sector. The aim of the HNAP is to prepare the health sector to meet the needs of communities in terms of the effects of climate change, including physical, mental and cultural health and wellbeing.

A key part of adaptation planning in the health sector is identifying vulnerable groups.

Vulnerability can be affected by many factors, including geography, demographics, socio-economic status, physical and mental health status, and family and community support. Vulnerability will be considered alongside risk in adaptation planning.

By the end of 2022, the HNAP is expected to be completed. From 2023, regional climate health action plans will be developed.

## Supporting actions

### Action 9.3: Develop the emergency management workforce

**Timeframe:** Years 1–6 (2022–28)
**Lead agency:** NEMA
**Relevant portfolio:** Emergency Management
**Primarily supports:** Objective SW1
**Status:** Current

Work is ongoing to expand the operational capacity and capability of the emergency management workforce at the national, regional and local levels. This will position Aotearoa better to address the increased frequency and severity of natural hazards and support all people in response and recovery.

### Action: 9.4: Implement the Climate Migration Action Plan

**Timeframe:** Years 1–2 (2022–24)
**Lead agency:** MFAT
**Relevant portfolio:** Foreign Affairs
**Primarily supports:** Objective C3
**Status:** Current

Key values of the Climate Migration Action Plan include retaining social and cultural identity for Pacific communities, and supporting Pacific peoples to live in their own countries where possible. This work aims to support these communities to grow and thrive despite the challenges of climate-related displacement and migration. This must be done in collaboration with Pacific communities and value their cultural and local knowledge.

One of the key actions is commissioning research to improve understanding of Pacific climate migration trends and the impact on communities in the Pacific and Aotearoa. The other main actions focus on using international development cooperation funds for Pacific Island countries. This will support a Pacific regional approach to climate mobility, and advance Aotearoa and Pacific interests in the international context.

### Action 9.5: Continue with the reform of the health and disability system

**Timeframe:** Years 1–3 (2022–25)
**Lead agency:** MOH
**Relevant portfolio:** Health
**Primarily supports:** Objective C4
**Status:** Current

The structure of the health and disability system and the delivery of health services are undergoing a period of reform. The new system will be simpler and more coordinated, allowing for better and more consistent care, shaped by the voices of consumers, communities and whānau.

The Public Health Agency within the Manatū Hauora Ministry of Health (MOH) will lead and strengthen population and public health, with greater emphasis on equity and the wider determinants of health such as income, education and housing. It will use data and other sources of intelligence to design policies and services that are better able to prevent disease and to monitor environmental threats to public health.

Te Whatu Ora – Health New Zealand will lead the day-to-day running of the health system across New Zealand, with functions delivered at local, district, regional and national levels. Te Whatu Ora will manage all health services, including hospital and specialist services, and primary and community care. Primary health, wellbeing and community-based services will be planned and then purchased through the four regional divisions of Te Whatu Ora. Each region will work with their district offices, located closer to local communities, to develop and implement plans based on local needs to improve the health and wellbeing of communities. Te Whatu Ora will also be responsible for improving services and outcomes across the health system.

Te Aka Whai Ora | The Māori Health Authority is responsible for ensuring the health system works well for Māori by developing strategy and policy to drive better health outcomes for Māori and commissioning kaupapa Māori and other services targeting Māori communities. Local iwi/Māori partnership boards will help shape appropriate health and wellbeing services for local communities, through being an influencing and decision-making voice for hapū, iwi and Māori at a local level and supporting Te Tiriti partnerships throughout the system.

### Action 9.6: Build community resilience through social cohesion

**Timeframe:** Years 2–5 (2023–27)
**Lead agency:** MSD
**Relevant portfolio:** Social Development and Employment
**Primarily supports:** Objective C1
**Status:** Current

This work will improve inclusion and participation in society and build community resilience to lessen instability and isolation caused by climate change. The aim is to support the understanding of diversity within and across communities to allow everyone to feel safe and belong, and to access opportunities.

### Action 9.7: Strengthen teaching and learning related to climate change

**Timeframe:** Years 1–6 (2022–28)
**Lead agency:** MOE
**Relevant portfolio:** Associate Education
**Primarily supports:** Objective C1
**Status:** Current

This work will improve community resilience by addressing inequities in learning outcomes that impact on lifelong wellbeing. It will support early learning services, schools and kura to include understanding of, and responses to, climate change in their local curricula and marau ā-kura (living, breathing curriculum), as well as learning that is important for social cohesion. The aim is to support all children and young people to grow as lifelong learners who are connected to the environment and their communities, and actively involved in a sustainable future.

### Action 9.8: Continue to overhaul the welfare system

**Timeframe:** Years 1–6 (2022–28)
**Lead agency:** MSD
**Relevant portfolio:** Social Development and Employment
**Primarily supports:** Objective C2
**Status:** Current

This action will make ongoing improvements in support – such as for employment, health and communities – and in incomes for those interacting with the welfare system. This aims to achieve the Government's vision of a welfare system that ensures people have an adequate income and standard of living; are treated with, and can live in, dignity; and can participate meaningfully in their communities.

### Action 9.9: Expand current funding for proactive community resilience

**Timeframe:** Years 1–6 (2022–28)
**Lead agency:** TPK
**Relevant portfolio:** Māori Development
**Primarily supports:** Objective C1
**Status:** Proposed

This will seek to expand funding for Māori to build their community resilience through the COVID-19 pandemic, and plug funding gaps for communities to carry out their long-term resilience plans.

Funding would be decentralised by expanding the scope of funds provided through Whānau Ora. Whānau Ora reaches Māori and Pacific communities as some of our most socio-economically vulnerable, but is accessible to all communities. Funding will be available for communities to proactively future-proof and adapt to the best of their ability, to whatever adversity comes their way.

# Future proposed work programmes

### Action 9.10: Implement an income insurance scheme to support adaptive capacity of communities and the economy

**Timeframe:** Years 1–3 (2022–25)
**Lead agency:** MBIE
**Relevant portfolio:** Social Development and Employment
**Primarily supports:** Objective C2
**Status:** Proposed

To better protect workers, whānau, households, communities and the wider economy, the Government is developing a proposal for a New Zealand income insurance scheme, which would support workers with a proportion of income replacement for up to seven months if they lose their job through no fault of their own due to a redundancy or a health condition or disability.

Workers would have the financial security to find a job that matches their skills, needs and aspirations. Businesses would be able to better match workers to jobs. This policy would reduce the economic impacts of a changing climate on workers and communities by, for example, cushioning the impact of a large employer closing or resizing in a small town or region, and enabling workers to transition to new job opportunities afforded by changes in the economy.

If a decision is made to introduce the proposed scheme, the Government would introduce legislation in 2022 and the scheme would start operating in 2024/25. Introducing an income insurance scheme would be an important step change that lets us manage the challenges and harness the opportunities that lie ahead for Aotearoa.

### Action 9.11: Develop and deliver initiatives in *Responding to the Climate Crisis: An Implementation Plan* (2019)

Timeframe: Years 1–6 (2022–28)
Lead agency: MOD; NZDF
Relevant portfolio: Defence
Primarily supports: Objectives SW2 and SW3
Status: Proposed

This plan set out goals and objectives in response to the Defence assessment *Responding to the Climate Crisis: An Implementation Plan*, which explores the links between climate change and security, and how climate change will be a driver for future Defence Force operations. It underscores the importance of working with, and learning from, our Pacific partners to understand and respond to intensifying climate impacts.

The plan identifies actions Defence will take as part of a broader government programme on climate change and sustainability. It sets out initiatives for mitigation and adaptation of Defence Force infrastructure, capability and response operations that protect the security of New Zealanders and the region. Defence will also work with national security and emergency services sector agencies on system reforms.

### Action 9.12: Produce guidance and tools for monitoring and evaluating the impact of adaptation initiatives

**Timeframe:** Year 3 (2024/25)
**Lead agency:** MfE
**Relevant portfolio:** Climate Change
**Primarily supports:** Objective SW2
**Status:** Proposed

This will help ensure adaptation actions effectively increase our resilience and manage the risks we face. Monitoring is essential for an effective plan, and this guidance will help users identify signals that an action is no longer meeting its objectives. Tools such as real options analysis (ROA), online calculators and other assessment tools will help with adaptation decisions.

### Action 9.13: Review of active labour market programmes

**Timeframe:** Years 1–3 (2022–25)
**Lead agency:** MBIE, MSD
**Relevant portfolio:** Social Development and Employment
**Primarily supports:** Objective C2
**Status:** Proposed

Active labour market programmes (ALMPs) assist people into employment (including removing barriers to their ability to get or retain a job, or to move between jobs), increase earning capacity and improve the functioning of the labour market. The Government has been reviewing the ALMPs it provides and funds. It has committed to expanding existing, and introducing new, ALMPs to support people into work, or back to work, and to take up new job opportunities arising from changes in the economy. ALMPs will reduce the impact of a changing climate on workers and communities.

The review has focused on nationally provided ALMPs, but the Government will continue to deliver ALMPs in, and partner with, local communities, iwi, hapū and Māori businesses through regional contracting and partnerships.

## Other actions across this plan will contribute to resilient communities

Actions in the natural environment domain will also contribute to resilient communities, including:

- action 6.6: Implement the Water Availability and Security Programme: This will support efforts to ensure water security for rural communities, including helping farmers adapt by making technological efficiencies and mapping areas suitable for water-intensive crops
- action 6.8: Deliver a collection of actions run by Biosecurity New Zealand: This will reduce risk to human health and support the development of the Health National Adaptation Plan.

Climate-resilient infrastructure will support greater community resilience. The needs of communities are strongly connected to the actions in chapter 7: Homes, buildings and places. A community's wellbeing is linked with the housing, gathering places, sites of significance and wāhi tapu within it. Relevant actions include:

- action 4.3: Establish an initiative for resilient public housing
- action 5.7: Reduce and manage the impacts of climate hazards on homes and buildings
- action 7.1: Research how cultural heritage contributes to community wellbeing and climate change adaptation
- action 7.2: Partner with Māori landowners to increase the resilience of Māori-owned land, homes and cultural sites.



*Image: Kathrin and Stefan Marks | Creative Commons*

**CASE STUDY**
**Wildfire preparedness at Mount Iron, Wānaka**

Extreme fire weather is increasing in Aotearoa and the number of people living at the rural–urban interface is also rapidly growing. During the 2020–21 fire season, more homes were destroyed due to fire weather and climate change than in any other fire season in the past century.

The conditions that led to Australia's devastating 2019–20 'Black Summer' fires are likely to occur in Aotearoa every three to 20 years – specifically in Central Otago, the Mackenzie Country and Marlborough. Research suggests that the general public does not fully understand the increasing wildfire risk or their mitigation options. More action is needed to build resilience so that communities across Aotearoa can respond to this increasing risk.

Some New Zealanders have started taking actions both individually and as a community to prepare for the increasing risk. A case study of the permanent residents of Mount Iron in Wānaka found they had high awareness of, and anxiety about, wildfire. Their views had been amplified by the October 2020 wildfire at Lake Ōhau, 70 kilometres away, which destroyed half the village (48 houses).

Mount Iron residents have voiced concerns about the increasing threat to both lives and property. Their concerns focus on decisions and rules in local development planning (eg, restrictions on removing protected, flammable kānuka vegetation around their properties), the flammability of cedar cladding of houses, and poor access for fire trucks on residents' one-way evacuation routes.

