August 2025

Te whakaiti mōrearea waipuke

Reducing flood risk in Hawke's Bay

Discussion document

HAWKE'S BAY
REGIONAL COUNCIL
TE KAUNIHERA Ā-ROHE O TE MATAU-A-MĀUI

About this document

This discussion document focuses on engineering solutions we could invest in to reduce flood risk – the Protect element of the ***PARA framework*** *on page 4.*

This means built features like spillways, drains, and seawalls that work together to increase resilience. These sorts of protections are funded by the ratepayers who benefit (directly and indirectly) and contribute to the need for such flood defences.

Table 1 gives examples of the types of flood infrastructure we focus on in this document. These assets buy us time, but longer term planned retreat may be the only option in some areas where assets like these are no longer cost-effective.

The infrastructure of this sort we already have is valued at $450 million. By 2027, there will be another $200+ million of flood protection assets built to keep communities in place following Cyclone Gabrielle. The ongoing cost to operate and maintain these assets is a big expense for ratepayers.

We know there is a lot more we could do to reduce flood risk across Hawke's Bay. But these things don't come cheap.

> *Deciding what to do, where, when, and who should pay are big difficult decisions that needs everyone to get involved in.*

Table 1

Flood infrastructure assets

Rivers

stopbanks, spillways, floodwalls, floodgates

Surface

drains, culverts, detention dams, pumps

Coastal

groynes, seawalls, revetments, beach renourishment

The purpose of this discussion document is to help you understand the size and scale of the challenge to reduce flood risk in Hawke's Bay, ahead of major decisions the Regional Council needs to make as part of its 2027 Long Term Plan.

This document is a conversation starter.

Contents

The big decisions ahead

We live in a flood prone region

We live in one of the most beautiful and bountiful regions of Aotearoa New Zealand. But the same things that make Hawke's Bay a great place to live, work, and play – our hills, rivers, fertile plains, and our coastline – make it prone to flood risk.

Flooding can be river, surface, or coastal. All three can happen at the same time, as we experienced in Cyclone Gabrielle in February 2023 with devastating impacts.

With climate change, the intensity and frequency of severe weather events will increase, and we know the levels of protection that we've had in the past won't be enough in the future.

This means there are choices we all need to make – protect, avoid, retreat, accommodate – and these will affect everyone, including our children and grandchildren and their children.

> *"Flooding is one of the biggest climate challenges we face here in Hawke's Bay."*

For explanations on what we mean by levels of protection including annual exceedance probabilities (AEP) click on the *Flood explainers at a glance* on our Extreme Weather Hub

Look out for links throughout this document to click on for more information.

Table 2

PARA framework

Protect

Staying in place and building defences, e.g. stopbanks and seawalls.

Avoid

Staying away from areas where the risk is too high, e.g. restricting or preventing development and making changes to existing land use.

Retreat

Purposely moving away from areas where the risk is too high e.g. red zoning, Category 3 areas, placing restrictions on land use, and relocating community assets.

Accommodate

Staying in place and making changes to building and infrastructure, to improve resilience.

How much will reducing flood risk cost?

Each district within Hawke's Bay has different flood risks and different options to reduce that risk now and over time, as risks increase with climate change.

Deciding how much additional flood protection we want beyond what we already have will, in the end come down to how much we are all prepared to pay.

To make it more affordable and make sure we're able to deliver the additional protection levels, we need to spread the work over 20-plus years. Budgeting and delivering this work is a long-term challenge. There is no quick fix.

Estimating how this work will affect Hawke's Bay Regional Council rates is equally challenging. The rating impact depends on how much we forecast to spend each year, how many ratepayers the cost can be spread across (the rating footprint), how much we can borrow (our debt headroom) and the interest rate, how much central government will contribute, having the skilled people to deliver the work, and most importantly how much ratepayers can afford.

To give you an idea of the size of the challenge, if all known engineering solutions were delivered today, they would roughly cost $600 million. If there was no central government contribution, the principal loan and interest repayments were spread over 20 years at a 5% interest rate, with maintenance at 1% of capital, the Regional Council would need to double the rates it currently collects from $50 million to $100 million. This means you would pay roughly double what you pay now[1].

[1] This includes the cumulative impact hitting the general rate that everyone pays for regardless of where you live and no other changes to Regional Council activities.

> *If all the known engineering solutions were delivered today, you would pay roughly double the rates you pay now.*

Deciding which engineering solutions to invest in, alongside other nature-based solutions, to reduce river, surface, and coastal flood risk is the job that needs to be done between now and the next Long Term Plan in June 2027.

These big gnarly questions - what, where, when, and who should pay - need to be worked through in detail with the people and communities most affected, and then with all regional ratepayers.

There's a lot of work to do to give our community real choices that balance reducing flood risk with affordability.

Our role - we cannot do it alone

Hawke's Bay Regional Council plays an important role in helping communities feel safer and more resilient to river, surface, and coastal flooding.