CHAPTER 10:

# Economy and financial system



# Chapter 10: Economy and financial system

| Economy and financial system | |
|---|---|
| **Government agencies with actions in this chapter** | • Ministry for Primary Industries (MPI)<br>• Ministry of Business, Innovation and Employment (MBIE)<br>• Reserve Bank of New Zealand (RBNZ)<br>• Te Manatū Waka Ministry of Transport (MOT)<br>• Te Puni Kōkiri – Ministry of Māori Development (TPK)<br>• Toka Tū Ake EQC<br>• Treasury (TSY) |
| **Why these actions are important for building resilience** | Climate change is already affecting our economy. Its contribution to flood and drought from 2007 to 2017 cost $840 million in insured damages and economic losses.<br>Climate resilience is core to economic security. This chapter focuses on how we will adapt and build resilience to the economic and financial impacts of a changing climate. Some actions will also help identify new economic opportunities. This is part of Aotearoa New Zealand's wider transition to a high-wage, low-emissions economy that provides economic security in good times and bad. |
| **Significant risks addressed in this chapter**<br>E = Economy | • E1: Risks to governments from economic costs associated with lost productivity, disaster relief expenditure and unfunded contingent liabilities due to extreme events and ongoing, gradual changes.<br>• E2: Risks to the financial system from instability due to extreme weather events and ongoing, gradual changes. |
| **Objectives relevant to critical actions**<br>EF = Economy and financial system | • EF1: Sectors, businesses and regional economies can adapt. Participants can identify risks and take action.<br>• EF2: A resilient financial system underpins economic stability and growth. Participants can identify, disclose and manage climate risks. |
| **Critical actions relevant to this chapter** | • Deliver the New Zealand Freight and Supply Chain strategy to ensure our freight and supply chain system is resilient, reliable and prepared for disruption.<br>• Strengthen the fisheries management system; support the aquaculture sector to sustainably grow.<br>• Help financial entities to identify and manage their climate risks better, and, in turn, support financial stability.<br>• Help businesses make decisions that recognise climate-related risks better and realise opportunities and attract more investment, through the climate-related disclosures programme.<br>• Develop options for home flood insurance to support community resilience to the consequences of extreme weather events and facilitate recovery after the event. |

# Why we need to take action

## Taking action now can reduce long-term costs and bring opportunities.

Climate change is already affecting our economy. It is increasing existing risks, such as floods and droughts, and has resulted in sea-level rise. Between 2007 and 2017, the contribution of climate change to floods and droughts alone cost New Zealanders an estimated $840 million in insured damages and economic losses.[1]

The public sector, businesses, property owners and civil society need to take action to reduce the scale of the long-term economic costs, and seize the opportunities of a changing climate.

Central government will take action, for example, through legislation, regulation, information or funding to incentivise others to reduce their risk.

Local government will make decisions, for example, on land use or local infrastructure.

Businesses (including iwi interests) and private citizens exposed to climate risks will consider future climate impacts when making long-term decisions, such as where to locate, how to earn an income and what type of insurance to buy.

We have a way to go. For example, less than 10 per cent of firms have assessed risks to their business from a changing climate, and less than 20 per cent intend to take action to reduce their risks over the next five years.[2]

The actions in this chapter will support the public and private sector and private citizens to better understand and take steps to reduce their risks to climate change.

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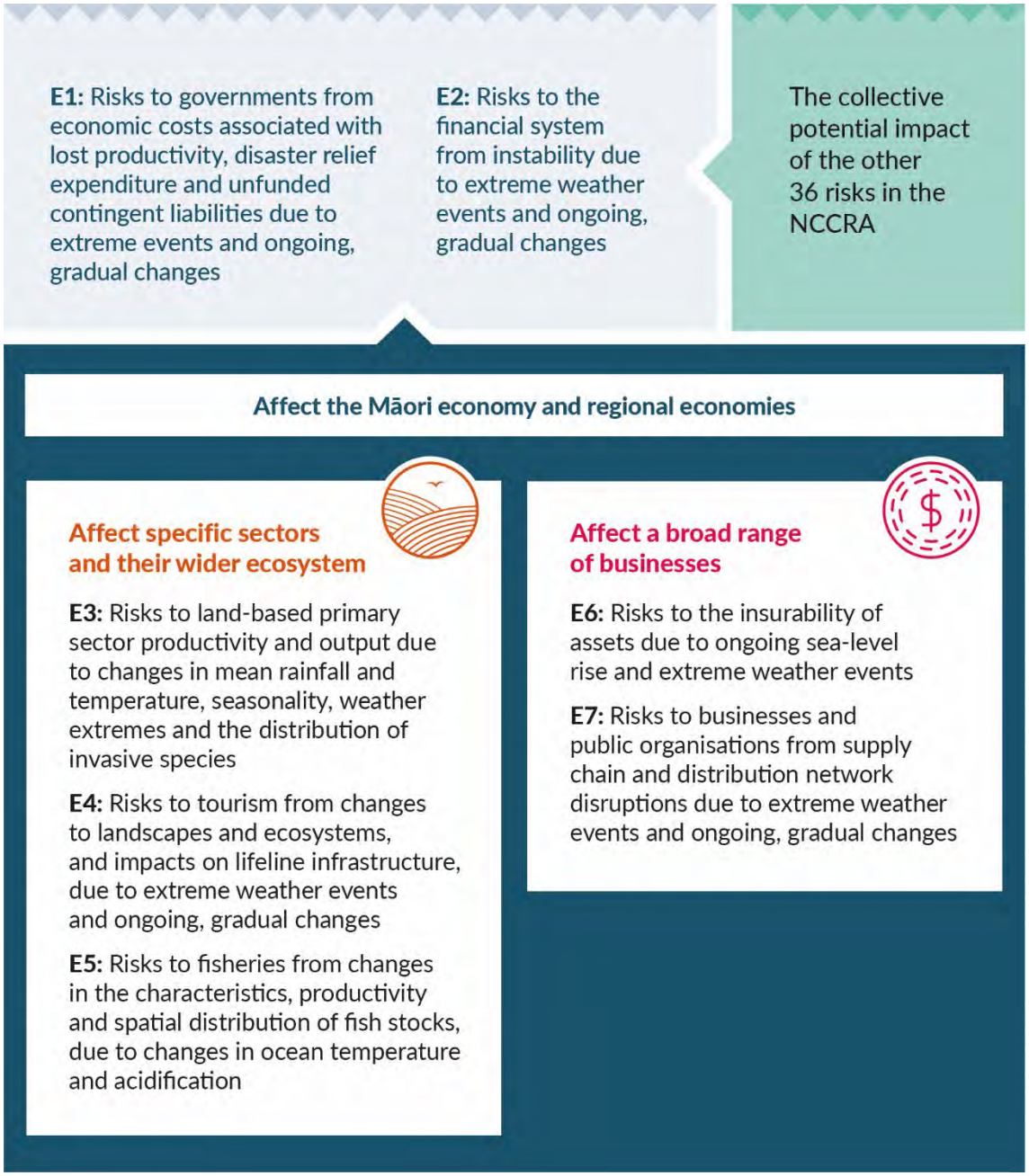
1 Frame D, Rosier S, Carey-Smith T, Harrington L, Dean S, Noy I. 2018. *Estimating Financial Costs of Climate Change in New Zealand: An Estimate of Climate Change-Related Weather Event Costs*. New Zealand Climate Change Institute and NIWA. Wellington.

2 Stats NZ. 2022. *Business operations survey: 2021*. Wellington.

# Significant risks

This plan addresses the seven economic risks identified in the National Climate Change Risk Assessment 2020. These will create flow-on effects on the economy – see figure 9 and the discussion on the following pages.

**Figure 9: The seven economic risks and their cascading impact across the economy**



## Flow-on effects

The risks to the economy set out in figure 9 will create the flow-on effects set out below.

### Key export industries failing to adapt

Land-based primary industries, fisheries and aquaculture and tourism are Aotearoa New Zealand's most exposed industries as they depend on climate-sensitive natural resources.[3] These three sectors and their manufactured products form a significant part of the economy and comprise over 60 per cent of exports.[4]

Failure of firms in these industries to adapt adequately would reduce their productivity and potentially their viability. Impacts would flow on to their suppliers and customers and to our export earnings.[5] Climate-related impacts in other countries could also disrupt trade and influence demand for our goods and services.

### Exposed local economies failing to adapt

Economic impacts will not be evenly distributed across Aotearoa. Many regional economies rely heavily on the three exposed industries. Economic activities in hazardous areas, such as low-lying land, will be further exposed. Failure to adapt could lead to business closures and job losses. This would have significant implications for workers and households, and, if widespread, could result in people having to leave some communities.

### Disproportionate impacts on Māori

Māori are heavily invested in land-based primary industries, tourism and fisheries, which all have a significant Māori workforce.

Māori collectively own about 40 per cent of the fisheries quota, and have diversified interests across the sector, including catching, processing, marketing and food services. Māori also own 40 per cent of commercial forests. In 2018, gross domestic product (GDP) from Māori tourism was estimated at just over $975 million.[6]

Economic inequity means that some Māori businesses and workers have less capacity to adapt. Climate-related costs and disruptions could entrench those inequities. At the same time, Māori knowledge of sustainable practices and holistic economic models offer unique ways to adapt. If properly resourced, Māori can take a leadership role in adaptation.

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3 Ministry for the Environment. 2020. *National Climate Change Risk Assessment Technical Report*. Wellington.

4 The three sectors contributed about 62 per cent of export earnings for the year ended March 2020 (Stats NZ data on goods and services trade by country, and the tourism satellite account, both for the year ended March 2020).

5 Climate Change Adaptation Technical Working Group. 2017. *Adapting to Climate Change: Stocktake Report from the Climate Change Adaptation Technical Working Group*. Wellington.

6 Nana G, Reid A, Schulze H, Dixon H, Green S, Riley H. 2021. *Te Ōhanga Māori 2018: The Māori Economy 2018*. Prepared for the Reserve Bank of New Zealand by Business Economic Research Ltd (BERL). Wellington.

## Less insurable infrastructure, business and housing assets

Some assets could become uninsurable. This will create further issues if they are used as collateral for lending. The value of buildings exposed to coastal flooding could increase from $12.4 billion now to $26 billion for a sea-level rise of 0.6 metres, and $44 billion at 1.2 metres.[7]

Insurance retreat would likely reduce private and public asset values, making households and firms or public entities less able to invest in adaptation.

There are likely to be more insurance claims, greater damage repairs and higher premiums. Claims for extreme weather events hit a record $321.6 million in 2021, breaking the previous record set in 2020 at $274 million.[8]

## Disrupted supply chains

Local and global supply chains are critical to the functioning of the economy. Supply chains are disrupted by extreme weather (eg, flooding and power outages) and longer-term climate changes that reduce the supply of certain goods (eg, reduced global grain supply from prolonged droughts). Disruptions can range from the very local (eg, a washed-out road to a major tourist site), to major freight hubs, through to global distribution networks. The Intergovernmental Panel on Climate Change (2014)[9] suggests global climate impacts and their flow-on effects to our supply chains may be more significant to our economy than the direct impacts within Aotearoa.

## Reduced financial stability

Financial stability means having resilient banks, insurers and other financial institutions. It means we have a system that can withstand severe but plausible shocks and continue to provide the services we all rely on.[10]

There are two main ways that climate change challenges financial stability. First, the realisation of physical risks could lead to abrupt change in asset values (eg, extreme weather damaging residential housing or farmland or changing production outputs). Second, a disorderly transition to a low-carbon economy could also have an abrupt effect on value (eg, regulatory changes and legal challenges driving down value in emissions-intensive industries).

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7 NIWA. 2019. *Coastal Flooding Exposure Under Future Sea-level Rise for New Zealand*. Wellington.

8 Insurance Council of New Zealand. 2021. Record Insurance Support for Communities – 2021 Extreme Weather Claims Exceed $300 M. (Accessed 4 April 2022).

9 Intergovernmental Panel on Climate Change. 2014. *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part B: Regional Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge.

10 Reserve Bank of New Zealand. 2022. Financial stability. (Accessed 4 April 2022).

### Fiscal impacts of extreme weather and sea-level rise

In its 2021 statement on the long-term fiscal position, the Treasury modelled the impact of more frequent and severe storms and droughts.[11] The median impacts by 2061 appeared modest (net debt 3.77 per cent of GDP higher than baseline).

This analysis suggested the Government's fiscal position was relatively resilient. However, these national impacts did not reflect the severe shocks felt by affected communities or local government entities. The fiscal impacts could be greater, given the analysis did not consider sea-level rise, non-linear or 'tipping-point' changes, or effects beyond 40 years.

### Reduced Crown revenue

The Government may face lower revenue if tax revenue falls or if productivity or GDP reduce, and the costs to replace or repair its own assets increase.

## Objectives

### Climate resilience is core to economic security.

The objectives and actions in this chapter focus on adapting and building climate resilience into our transition to a high-wage, low-emissions economy in a way that is fair, inclusive and upholds Te Tiriti o Waitangi.

This means an economy where:

- businesses, large and small, can innovate, thrive and pay higher wages
- our emissions are rapidly trending to net zero
- economic security is provided for all, in good times and bad.

The Government has identified two objectives for the economy and financial system.

**Table 12: Government objectives for the economy and financial system**

| Code | Objective | Explanation |
|---|---|---|
| EF1 | Sectors, businesses and regional economies can adapt. Participants can identify risks and take action | • Give businesses and property owners the tools and information they need to respond to climate risks.<br>• Reduce barriers to adaptation and innovation.<br>• Enable sectors most vulnerable to near-term or significant change (eg, tourism, land-based primary sector, fisheries and aquaculture) to take action now to reduce costs over time.<br>• Provide regions with what they need to make informed assessments of their risk and reduce their exposure to climate-driven economic disruptions.<br>• Help businesses, sectors and regions to identify economic opportunities that may arise from a changing climate. |
| EF2 | A resilient financial system underpins economic stability and growth. Participants can identify, disclose and manage climate risks | • Financial entities can identify, disclose and manage the risks to their business.<br>• Insurance access and affordability is understood and managed. |

[11] The Treasury. 2021. *Te Tirohanga Mokopuna 2021: The Treasury's Combined Statement on the Long-term Fiscal Position and Long-term Insights Briefing*. Wellington.

# Actions to support a resilient economy and financial system

Actions to support a resilient economy and financial system are set out in the sections below. Chapter 3: Enabling better risk-informed decisions and chapter 5: Adaptation options including managed retreat also contain actions that are critical to supporting a resilient economy and financial system. These are:

- action 3.5: Support high-quality implementation of climate-related disclosures and explore expansion
- action 5.4: Develop options for home flood insurance.

## Addressing inequity

### A climate-resilient economy will support vulnerable New Zealanders.

The economic and financial impacts of a changing climate will not be evenly distributed. Fisheries, tourism and land-based primary industries are particularly exposed to climate risks.

To create equitable climate-resilient economies, we must address how regional economies, rural communities, Māori and workers and households with strong reliance on these sectors will also be disproportionately affected. Workers that are left with more insecure employment and displaced workplaces due to climate impacts need to be supported.

The actions in this chapter focus on adapting and building climate resilience in a way that is fair and inclusive by:

- supporting sectors that are most vulnerable to near-term or significant change
- providing regions with what they need to make informed assessments of their risk and take action
- promoting financial stability to minimise the impact of financial shocks, such as rising prices, on those least able to adapt. Stable prices also help to encourage investment and grow job opportunities
- exploring options to improve the affordability and availability of flood insurance to support the wellbeing of vulnerable at-risk communities.

# Critical actions

### Action 10.1: Deliver the New Zealand Freight and Supply Chain strategy

**Timeframe**: Years 1–6 (2022–28)
**Lead agency:** MOT
**Relevant portfolio**: Transport
**Primarily supports:** Objective EF1
**Status:** Current

This strategy will present a long-term and system-wide view of the freight system. Climate adaptation is being considered through the resilience outcome, to ensure Aotearoa New Zealand's freight and supply chain system is resilient, reliable and prepared for disruption. This will inform investment by the Government, councils and private sector players.

The strategy looks across industries, sectors and modes to identify challenges and opportunities in the long term. This will lay the foundation for identifying any actions to reduce the risk of supply chain disruptions on businesses, industries and consumers.

The strategy's equity and safety outcome commits the Government to ensuring that the transition to resilient supply chains is fair, equitable and inclusive. This means ensuring the Government is considering opportunities to support Māori, regional economies, businesses and workers to adapt to expected changes.

By the middle of 2023, the Government will have launched the New Zealand Freight and Supply Chain strategy.

### Action 10.2: Strengthen fisheries rules

**Timeframe:** Years 1–6 (2022–28)
**Lead agency:** MPI
**Relevant portfolio:** Oceans and Fisheries
**Primarily supports:** Objective EF1
**Status:** Current

The Government is progressing work on the Fisheries Amendment Bill, which includes several legislative changes to the Fisheries Act 1996. The aim is to strengthen and modernise Aotearoa New Zealand's fisheries management system. The Bill sets tighter rules about what fish commercial fisheries must bring back to port and what they can legally return. The Bill also allows for more agile and streamlined decisions in response to changes in fish stock abundance, by enabling development of the pre-set decision rules.

These rules will allow adjustment of the catch limits, and other sustainability measures within pre-agreed limits, in response to change in abundance. This will allow for the system to be more responsive to the effects of climate change.

By late 2022, the Fisheries Amendment Bill will be passed.

### Action 10.3: Deliver the Aquaculture Strategy

**Timeframe:** Years 1–4 (2022–26) and ongoing
**Lead agency:** MPI
**Relevant portfolio**: Oceans and Fisheries
**Primarily supports:** Objective EF1
**Status**: Current

The Government's Aquaculture Strategy sets objectives and actions to support Aotearoa in becoming a world leader in sustainable and innovative aquaculture. One of the strategy's objectives is to support the industry to adapt to climate change.

Actions include: forecasting the effects of climate change on the aquatic environment and supporting actions for resilience; helping industry to transition to hatchery spat production; spatial planning approaches informed by climate change considerations to enable industry growth and adaptation; and the development of a comprehensive biosecurity approach.

By 2024, the Government will continue releasing implementation plans for the Aquaculture Strategy and reporting each year on the environmental effects of aquaculture.

### Action 10.4: Reserve Bank of New Zealand supports the stability of the financial system

**Timeframe:** Years 1–2 and ongoing (2022–24)
**Lead agency:** RBNZ
**Relevant portfolio:** Finance
**Primarily supports:** Objective EF2
**Status:** Current

The Reserve Bank of New Zealand (RBNZ) is taking action to help regulated financial entities identify and manage climate risks better. This includes:

- introducing climate-related stress tests that model the effect of severe but plausible scenarios on the balance sheets of regulated financial institutions
- incorporating climate change in scheduled supervisor engagements with the management and boards of regulated entities
- developing guidance on managing risk for the entities the RBNZ regulates.

By March 2024, the RBNZ will have climate change considerations increasingly integrated into its supervisory, stress-testing and policy work.

## Supporting actions

### Action 10.5: Deliver the Māori agribusiness extension programme

**Timeframe:** Years 1–6 (2022–28)
**Lead agency:** MPI
**Relevant portfolio:** Agriculture
**Primarily supports:** Objective EF1
**Status:** Current

This action will deliver a tailored extension programme for whenua Māori. This will support collectives of Māori landowners and agribusiness to take a te ao Māori approach to meeting their aspirations for their whenua in a productive and sustainable way. As part of the programme, landowners will consider how best to plan intergenerationally for the impacts of climate change on their whenua. It will extend the current pilot programme, which offers resources and support to Māori landowning collectives.

### Action 10.6: Continue delivering the Sustainable Land Management and Climate Change and Greenhouse Gas Inventory research programmes

**Timeframe:** Years 1–6 (2022–28)
**Lead agency:** MPI
**Relevant portfolio:** Agriculture
**Primarily supports:** Objective EF1
**Status:** Current

This work will fund research and develop tools to support the agriculture sector to adapt to climate change better, measure emissions and mitigate land-use impacts on freshwater. It includes science extension and policy research and the ability to respond to the social impacts of climate change.

### Action 10.7: Continue delivering the Sustainable Food and Fibre Futures Fund

**Timeframe:** Years 1–6 (2022–28)
**Lead agency:** MPI
**Relevant portfolio:** Agriculture
**Primarily supports:** Objective EF1
**Status:** Current

The Sustainable Food and Fibre (SFF) Futures Fund supports innovative projects that design and test new approaches and solutions to risks such as climate change in the primary sector. The fund supports innovation in Aotearoa New Zealand's food and fibre sector by co-investing in initiatives that bring economic, environmental and social benefits for all New Zealanders. SFF Futures Fund projects include applied research that delivers tangible solutions for primary industries. Funding assists vulnerable groups, including rural farmers and Māori, with problem solving and innovation.

### Action 10.8: Establish innovation grants

**Timeframe:** Years 1–6 (2022–28)
**Lead agency:** MBIE
**Relevant portfolio:** Research, Science and Innovation
**Primarily supports:** Objective EF1
**Status:** Current

These grants will boost investment in private sector research and development and support innovation. They will share the risk with Aotearoa companies. This means more climate-focused innovation should happen faster, to better enable adaptation action and the transition to a low-emissions economy.

### Action 10.9: Identify the impacts of climate change on regional economies

**Timeframe:** Years 1–3 (2022–25)
**Lead agency:** MBIE
**Relevant portfolio:** Economic and Regional Development
**Primarily supports:** Objective EF1
**Status:** Current

This work will involve modelling the economic impacts of a changing climate on regional economies and providing guidance for assessing climate impacts in local economic decisions. This will help to identify likely impacts and determine where our vulnerable communities are by exploring the distribution of economic impacts across different parts of Aotearoa. These findings will help regions make informed risk assessments, actions and investments to reduce their exposure to climate-driven economic disruptions and support vulnerable communities. Regional economic preparedness will be further bolstered by other proposals in the national adaptation plan, such as the Māori-led partnership.

### Action 10.10: Monitor residential insurance premiums

**Timeframe:** Years 1–2 (2022–24)
**Lead agencies:** Treasury; Toka Tū Ake EQC
**Relevant portfolio:** Toka Tū Ake EQC
**Primarily supports:** Objective EF2
**Status:** Current

Monitoring residential premiums and uptake of insurance gives a better understanding of the scale of shifts in insurance availability and affordability.