We own and are responsible for:

- **27 flood control, drainage, and river maintenance schemes including river mouth openings**
- **some urban waterway assets that contribute to stormwater networks**
- **beach renourishment to respond to coastal erosion**

We also have a Memorandum of Transition with Napier City and Hastings District Councils to transfer management of existing, and build and manage future, infrastructure assets to respond to coastal hazard risks between Clifton to Tangoio. This is subject to consultation on a Long Term Plan amendment to take on this significant new activity.

We are also working on a range of flood resilience projects at different locations and at different project phases.

More information on each of these is available at our **CommunityConversationsHub**

However, we don't do it alone. As the Regional Council we don't have all the answers and communities need to be fully involved in decision-making about their future.

The recommendations of the **Hawke's Bay Independent Flood Review** and the **Review of the Management of the Wairoa River Bar** make it clear that we should make more and better use of local knowledge in the development and implementation of flood risk solutions. We are committed to doing that.

Everyone has a part to play in reducing flood risk

We know that engineering solutions like stopbanks and seawalls can make things safer, but they do not make it 100% safe.

There will always be residual risk. Everyone has a role to play to understand that risk and make decisions in that knowledge.

House hunters, property owners, and business operators can check whether their property is in a high-risk flood area via the **Hawke's Bay Hazard Portal**

Whānau and communities should have a plan and be prepared to manage on their own for a minimum of three days in a large-scale event.

Developers and councils have a role in avoiding and accommodating areas of high risk. Continuing to build in areas that need flood protection is not sustainable. Avoiding these areas is a crucial way to prevent people and property from being exposed to flooding.

Infrastructure owners like KiwiRail, and Waka Kotahi NZ Transport Agency should design and build infrastructure that works hand in hand with other flood resilience infrastructure. As a region, we need to do our best to influence the priorities and timelines of these infrastructure owners.

Banks and insurance companies are working alongside central and local government to promote proactive flood risk reduction and avoidance of development in high-risk areas. Over time, their ability or willingness to provide lending or insurance cover for houses and assets exposed to high levels of flood risk will change. This could influence how much it costs to insure your property, home or business, or whether you can take out a mortgage or insurance cover.

Connection to other Regional Council work

We have other actions we can take to reduce flood risk and build resilience. We take a 'mountains to sea' approach to reduce the destructive impact of flooding through ongoing work to:

Slow the flow – through nature-based solutions to reduce flood peaks, such as wetland and forest/understory restoration and creation, hill county erosion control, good land management practices, and making room for rivers.

Keep development away from hazard-prone land – through spatial planning and land-use planning rules. This means restricting development of housing and other vulnerable land-use developments.

Share information - through telemetry and trigger warnings, flood modelling and forecasting, and the hazard portal we help others make decisions and take action.

These programmes work separately and together to help reduce risk. Options for further investment in these work programmes is not discussed in this paper but needs to be considered in terms of best value for ratepayer money and the Regional Council's ability to deliver.

Part 2

Regional view

This section describes how river, surface, and coastal flood risks manifest in Hawke's Bay and the infrastructure assets that the Hawke's Bay Regional Council manages to reduce flood risk.

Types of flooding

River flooding *or* **fluvial flooding** ***happens when a river or stream overflows its banks and floods land that is normally dry.***

The power and speed of river flooding can vary from gentle to extremely dangerous.

Most of the major rivers in Hawke's Bay have catchments in the foothills of the ranges. This means the rivers and their tributaries respond rapidly to rainfall and can quickly lead to flood flows usually during rainfall with an easterly or northeasterly component. It may only take a few hours for flooding to reach populated areas of the region, including Wairoa, Havelock North, Hastings and Napier, communities on the Heretaunga Plains, and Waipawa, Waipukurau and Pōrangahau in the south.

Lowland streams are mostly spring-fed, single channel, and slow flowing. Flooding in and around these streams usually occurs during long rainfall. Flooding often results from high water levels in these streams preventing the adjacent low-lying land from draining, rather than from direct breakouts or overflows. Some streams in our region, particularly in Wairoa can be more flashy. Lowland streams include the Karamū in Hastings, Taipo in Napier which have been extensively modified for drainage purposes as part of the wider Heretaunga Plains scheme. The beds of lowland streams are often made up of fine gravel or sand/silt. This provides ideal growing conditions for aquatic plants that need ongoing maintenance to maintain capacity.

Surface *or* **pluvial flooding** ***can happen almost anywhere and often happens quickly.***

During heavy rainfall, water can collect in low areas, old flood flow channels, or where obstacles like raised roads, hedges, or irrigation features prevent water from moving downhill.

While surface flooding doesn't originate from rivers, it will worsen the effects of river flooding in major rainfall events. High river levels can also make surface flooding worse by preventing water from draining away.

Surface flooding in urban areas is often referred to as stormwater flooding. Stormwater flooding happens when the increased runoff from sealed surfaces like roads and driveways is greater than the capacity of stormwater systems to carry it away, or if they are not working properly because of blockages or pump failures.