### Action 10.11: Consider climate risk in economic and fiscal monitoring and forecasting

**Timeframe:** Years 1–6 (2022–28)
**Lead agency:** Treasury
**Relevant portfolio:** Finance
**Primarily supports:** Objective EF2
**Status:** Current

Treasury's six-monthly economic updates are a core way to monitor and forecast the economic and fiscal environment. This includes the impact of shocks (eg, COVID-19 or natural disasters) on the Crown's financial position and tracking long-run changes. The updates highlight known quantifiable and unquantifiable climate adaptation risks as a tool in fiscal and economic management.

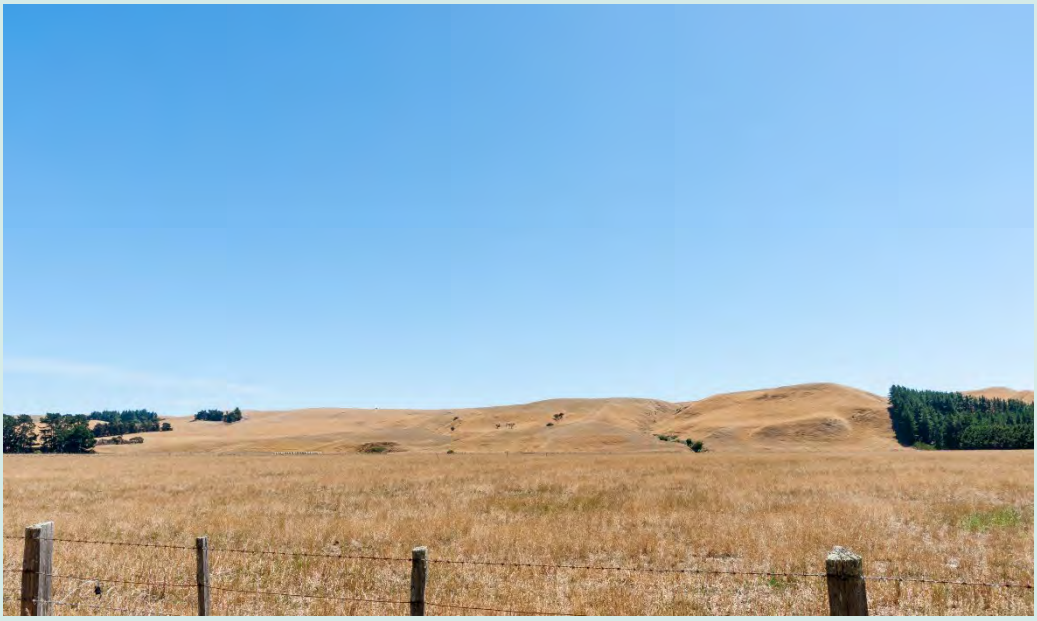


*Image: Ministry for Primary Industries*

**CASE STUDY**
**Farming under drought conditions – primary sector adaptation**

*"Adaptation is about surviving and thriving in the face of change."**

Climate change is increasing the frequency and severity of drought in Aotearoa. From 2007 to 2017, drought cost the country around $720 million. The primary sector is particularly vulnerable and can expect conditions to get drier.

Climate disasters place a huge strain on the lives of farmers and growers, and particularly on their mental health. To reduce the economic risks of drought and build climate resilience in farmers and growers, a national long-term adaptation strategy is needed.

*"Unless we work together, we are going to lock ourselves into the status quo."*

To develop a strategy that serves all stakeholders, a National Science Challenge consortium brought together farmers, growers, industry bodies, researchers and government. Online webinars and a one-day symposium were held in 2021. The resulting findings were captured in the *Growing Kai Under Increasing Dry* report.

The report emphasises that it is vital for the primary sector to adapt and protect its viability, and to collaborate widely. Solutions include:

- connecting policy, research and on-farm practice
- introducing long-term planning rather than short-term planning to respond to events
- enabling behaviour change and diversifying farming activities.

*"We can be either proactive or reactive, but climate change impacts are inevitable."*

The report notes that although incremental adaptation has been happening for a decade, transformational change is now required. In contrast to incremental adaptation, which involves actions such as changing seed-sowing dates, transformational adaptation involves identifying novel land-use opportunities.

*"Neither a top-down nor bottom-up approach alone will do."*

The report sets out key roles: farmers and growers are the decision makers on the ground; industry bodies work as knowledge brokers for adaptation; researchers contribute new possibilities for adaptation and co-develop solutions; and the Government has a significant role in enabling innovation, investment and flexibility.

** All quotes in this case study come from the National Science Challenge report,* Growing Kai Under Increasing Dry.

### Action 10.12: Implement the Government response to the Prime Minister's Chief Science Advisor's report on commercial fishing

**Timeframe:** Years 1–6 (2022–28) and ongoing
**Lead agency:** MPI
**Relevant portfolio:** Oceans and Fisheries
**Primarily supports:** Objective EF1
**Status:** Current

This report makes several recommendations for the fisheries management system and for commercial fishers. The Government's response is underway and includes actions that support innovation across the system, progress an ecosystem approach to fisheries management and protect habitats of significance to fisheries management.

### Action 10.13: Support the implementation of Aotearoa Circle Seafood Sector Adaptation Strategy

**Timeframe:** Years 1–6 (2022–28)
**Lead agency:** MPI
**Relevant portfolio:** Oceans and Fisheries
**Primarily supports:** Objective EF1
**Status:** Current

Building on scenario planning, the Seafood Sector Adaptation Strategy: Climate Adaptation Strategy 2021–2030 is a collaboration between the major seafood sector leaders, Government, environmental non-government organisations, iwi representatives and the research community. The strategy sets out a shared 10-year vision and goals, and actions to help achieve these. The aim is to enhance the resilience and adaptive capacity of Aotearoa New Zealand's seafood system. It includes actions to ensure adaptation information is more integrated and accessible, and to promote ecologically and economically efficient fishing and aquaculture. Te ao Māori is incorporated throughout the strategy – and specific implementation actions reflect this (eg, piloting and monitoring a te ao Māori approach to coastal management. An implementation group drawn from the strategy development agencies, established mid-2022, facilitates the strategy's implementation and progress reporting.



**CASE STUDY**
**Seafood Sector Adaptation Strategy, 2021–2030**

*"Only a collaborative, sector-wide adaptation strategy can address the impacts of climate-related risk in the seafood sector."**

Climate risk to fisheries is one of the 43 risks identified in the National Climate Change Risk Assessment 2020. In 2020, the Aotearoa Circle brought together 23 organisations in the seafood sector to assess climate risks and opportunities. This was based on the Task Force on Climate-related Financial Disclosures framework.

This group included industry players, government, iwi and community stakeholders. It adopted the Seafood Sector Adaptation Strategy, with comprehensive actions to be brought in from 2021 to 2027.

*"As kaitiaki we work together to adapt to climate change and ensure a resilient future."*

**Goals**

- **Bold leadership** will ensure stakeholders can better understand their risks and opportunities, and drive the actions.
- **Resilient prosperity** will develop adaptative capacity (eg, funding and research opportunities to diversify markets). It will also progress actions that enhance the resilience of the marine environment.
- **Practical knowledge** will enable the development and sharing of all kinds of relevant information and knowledge across the sector. This will inform the assessment of adaptation options.
- **Values-based governance** will mean stakeholders from across the seafood community will collaborate with policy makers as climate change is mainstreamed into regulatory and management-level decision-making.

This is an early example of a sector working together with Government, iwi and stakeholders to produce an adaptation strategy, including an implementation roadmap. It is an opportunity to adapt in ways that bring lasting co-benefits to habitats, ecosystems, communities and businesses.

** All quotes in this case study come from the Aotearoa Circle* Seafood Sector Adaptation Strategy: Climate Adaptation Strategy 2021–2030*.*

### Action 10.14: Deliver the Tourism Industry Transformation Plan

**Timeframe:** Years 1–3 (2022–2025)
**Lead agency:** MBIE
**Relevant portfolio:** Tourism
**Primarily supports:** Objective EF1
**Status:** Current

The goal of this work is regenerative tourism. The first phase focuses on 'better work' and the second phase on the environment. The Tourism Adaptation Roadmap developed by the Aotearoa Circle will be an input for the environmental phase of the Tourism Industry Transformation Plan. This allows for a sector-wide assessment of risks and actions. Alongside action 10.15, this work will help to minimise the impacts of a changing climate on tourism workers, business owners and communities whose livelihoods depend on this at-risk sector.

### Action 10.15: Review the settings for the International Visitor Conservation and Tourism Levy

**Timeframe:** Years 1–2 (2022–24)
**Lead agency:** MBIE
**Relevant portfolio:** Tourism
**Primarily supports:** Objective EF1
**Status:** Current

Currently, international visitors do not directly pay for many products and services they use where these are funded by local communities. The Ministry of Business, Innovation and Employment (MBIE), directed by the Minister of Tourism, is reviewing the International Visitor Conservation and Tourism Levy (IVL). This includes ensuring international visitors contribute to resilient, adaptable infrastructure and the natural environment they use during their visit. Resilient infrastructure, including a healthy environment, will reduce the risks from extreme weather. This action will support a focus on the spending priorities of the IVL, as well as any further work across the life of the national adaptation plan (eg, other tools) to support adaptation and climate resilience in tourism.

### Action 10.16: Leverage government procurement for climate outcomes

**Timeframe:** Year 1 (2022/23)
**Lead agency:** MBIE
**Relevant portfolio:** Economic and Regional Development
**Primarily supports:** Objective EF1
**Status:** Current

This action will check the current government's procurement policy framework enables mitigation and adaptation in government investments. The greatest opportunity will likely be in construction contracts, making buildings and infrastructure resilient to a changing climate, and reducing carbon emissions and waste. This links to the Homes, buildings and places action plan (chapter 7).

# Future proposed work programmes

### Action 10.17: Support Māori small business resilience and transitions

**Timeframe:** Years 2–5 (2023–27)
**Lead agencies:** TPK; MBIE
**Relevant portfolios:** Māori Development; Economic and Regional Development
**Primarily supports:** Objective EF1
**Status:** Proposed

The aim of this work is to support Māori small and medium enterprises to develop low-emissions growth strategies, respond to climate-related risks and opportunities, and adopt resilient ways of working. Businesses would commit to reducing their emissions or improving their resilience to physical climate events.

This action will support Māori small businesses, which are disproportionately concentrated in sectors exposed to climate impacts and typically have less capacity to adapt than larger enterprises, to take action and demonstrate leadership in adaptation.

### Action 10.18: Research business adaptation preparedness and provide guidance for small businesses to adapt

**Timeframe:** Years 1–6 (2022–28)
**Lead agency:** MBIE
**Relevant portfolio:** Small Business
**Primarily supports:** Objective EF1
**Status:** Proposed

This will help small businesses reduce their climate risks through targeted guidance and information. The guidance will be based on research that will increase understanding of what businesses are doing to adapt, and the pain points for business owners. The research will set a baseline for current action, inform future policy and drive the development of guidance and resources for small businesses.

This action will assist many of the businesses least able to adapt with climate adaptation, and least aware of the benefits of adaptation and effective ways to build resilience against climate risk. This will help ensure that the benefits of climate adaptation are distributed broadly throughout Aotearoa New Zealand's business demographics.

### Action 10.19: Enhance industry partnership networks

**Timeframe:** Years 1–6 (2022–28)
**Lead agency:** MBIE
**Relevant portfolio:** Research, Science and Innovation
**Primarily supports:** Objective EF1
**Status:** Proposed

This action will pool knowledge and resources to solve sector problems. The partnerships will recognise the complexity and interrelatedness of issues, such as climate adaptation, and the need for sophisticated networks to test, scale up and spread innovation to help address challenges facing Aotearoa. These networks will speed up the connections and relationships needed to implement change at pace.

## Other actions across this plan will contribute to a resilient economy and financial system

Aotearoa New Zealand's economy is connected with all the other outcome areas in this plan. A number of other actions will also contribute to a resilient high-wage, low-emissions economy, notably:

- action 3.13: Provide a forestry planning and advisory service: This service will promote better land use, tree selection, resilience and suitability for the landscape. It will support the forestry industry to identify climate risks and take action.
- action 3.14: Deliver the Integrated Farm Planning Programme: This programme will support producers to become more resilient in the face of a changing climate, including developing adverse events and resilience planning and increasing data-sharing capability within the primary sector. The new Ministry for Primary Industries (MPI) On Farm Support services will also guide integrated farm planning.
- action 3.19: Develop Te Ara Paerangi – Future Pathways programme for the research, science and innovation system: This will position our research, science and innovation system for the future. It includes focusing resources on national goals such as climate change and exploring how research can best honour Te Tiriti obligations and promote mātauranga Māori. A research, science and innovation system that is connected, resilient and adaptable can more effectively respond to the needs of businesses and sectors, and support the development of the right tools, information and innovative capacity to address climate risks.
- action 3.20: Continue prioritising research and investment in climate-related science: This will support innovative adaptation and contribute to a resilient economy and financial system by pushing the boundaries of knowledge and transferring this knowledge.
- action 6.1: Implement the Department of Conservation Climate Change Adaptation Action Plan: This plan includes actions for heritage, recreation and infrastructure of public conservation land and water. It will reduce risks to tourism from weather events and protect sites that are important for tourism.
- action 6.6: Implement the Water Availability and Security programme: This programme will help farmers adapt to varying water availability, avoid disruptions to business activity and land use, and potential flow-on impacts on sectors, regions and the wider economy.
- action 9.10: Implement an income insurance scheme to support adaptive capacity of communities and the economy: The Government is developing a proposal for a New Zealand income insurance scheme, which would support workers with a proportion of income replacement for up to seven months if they lose their job through no fault of their own. This would reduce the economic impacts of a changing climate on workers and communities, and enable workers to transition to new job opportunities afforded by changes in the economy.

CHAPTER 11:

# Implementing the plan



# Chapter 11: Implementing the plan

## Engaging with key groups

The actions in this plan are varied and wide-ranging. Different actions aim to support different sectors and entities. During the implementation phase, the extent of engagement will also vary.

Some actions, such as the Aquaculture Strategy or Tourism Industry Transformation Plan, are sector specific. Others, such as the Health National Adaptation Plan, apply more to communities.

Other examples include the regular updates of local government guidance. Engaging with local government will be essential for this, as councils will have the most direct experience of which parts of the guidance work well and which could be strengthened.

Inclusive engagement, particularly with those disproportionately affected by climate change, will help to ensure actions lead to the intended outcomes.

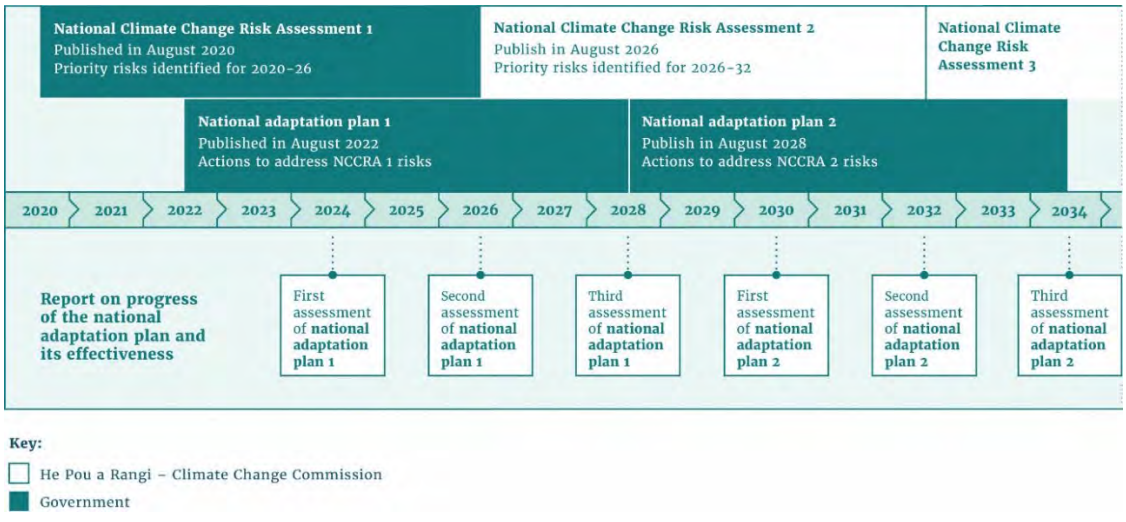
This approach to implementation will align us with the emissions reduction plan's equitable transition strategy. It will do this by encouraging engaged and active public participation in the plan, including in partnership with Māori.

## Monitoring and reporting

### Reporting on this plan

Every two years, He Pou a Rangi – Climate Change Commission will report to the Minister of Climate Change on the implementation and effectiveness of the national adaptation plan (figure 10). The Minister must respond to these reports within six months of receiving them. This provides an opportunity for the Government to adjust the actions and manage uncertainty and risk. The Government also has international commitments to report on Aotearoa New Zealand's progress towards building resilience.

**Figure 10: The monitoring, evaluating and reporting process for adaptation action**



## Governance and oversight

Successfully implementing the national adaptation plan will require action across government. Strong governance and accountability mechanisms are needed to make continuous progress. A climate change interdepartmental executive board (IEB) is being established to oversee the emissions reduction plan and national adaptation plan. The IEB will monitor and report on progress each year (annual IEB report). The Climate Change Response Minister's Group will oversee the plan and drive progress.

Regulatory stewardship (monitoring the Government's regulatory systems) is a further opportunity to consider climate change and improve how we implement the plan.

**Action 11.1: Establish central government oversight and coordination for implementing the national adaptation plan**

**Timeframe:** Years 1–6 (2022–28)
**Lead agency:** MfE
**Relevant portfolio:** Climate Change
**Primarily supports:** Objective SW1
**Status:** Current

This will provide transparency of implementation of the plan across government, improve coordination within central government and enable accountability.

Annual reporting requirements by agencies will be completed each year, commencing in 2023.

## Progress indicators

Each critical and supporting action in this national adaptation plan includes progress indicators to 2028. To help the Commission assess the plan's effectiveness in reducing risk, the Ministry for the Environment will regularly assess the preparedness of certain organisations. These include policy developers and service providers. The results from the first survey in 2020 set a baseline for assessing the effectiveness of future actions.

## Adjustment of actions

Monitoring the progress of the national adaptation plan and reporting on its effectiveness will enable the Government to identify whether it is appropriate to adjust the actions in the plan. The IEB annual report will identify:

- any new actions to be included in the plan
- any proposed actions that have received a mandate and are re-categorised as current actions, either critical or supporting.

# Research plan to fill knowledge gaps

Some actions in this plan depend on new or updated data or information. Others need additional knowledge before they can be applied. Additional data may also be needed to inform the next national climate change risk assessment, which will be published in 2026. This research strategy describes the data, information and research needed to fill these gaps.

## Knowledge gaps

Across the research themes, the following are steps to prioritise to 2028:

- collate and complete **priority data** on risk (vulnerability, hazards, exposure)
- provide **open-access data**, accessible to a variety of audiences
- design, implement and share research platforms.
- **transform data into knowledge about vulnerability**, including monitoring and evaluating sensitivity and adaptive capacity. This addresses the call to understand vulnerability and, in some cases, generic use of the word 'risk'. Studies such as monitoring and scenario modelling are needed, including in the following areas:
  - ecosystems. Monitoring ecosystems helps us understand their state and their changes through time. This makes it possible to understand vulnerability. Integrated monitoring and research highlights current ecosystem functioning as it alters in response to changing conditions and extreme events. It also facilitates invasive/biosecurity monitoring, which is another climate impact. At a higher level, a national monitoring system will help with environmental reporting and resource management
  - community vulnerability to changing conditions and extreme events. Studies of the events and their aftermath can include the response to, and recovery from, exposure to hazards, the immediate effects and long-term follow-up. This includes both sensitivity (how communities are affected) and adaptive capacity (how they respond) through the entire cycle. Frameworks include the National Emergency Management Agency's '4 Rs': reduction, readiness, response, recovery
- support **mātauranga Māori and kaupapa Māori research**. A number of proposed actions will progress the development of iwi/Māori climate data and information. These include actions that focus on mātauranga Māori environmental indicators, iwi/Māori socio-economic risk and vulnerability assessment, mapping of taonga, and the extension of mapping the cultural footprint against high-impact weather
- **monitor and evaluate the effects** of policy and interventions. This includes ecological restoration, environmental design, effects of adaptation actions in communities, and the adaptive capacity of the built environment and infrastructure.

## Timeframes for filling knowledge gaps

### Short term (2022–25)

The first three years of this national adaptation plan are key for both collecting the data and information and starting long-term programmes. This will allow data and information to be made available for the second national climate change risk assessment, which will be published in 2026.

During this period, research priorities are to:

- consolidate existing data and make them open access
- complete priority datasets
- start national networks of long-term monitoring of natural environments
- start and complete vulnerability studies.

Existing and concurrent research should aim to produce and publish results in 2024–25.

**National Science Challenges**

The National Science Challenges conclude in 2024. The projects with climate adaptation research are: The Deep South, Resilience to Nature's Challenges, Our Land and Water, New Zealand's Biological Heritage, Sustainable Seas, and Building Better Homes, Towns and Cities.

The results will likely be ready in time to inform the second national climate change risk assessment and ongoing national adaptation plan work.

## Medium term (2025–28)

The second national adaptation plan will be published in 2028. Research priorities include:

- completing nationally prioritised datasets
- setting up the national ecological monitoring network
- continuing and beginning research programmes
- publishing research results, especially vulnerability studies and risk syntheses.

## Long term (2028 onward)

Research in all areas will build on what has been learned, and address what remains to be known, as knowledge about climate change grows. This requires a commitment to long-term research, including national environmental monitoring and ecosystem studies.

Other actions during this period include:

- regularly updating maps and information on hazards and exposure
- collating research findings in vulnerability assessments and risk syntheses
- monitoring and evaluating restoration and adaptation.

# Appendices



# Appendix 1: Glossary

## Glossary of terms

| Key term | Definition |
|---|---|
| **Adaptation** | In human systems, the process of adjusting to actual or expected climate and its effects, to moderate harm or take advantage of beneficial opportunities. In natural systems, the process of adjusting to actual climate and its effects. Human intervention may help these systems to adjust to expected climate and its effects. |
| **Adaptation options** | The wide range of strategies and measures that are available and appropriate for addressing adaptation. They can take the form of structural, institutional, ecological or behavioural actions. |
| **Adaptive capacity** | The ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities or to respond to consequences. |
| **Asset** | Something of value, which may be exposed or vulnerable to a hazard or risk. It may be something physical, environmental, cultural or financial and/or economic, and its value may be tangible, intrinsic or spiritual (see **Taonga**). |
| **Baseline** | An initial set of critical observations or data used for comparison or a control. |
| **Biodiversity** | The variability among all living organisms on Earth. It includes diversity within species, diversity between species and diversity of an ecosystem. The living organisms may be from any sources, such as terrestrial, marine and other aquatic ecosystems, and the ecological complexes they belong to. |
| **Capacity building** | The practice of supporting an individual, community, society or organisation to respond to change by enhancing their strengths and attributes, and improving the resources available to them. |
| **Cascading impacts** | A series of events where an initial impact produces further impacts that are significantly larger than the first one. In relation to extreme weather events, an extreme hazard causes a sequence of secondary events in natural and human systems that result in major physical, natural, social and/or economic disruption. Cascading impacts are complex and multidimensional, and are associated more with the extent to which the natural and human systems are vulnerable, than with the size of the original hazard. |
| **Climate** | Informally, the average weather over a period ranging from months to thousands or millions of years. In more formal terms, a statistical description of the mean and variability of quantities, usually of surface variables such as temperature, precipitation and wind, averaged over a period (typically 30 years, as defined by the World Meteorological Organization).<br><br>More broadly, climate is the state, including a statistical description, of the climate system. |
| **Climate change** | A change in the state of the climate that can be identified (eg, by using statistical tests) by changes or trends in the mean and/or the variability of its properties, and that persists for an extended period, typically decades to centuries. Includes natural internal climate processes and external climate forcings such as variations in solar cycles, volcanic eruptions and persistent anthropogenic changes in the composition of the atmosphere or in land use. |

| Key term | Definition |
|---|---|
| | The United Nations Framework Convention on Climate Change (UNFCCC) definition of climate change specifically links it to direct or indirect human causes, as: "a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods". The UNFCCC thus makes a distinction between climate change attributable to human activities altering the atmospheric composition and climate variability attributable to natural causes. |
| **Climate resilience** | The ability to anticipate, prepare for and respond to the impacts of a changing climate, including the impacts that we can anticipate and the impacts of extreme events. It involves planning now for sea-level rise and more frequent flooding. It is also about being ready to respond to extreme events such as forest fires or extreme floods, and to trends in precipitation and temperature that emerge over time such as droughts. |
| **Coastal** | Describes either the land near to the sea (eg, 'coastal communities') or the part of the marine environment that is strongly influenced by land-based processes (eg, 'coastal seas', meaning the part of the sea that is generally shallow and near shore). The landward and seaward limits of the coastal zone are not consistently defined, neither scientifically nor legally. Thus, coastal waters can either be considered as equivalent to territorial waters (extending 12 nautical miles and/or 22.2 km from mean low water), or to the full Exclusive Economic Zone, or to shelf seas, with less than 200 m water depth. |
| **Coastal erosion** | The process when the high-tide mark moves closer towards the land due to a net loss of sediment or bedrock from the shoreline. Also known as shoreline retreat. |
| **Co-benefit** | A positive effect that a policy or measure aimed at one objective has on another objective, thereby increasing the total benefit to society or the environment. |
| **Consequence** | The outcome of an event that may result from a hazard. It can be expressed quantitatively (eg, units of damage or loss, disruption period, monetary value of impacts or environmental effect), by category (eg, high-, medium- or low-level impact) or qualitatively (a description of the impacts).<br><br>Alternatively, the outcome of an event that affects objectives. |
| **(the) Crown** | Generally, executive government conducted by ministers and their departments. The Crown does not normally include organisations with their own corporate identities, such as state-owned enterprises. |
| **Cultural asset** | Material artefacts, non-material items and natural places that have cultural value. |
| **Cultural heritage** | Those aspects of the environment that contribute to an understanding and appreciation of Aotearoa New Zealand's history and cultures. It includes historic sites, structures, places, areas, archaeological sites, sites of significance to Māori (including wāhi tapu) and cultural landscapes. |
| **Disaster** | A serious disruption of the functioning of a community or a society, at any scale, that occurs because hazardous events interact with conditions of exposure, vulnerability and capacity, leading to human, material, economic and/or environmental losses and impacts. |
| **Disaster risk management** | Processes for designing, implementing and evaluating strategies, policies and measures to improve understanding of current and future disaster risk, foster disaster risk reduction and transfer, and promote continuous improvement in |

| Key term | Definition |
|---|---|
| | disaster preparedness, prevention and protection, response and recovery practices. The aim is to increase human security, wellbeing, quality of life and sustainable development. |
| **Displacement** | The involuntary movement, individually or collectively, of people from their country or community, notably for reasons of armed conflict, civil unrest or natural or human-made disasters. In the context of this plan, displacement primarily refers to the involuntary movement of individuals or communities in response to climate change impacts. |
| **Distributional impact** | The effects of environmental policies (eg, higher transport or energy costs) across households, Māori, businesses, communities and regions. Some groups may pay more or receive fewer benefits from the policies. |
| **Drought** | An exceptionally long period of water shortage for existing ecosystems and the human population (due to low rainfall, high temperature and/or wind). |
| **Dry year** | An extended period when the energy supply in Aotearoa relies more on natural gas and coal because hydroelectric generation is reduced. This occurs because hydro lakes hold only enough water for a few weeks of winter energy demand if inflows (rainfall and snowmelt) are very low. |
| **Dynamic adaptive pathways planning** | A framework that supports climate adaptation decision-making by developing a series of actions over time (pathways). It is based on the idea of making decisions as conditions change, before severe damage occurs, and as existing policies and decisions prove no longer fit for purpose. |
| **Ecosystem** | A functional unit consisting of living organisms, their non-living environment and the interactions within and between them. The purpose of the ecosystem defines what components belong to it and where its spatial boundaries lie. Ecosystem boundaries can change over time. Ecosystems are nested within other ecosystems and their scale can range from very small to the entire biosphere. In the current era, most ecosystems either contain people as key organisms or are influenced by the effects of human activities in their environment. |
| **Ecosystem health** | A metaphor that describes the condition of an ecosystem, by analogy with human health. The health status of an ecosystem is based not on a standard measurement but on a judgement of its resilience to change, which varies depending on which measures are used and which social aspirations are behind the assessment. |
| **Ecological corridor** | An area of habitat connecting wildlife populations that have been separated by human activities or structures. |
| **Ecological integrity** | The ability of an ecological system to support and maintain a community of organisms where the composition, diversity and functional organisation of its species is comparable to those of natural habitats within a region. |
| **Emergency management** | The process of applying knowledge, measures and practices that are necessary or desirable for the safety of the public or property, and are designed to guard against, prevent, reduce, recover from or overcome any hazard, harm or loss associated with any emergency. Activities include planning, organising, coordinating and implementing those measures, knowledge and practices. |
| **Emissions** | In the context of climate change, emissions of greenhouse gases, precursors of greenhouse gases and aerosols caused by human activities. These activities include the burning of fossil fuels, deforestation, land use and land-use |

| Key term | Definition |
|---|---|
| | change, livestock production, fertilisation, waste management and industrial processes. |
| **Equity** | The principle of being fair and impartial, often also aligned with ideas of equality and justice. It provides a basis for understanding how the impacts of, and responses to, climate change (including costs and benefits) are distributed in and by society in more or less equal ways. The principle can be applied in understanding who is responsible for climate impacts and policies; how those impacts and policies are distributed across society, generations and gender; and who participates and controls the processes of decision-making. |
| **Erosion** | The process in which actions of water, wind or ice wear away land. |
| **Exposure** | Being present in a place or setting that could be adversely affected. Those that could be harmed in that environment include people; livelihoods; species or ecosystems; environmental functions, services and resources; infrastructure; and economic, social or cultural assets. |
| **Extreme weather event** | An event that is rare at a particular place and time of year. What is 'extreme weather' may vary from place to place in an absolute sense. The measure of what is 'rare' may also vary but it involves the occurrence of a value of a weather or climate variable above (or below) a threshold value near the upper (or lower) ends of the range of observed values of the variable. In general, an extreme weather event would be as rare as, or rarer than, the 10th or 90th percentile of a probability density function estimated from observations.<br><br>When a pattern of extreme weather persists for some time, such as a season, it may be classified as an extreme climate event, especially if it yields an average or total that is itself extreme (eg, high temperature, drought or heavy rainfall over a season). |
| **Fiscal impacts** | The implications a policy or event has for government expenditure or revenue. |
| **Flood** | An event where the normal boundaries of a stream or other water body overflow, or water builds up over areas that are not normally underwater. Floods can be caused by unusually heavy rain – for example, during storms and cyclones. Floods include river (fluvial) floods, flash floods, urban floods, rain (pluvial) floods, sewer floods, coastal floods and glacial lake outburst floods. |
| **Frequency (of a hazard)** | The number or rate of occurrences of hazards, usually over a particular period. |
| **Governance** | The governing architecture and processes of interaction and decision-making that exist in and between governments, economic and social institutions.<br><br>Governance permeates all aspects of Aotearoa, from Te Tiriti partnership between Māori and the Crown, to the relationship between local government and communities, and from the economy to the built environment and to natural ecosystems. |
| **Greenhouse gas** | Gas in the atmosphere, which may have natural or human causes, that absorbs and emits radiation at specific wavelengths within the spectrum of radiation emitted by the Earth's oceans and land surfaces, by the atmosphere itself and by clouds. This property causes the greenhouse effect. |

| Key term | Definition |
|---|---|
| | The main greenhouse gases in Earth's atmosphere are water vapour, carbon dioxide, nitrous oxide, methane and ozone. Human-made greenhouse gases include sulphur hexafluoride, hydrofluorocarbons, chlorofluorocarbons and perfluorocarbons. |
| **Gross domestic product (GDP)** | The sum of the gross value that all resident and non-resident producers in the economy added, at purchasers' prices, to a country or region plus any taxes and minus any subsidies not included in the value of the products in a country or a geographic region for a given period, normally one year. GDP is calculated without deducting for depreciation of fabricated assets or depletion and degradation of natural resources. |
| **Hazard** | The potential occurrence of a natural or human-induced physical event or trend that may cause loss of life, injury or other health impacts, as well as damage and loss to property, infrastructure, livelihoods, service provision, ecosystems and environmental resources. |
| **Heatwave** | A period of abnormally hot weather often defined with reference to a relative temperature threshold, lasting from two days to months. |
| **Impacts** | The consequences of realised risks on natural and human systems, where risks result from the interactions of climate-related hazards (including extreme weather events), exposure and vulnerability. They are generally effects on human lives, livelihoods, health and wellbeing; ecosystems and species; economic, social and cultural assets; services (including ecosystem services); and infrastructure. They can be harmful or beneficial. Also known as consequences or outcomes. |
| **Indigenous knowledge** | The understandings, skills and philosophies developed by societies with long histories of interaction with their natural surroundings. For many indigenous peoples, indigenous knowledge informs decision-making about fundamental aspects of life, from day-to-day activities to longer-term actions. This knowledge is integral to cultural complexes, which also include language, systems of classification, resource-use practices, social interactions, values, ritual and spirituality. These distinctive ways of knowing are important facets of the world's cultural diversity. |
| **Infrastructure** | The designed and built set of physical systems, along with their institutional arrangements, that interact with the broader environment to provide services to people and communities that support economic growth, health, quality of life and safety. |
| **Insurance/ reinsurance** | A group of financial instruments for sharing and transferring risk among a pool of at-risk households, businesses and/or governments. |
| **Intergovernmental Panel on Climate Change (IPCC)** | The United Nations body for assessing the science related to climate change. The IPCC is organised into three working groups and a task force:<br>• Working Group I (WGI) – physical science basis<br>• Working Group II (WGII) – impacts, adaptation and vulnerability<br>• Working Group III (WGIII) – mitigation<br>• Task Force on national greenhouse gas inventories. |
| **Land use** | All of the arrangements, activities and inputs (a set of human actions) that people undertake in a certain type of land cover (eg, forest land, cropland, grassland, wetland and settlements).<br>Alternatively, the social and economic purposes for which land is managed (eg, grazing, timber extraction, conservation and city dwelling). |

| Key term | Definition |
|---|---|
| **Maladaptation** | Actions that may lead to increased risk of adverse climate-related outcomes, including increased greenhouse gas emissions, increased vulnerability to climate change and reduced welfare, now or in the future. Maladaptation is usually an unintended consequence. |
| **Managed retreat** | The purposeful, coordinated movement of people and assets (eg, buildings and infrastructure) away from risks. This may involve the movement of a person, infrastructure (eg, building or road) or community. It can occur in response to a variety of hazards, such as flood, wildfire or drought. |
| **Māori values and principles** | Values and principles that come from Māori views of the world and that Māori use to make sense of, experience and interpret the world. They form the basis for Māori ethics and principles. |
| **Mitigation** | In the context of climate change, a human intervention to reduce the sources or enhance the sinks of greenhouse gases. |
| **Nature-based solutions** | Solutions that are inspired and supported by nature and are cost effective, and at the same time provide environmental, social and economic benefits and help build resilience. Such solutions bring more, and more diverse, nature and natural features (eg, vegetation and water features) and processes into cities, landscapes and seascapes, through locally adapted, resource-efficient and systemic interventions. For example, using vegetation (eg, street trees or green roofs) or water elements (eg, rivers or water-treatment facilities) can help reduce heat in urban areas or support stormwater and flood management. |
| **Ocean acidification** | A reduction in the pH of the ocean, accompanied by other chemical changes (primarily in the levels of carbonate and bicarbonate ions), over an extended period, typically decades or longer, which is caused primarily by uptake of carbon dioxide ($CO_2$) from the atmosphere, but can also be caused by other chemical additions or subtractions from the ocean. Anthropogenic ocean acidification is the component of pH reduction that is caused by human activity. Anthropogenic Ocean Acidification refers to the component of pH reduction that is caused by human activity (IPCC, 2011, p 37). It is a process in which the pH of the ocean reduces (becomes more acidic) and other chemical changes occur (mainly in the levels of carbonate and bicarbonate ions) over several decades or longer. The main cause is uptake of $CO_2$ from the atmosphere but other chemical additions or subtractions from the ocean can contribute. |
| **Oranga Marae** | Oranga Marae is a programme of support, advice and investment for marae. It gives whānau and hapū advice and support to help develop their marae and achieve their goals. This support may include building projects and activities to revitalise cultural knowledge. A key goal of the programme is to strengthen the ability of marae to pass on their ancestral knowledge of whaikōrero, karanga and local mātauranga, tikanga and kawa to descendants. |
| **Pathway** | The evolution of natural and/or human systems over time towards a future state. Pathway concepts range from sets of quantitative and qualitative scenarios or narratives of potential futures to solution-oriented, decision-making processes to achieve desirable social goals. Pathway approaches typically focus on biophysical, techno-economic and/or socio-behavioural changes, and involve various dynamics, goals and participants across different scales. |
| **Place/places** | Urban or rural areas, ranging from neighbourhoods to towns and regions. Adaptation must address both the physical elements of a place (eg, homes, buildings, infrastructure and spaces around them) and the social elements (eg, the identity of people and communities, cultural value). |

| Key term | Definition |
|---|---|
| **Regenerative agriculture** | An approach to land management that recognises how all aspects of agriculture are connected through a network. This differs from a linear view of agriculture as a supply chain. The principles behind regenerative agriculture aim to restore soil and ecosystem health, address inequality and leave our land, waters and climate in better shape for future generations. |
| **Resilience/resilient** | The capacity of interconnected social, economic and ecological systems to cope with a hazardous event, trend or disturbance, by responding or reorganising in ways that maintain their essential function, identity and structure. Resilience is a positive attribute when it allows systems to maintain their capacity to adapt, learn and/or transform. |
| **Retrofitting** | The process of adding new technology or features to older systems, especially industrial installations and buildings. |
| **Risk** | The potential for adverse consequences for human or ecological systems, recognising the diversity of values and objectives associated with such systems. In the context of climate change, risks can arise from potential impacts of climate change as well as human responses to climate change. Adverse consequences may affect human lives, livelihoods, health and wellbeing; economic, social and cultural assets and investments; infrastructure; services (including ecosystem services); and ecosystems and species. |
| **Risk assessment** | The scientific estimation of risks, which may be either quantitative or qualitative. |
| **Risk management** | The process of making plans, actions, strategies or policies to reduce the likelihood and/or scale of potential adverse consequences, based on assessed or perceived risks. |
| **Sea-level rise** | Change to the height of sea levels over time, which may occur globally or locally. Causes may be:<br>• a change in ocean volume as a result of a change in the mass of water in the ocean (eg, due to melt of glaciers and ice sheets)<br>• changes in ocean volume as a result of changes in ocean water density (eg, expansion under warmer conditions)<br>• changes in the shape of the ocean basins and changes in Earth's gravitational and rotational fields<br>• local subsidence or uplift of the land. |
| **Storm surge** | The temporary increase, at a particular location, in the height of the sea due to extreme meteorological conditions (low atmospheric pressure and/or strong winds). It is the excess in height above the level expected from the tidal variation alone at that time and place. |
| **Stressor** | In the context of climate change, an event or trend, often not climate-related, that has an important effect on the system exposed and can increase vulnerability to climate-related risk. |
| **Sustainable/ sustainability** | Describes conditions where natural and human systems can persist. Ecosystems continuously function, biodiversity is high, natural resources are recycled and, in the human sector, people successfully apply justice and equity. |
| **Three waters** | Drinking water, wastewater and stormwater. |
| **Tipping point** | A critical threshold beyond which a system reorganises, often abruptly and/or irreversibly. |

| Key term | Definition |
|---|---|
| **Uncertainty** | A state of incomplete knowledge that can result from a lack of information or from disagreement about what is known or even knowable. It may occur for many reasons. For example, the data may be imprecise, definitions of concepts or terminology may be ambiguous, understanding of critical processes may be incomplete, or projections of human behaviour may be in doubt. |
| **Urban heat islands** | Heat islands are urbanised areas that experience higher temperatures than outlying areas. Structures such as buildings, roads and other infrastructure absorb and re-emit the sun's heat more than natural landscapes such as forests and water bodies. Urban areas, where these structures are highly concentrated and greenery is limited, become 'islands' of higher temperatures relative to outlying areas. |
| **Vulnerability/ vulnerable** | Being predisposed or more likely to be adversely affected. Elements that contribute to this concept include sensitivity or susceptibility to harm and lack of capacity to cope and adapt. |
| **Wellbeing** | The health, happiness and prosperity of an individual or group. It can cover material wellbeing (eg, income and wealth, jobs and earnings, and housing), health (eg, health status and work–life balance), security (eg, personal security and environmental quality), social relations (eg, social connection, subjective wellbeing, cultural identity and education) and freedom of choice and action (eg, civic engagement and governance). |
| **Whānau Ora** | Whānau Ora puts whānau and families in control of the services they need to work together, build on their strengths and achieve their aspirations. |
| **Wilding conifers** | Introduced conifers that are spreading across the landscape through natural regeneration. Also known as wilding pines. |
| **Zoonotic disease** | A disease that can be naturally transferable from vertebrate animals to humans. |

Note: This glossary is based on definitions used by the IPCC.

# List of acronyms and abbreviations

| Acronym | Full name |
|---|---|
| **AHL** | Animal Health Laboratory |
| **ANZBS** | Te Mana o te Taiao – Aotearoa New Zealand Biodiversity Strategy |
| **CCAAP** | Climate Change Adaptation Action Plan |
| **CERF** | Climate Emergency Response Fund |
| **DIA** | Department of Internal Affairs |
| **DOC** | Department of Conservation |
| **EQC** | Toka Tū Ake EQC |
| **FMA** | Financial Markets Authority |
| **FNZ** | Fisheries New Zealand |
| **GDP** | Gross domestic product |
| **HNAP** | Health National Adaptation Plan |
| **HUD** | Te Tūāpapa Kura Kāinga – Ministry of Housing and Urban Development |
| **IPCC** | Intergovernmental Panel on Climate Change |
| **IVL** | International Visitor Conservation and Tourism Levy |
| **LIM** | Toitū Te Whenua Land Information Memorandum |
| **MBIE** | Ministry of Business, Innovation and Employment |
| **MCH** | Ministry for Culture and Heritage |
| **MFAT** | Ministry of Foreign Affairs and Trade |
| **MfE** | Ministry for the Environment |
| **MOD** | Ministry of Defence |
| **MOE** | Ministry of Education |
| **MOH** | Manatū Hauora Ministry of Health |
| **MOT** | Te Manatū Waka Ministry of Transport |
| **MPI** | Ministry for Primary Industries |
| **MSD** | Ministry of Social Development |
| **NEMA** | National Emergency Management Agency |
| **NIWA** | National Institute of Water and Atmospheric Research |
| **NPS-IB** | National Policy Statement on Indigenous Biodiversity |
| **PHEL** | Plant Health Environment Laboratory |
| **RBNZ** | Reserve Bank of New Zealand |
| **TPK** | Te Puni Kōkiri – Ministry of Māori Development |
| **UNFCCC** | United Nations Framework Convention on Climate Change |
| **XRB** | External Reporting Board |

# Te reo Māori glossary

| Te reo Māori | English |
|---|---|
| **Ara whakamua** | The path forward. |
| **Hapori** | Community, section of a kinship group, family, society. |
| **Hapū** | Kinship group, clan, subtribe. |
| **Iwi** | Tribe, large group descended from a common ancestor. |
| **Kaitiaki or kaitiakitanga** | Guardian or guardianship, stewardship – for example, of natural resources. |
| **Karanga** | Formal call, ceremonial call, welcome call. |
| **Kaupapa Māori** | Māori approach, topic, customary practice, institution, agenda, principles, ideology – a philosophical doctrine incorporating the knowledge, skills, attitudes and values of Māori society. |
| **Kawa** | Ceremony, protocol. |
| **Kāwanatanga** | Government, dominion, rule, governorship. |
| **Kura** | School, education, learning gathering. |
| **Mahinga kai** | Places where traditional food and other natural resources are obtained. |
| **Mana** | Prestige, authority, control, power, influence, status, spiritual power, charisma. |
| **Mana motuhake** | Self-determination. |
| **Mana whenua** | Power from and/or authority over land or territory. |
| **Marae** | Courtyard – the open area in front of the wharenui (meeting house) where formal greetings and discussions take place. Often also used to include the complex of buildings around the marae. |
| **Marau ā-kura** | Ministry of Education term referring to a living, breathing curriculum. Marau ā-kura reflects the expectations and aspirations of the whānau, hapū and iwi. |
| **Mātauranga (Māori)** | Māori knowledge systems and worldviews, including traditional concepts. |
| **Mātauranga-a-iwi** | Knowledge with an iwi-specific base. |
| **Mauri** | Life principle, life force, vital essence, special nature, a material symbol of a life principle, source of emotions – the essential quality and vitality of a being or entity. Also used for a physical object, individual, ecosystem or social group in which this essence is located. |
| **Noa** | Free from tapu, ordinary, unrestricted. |
| **Papakaīnga** | Original home, home base, village, communal Māori land. |
| **Papatūānuku** | Earth, earth mother and wife of Ranginui – all living things originate from Papatūānuku and Ranginui in Māori mythology. |
| **Pou** | Support, supporter, stalwart, mentor, symbol of support, metaphoric post – a person, group, iwi, gathering or object that strongly supports a cause or is a territorial symbol (such as a mountain or landmark) representing that support. |
| **Rangatiratanga** | Chieftainship, right to exercise authority, chiefly authority, ownership, leadership of a social group. |

| Te reo Māori | English |
|---|---|
| **Ranginui** | Atua (God)of the sky and husband of Papatūānuku – all living things originate from Papatūānuku and Ranginui in Māori mythology. |
| **Rongoā crops** | Medicinal plants. |
| **Tāne mahuta** | Atua (God) of the forests and birds and one of the children of Ranginui and Papatūānuku. |
| **Tangaroa** | Atua (God) of the sea and fish. One of the offspring of Ranginui and Papatūānuku. |
| **Tangata whenua** | The people of the land, local indigenous people. Māori are tangata whenua of the land on which they whakapapa back to. |
| **Taonga/taonga Māori** | Treasure, anything prized – applied to anything considered to be of value, including socially or culturally valuable objects, resources, phenomena, ideas and techniques. |
| **Tapu** | Sacred, prohibited, restricted, set apart. |
| **Te ao Māori** | The Māori world. |
| **Te Tiriti o Waitangi/Te Tiriti** | The Treaty of Waitangi. Note: While these terms are used interchangeably, the national adaptation plan acknowledges that the English version and te reo Māori translation are separate documents and differ in a number of respects. |
| **Tikanga** | Custom, practice, correct protocol – the customary system of values and practices that have developed over time and are deeply embedded in the social context. |
| **Urupā** | Burial ground. |
| **Wāhi tapu** | Sacred site – a place subject to long-term ritual restrictions on access or use, such as a burial ground, a battle site or a place where tapu objects were placed. |
| **Wānanga** | Conference, forum, seminar. |
| **Whaikōrero** | Oratory, formal speech-making. |
| **Whakapapa** | Genealogy, genealogical table, lineage, descent. |
| **Whakataukī** | Proverb, significant saying. |
| **Whānau** | Family, extended family, family connection. |
| **Whenua (Māori)** | Māori land. There are three types of whenua Māori: Māori freehold land, Māori customary land and general land owned by Māori. |

# Appendix 2: Climate risks addressed by this first plan

✸ The risk has disproportionate impacts on Māori.

✦ The risk is of particular significance to Māori.

10 most significant risks

| Natural (N) | Human (H) | Economy (E) | Built (B) | Governance (G) |
|---|---|---|---|---|
| N1 Risks to coastal ecosystems, including the intertidal zone, estuaries, dunes, coastal lakes and wetlands, due to ongoing sea-level rise and extreme weather events. | H1 Risks to social cohesion and community wellbeing from displacement of individuals, families and communities due to climate change impacts. ✸ | E1 Risks to governments from economic costs associated with lost productivity, disaster relief expenditure and unfunded contingent liabilities due to extreme events and ongoing, gradual changes. | B1 Risk to potable water supplies (availability and quality) due to changes in rainfall, temperature, drought, extreme weather events and ongoing sea-level rise. ✸ | G1 Risk of maladaptation across all domains due to the application of practices, processes and tools that do not account for uncertainty and change over long timeframes. |
| N2 Risks to indigenous ecosystems and species from the enhanced spread, survival and establishment of invasive species due to climate change. | H2 Risks of exacerbating existing inequities and creating new and additional inequities due to differential distribution of climate change impacts. ✸ | E2 Risks to the financial system from instability due to extreme weather events and ongoing, gradual changes. | B2 Risks to buildings due to extreme weather events, drought, increased fire weather and ongoing sea-level rise. ✸ | G2 Risks that climate change impacts across all domains will be exacerbated because current institutional arrangements are not fit for climate change adaptation. |
| N3 Risks to riverine ecosystems and species from alterations in the volume and variability of water flow, increased water temperatures and more dynamic morphology (ie, erosion and deposition) due to changes in rainfall and temperature. | H3 Risks to physical health from exposure to storm events, heatwaves, vector-borne and zoonotic diseases, water availability and resource quality and accessibility due to changes in temperature, rainfall and extreme weather events. | E3 Risks to land-based primary sector productivity and output due to changes in mean rainfall and temperature, seasonality, weather extremes and changes in the distribution of invasive species. | B3 Risks to landfills and contaminated sites due to extreme weather events and ongoing sea-level rise. | G3 Risks to governments and businesses from climate change-related litigation, due to inadequate or mistimed climate change adaptation. |

| Natural (N) | Human (H) | Economy (E) | Built (B) | Governance (G) |
|---|---|---|---|---|
| N4 Risks to wetland ecosystems and species, particularly in eastern and northern parts of Aotearoa, from reduced moisture status due to reduced rainfall. | H4 Risks of conflict, disruption and loss of trust in government from changing patterns in the value of assets and competition for access to scarce resources primarily due to extreme weather events and ongoing sea-level rise. ✸ | E4 Risks to tourism from changes to landscapes and ecosystems and impacts on lifeline infrastructure, due to extreme weather events and ongoing, gradual changes. | B4 Risk to wastewater and stormwater systems (and levels of service) due to extreme weather events and ongoing sea-level rise. ✸ | G4 Risk of a breach of Treaty obligations from a failure to engage adequately with, and protect, current and future generations of Māori from the impacts of climate change. ✦ |
| N5 Risks to migratory and/or coastal and river-bed nesting birds due to reduced ocean productivity, ongoing sea-level rise and altered river flows. | H5 Risks to Māori social, cultural, spiritual and economic wellbeing from loss and degradation of lands and waters, as well as cultural assets such as marae, due to ongoing sea-level rise, changes in rainfall and drought. ✦ | E5 Risks to fisheries from changes in the characteristics, productivity and spatial distribution of fish stocks due to changes in ocean temperature and acidification. | B5 Risks to ports and associated infrastructure due to extreme weather events and ongoing sea-level rise. | G5 Risks of delayed adaptation and maladaptation due to knowledge gaps resulting from under-investment in climate adaptation research and capacity building. |
| N6 Risks to lake ecosystems due to changes in temperature, lake water residence time and thermal stratification and mixing. | H6 Risks to Māori social, cultural, spiritual and economic wellbeing from loss of species and biodiversity due to greater climate variability and ongoing sea-level rise. ✦ | E6 Risks to the insurability of assets due to ongoing sea-level rise and extreme weather events. | B6 Risks to linear transport networks due to changes in temperature, extreme weather events and ongoing sea-level rise. ✸ | G6 Risks to the ability of the emergency management system to respond to an increasing frequency and scale of compounding and cascading climate change impacts in Aotearoa and the Pacific region. ✸ |
| N7 Risks to terrestrial, freshwater and marine ecosystems due to increased extreme weather events, drought and fire weather. | H7 Risks to mental health, identity, autonomy and sense of belonging and wellbeing from trauma due to ongoing sea-level rise, extreme weather events and drought. ✸ | E7 Risks to businesses and public organisations from supply chain and distribution network disruptions due to extreme weather events and ongoing, gradual changes. | B7 Risk to airports due to changes in temperature, wind, extreme weather events and ongoing sea-level rise. | G7 Risk that effective climate change adaptation policy will not be implemented and sustained due to a failure to secure sufficient parliamentary agreement. |

| Natural (N) | Human (H) | Economy (E) | Built (B) | Governance (G) |
|---|---|---|---|---|
| N8 Risks to oceanic ecosystem productivity and functioning due to changes in sea surface temperature, ocean mixing, nutrient availability, chemical composition and vertical particle flux. | H8 Risks to Māori and European cultural heritage sites due to ongoing sea-level rise, extreme weather events and increasing fire weather. ✦ | | B8 Risks to electricity infrastructure due to changes in temperature, rainfall, snow, extreme weather events, wind and increased fire weather. | G8 Risk to the ability of democratic institutions to follow due democratic decision-making processes under pressure from an increasing frequency and scale of compounding and cascading climate change impacts. ✸ |
| N9 Risks to sub-alpine ecosystems due to changes in temperature and a reduction in snow cover. | | | B9 Risks to telecommunications infrastructure (risk in addition to those identified in the National Climate Change Risk Assessment 2020). | |
| N10 Risks to carbonate-based, hard-shelled species from ocean acidification due to increased atmospheric concentrations of $CO_2$. | | | | |
| N11 Risks to the long-term composition and stability of indigenous forest ecosystems due to changes in temperature, rainfall, wind and drought. | | | | |

Source: National Climate Change Risk Assessment 2020



Ministry for the
Environment
Manatū Mō Te Taiao



Te Kāwanatanga o Aotearoa
New Zealand Government

# Developing land near rail

**We support the safe use and development of land next to our rail corridor. In most cases this does not affect the rail network.**

However, some activities can make it difficult to maintain the network and operate it safely, even if they are located some distance away.

Our KiwiRail Resource Management team works to protect existing and proposed railway corridors. If you are planning a development near the corridor or proposing one of the activities below, please contact us as soon as possible.

If your local council considers your proposal could affect KiwiRail's property or operations, you may need our written approval ('affected party approval').

**Contact the KiwiRail Resource Management team on 0800 801 070 and environment@kiwirail.co.nz**



06

## Activities we want to know about and why

These are some development proposals which may adversely affect our operations:

**Activities which could reduce safety around the railway tracks**

- Additional traffic movements that may affect traffic flow and safety at level crossings.
- Additional vehicle access or changes to an existing vehicle access which may alter safety risks. Please note, we don't generally support creating new level crossings.
- Visual distractions (e.g. advertising signs, lights) which may distract train drivers or make it hard for them to see signals.
- Landscaping and planting which may affect visibility for train or vehicle drivers
- Activities which may increase the risk of trespass on the railway tracks
- Activities which involve storing, using and disposing of hazardous substances and dangerous goods. Please note, we do not generally support locating hazardous substances and dangerous goods in the rail corridor.
- Buildings and structures that may require (restricted) access onto the corridor to maintain or limit sightlines at level crossings.

**Activities which could damage rail infrastructure, affecting our operations and reducing safety in the rail corridor**

06

- Excavations which may destabilise the rail embankment and structures or disrupt utility services
- Structures under the rail corridor (e.g. drainage pipes) or over watercourses near existing railway bridges or culverts
- Stormwater discharges and modified overland flow paths that may lead to flooding and scour the rail embankment and ballast (the gravel under the tracks)

**Activities which require high 'amenity' that could be inconsistent with our operations**

- Noise-sensitive activities (such as residential developments). Rail operations take place 24/7 and inevitably cause noise and vibration.

**Activities which could create nuisances**

- Activities that may increase the incidence of litter, pests and graffiti in the rail corridor.

## Information we need for Section 95E of the RMA (Affected Party) assessments

Please give us enough information to understand the effects your proposal may have on our infrastructure or operations. Using this development checklist will ensure you've covered everything and help us process your request quickly.

If any information is missing or inadequate, we will let you know. We will do our best to meet your timeframes for feedback.

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