Coastal storm surge *or* **seawater flooding** ***is most likely when high tides and large waves happen at the same time, causing the sea to drive up and over the natural beach crest or coastal barrier.***

At river mouths, these forces can cause rivers to back up, increasing river flooding further inland. Here in Hawke's Bay, parts of our coastline are vulnerable to coastal flooding which can threaten coastal communities, endanger livestock, and cause long-term damage to productive land.

Coastal erosion due to slow land subsidence and rising sea levels can remove or reduce beach crests, increasing the seawater flood risk. The compounding risk of coastal erosion and storm surge is increasing due to climate change as sea levels rise and storms are expected to be more frequent and more intense.

Our schemes

We administer three types of schemes, each providing different levels of service.

1.

Flood schemes ***use stopbanks, deflection banks, groynes (low walls or barriers built out into the sea from waterways), and erosion protection to manage river flows.***

In the past, flood schemes have been designed to deal with flooding that has a 1% chance of happening in any given year (1% AEP[3]) and convey it safely to the sea. Some areas, including Taradale and Ngatarawa have been upgraded to be 0.2% AEP (1 in 500 year likelihood). The Taradale stopbank upgrade, completed in 2022 at a cost of around $4 million, saved an estimated 10,000 properties from flooding during Cyclone Gabrielle.

2.

Drainage schemes ***use stopbanks, drains, detention dams, pump stations, control gates, and floodgates to manage floodwater and support land development.***

A drainage asset typically has a design standard to drain 32 mm of runoff in 24-hours from rural areas and 50mm of runoff in urban areas. This is a 1 in 5 year likelihood or 20% AEP.

3.

River and stream maintenance schemes ***focus on clearing blockages, minor erosion control and river mouth management.***

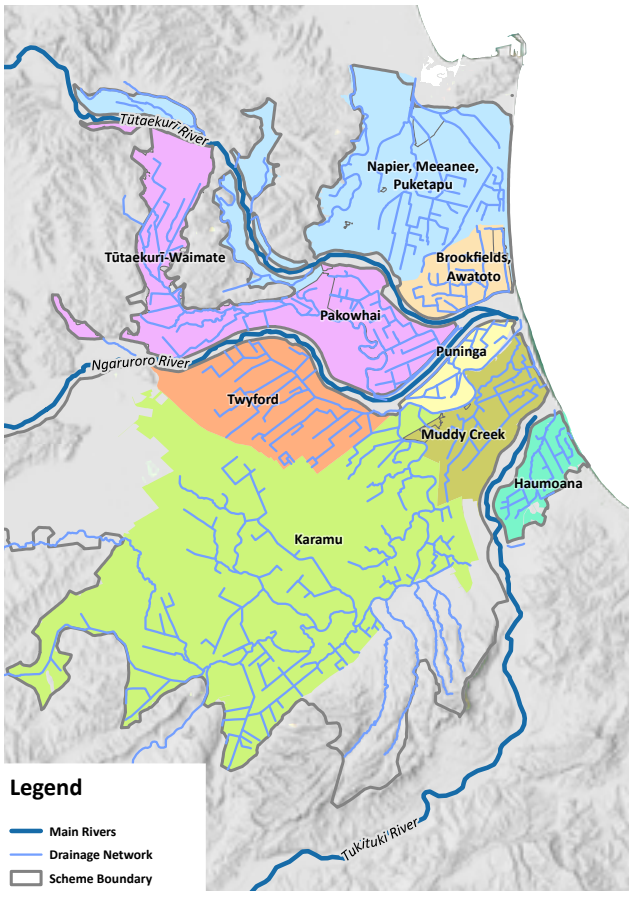
River mouths are a complex interaction between river flow, tidal conditions, and outlet geometry, meaning they need to be proactively managed.

All these schemes have progressively evolved and improved over many decades of works by the Regional Council and its predecessors – the Local River Boards in the late 1800s, through to the Hawke's Bay River Board, the Hawke's Bay Catchment Board and since 1989, the Hawke's Bay Regional Council. Over the years, improvements have been made after significant flooding events and catchment and asset reviews.

[3] Annual Exceedance Probability (AEP) expresses the likelihood of a flood of a given size or larger occurring in any given year. AEP is expressed as a percentage (%). If a flood has an AEP of 1%, it has a one in 100 likelihood of occurring in any given year.

Flood protection	Drainage	Rivers and stream maintenance
Heretaunga Plains	Brookfields/Awatoto	Central and Southern
Maraetotara	Clive and Muddy Creek	Esk
Upper Makara	Haumoana and Te Awanga	Kairakau
Upper Tukituki	Karamū Drainage and Tributaries	Kopuawhara
	Karamū Enhancement	Pōrangahau
	Napier, Meeanee, Puketapu	Te Ngarue
	Ohuia Whakakī	Wairoa
	Opoho	Whirinaki
	Paeroa	
	Pākōwhai	
	Poukawa	
	Puninga	
	Raupare and Twyford	
	Raupare Enhancement	
	Tūtaekurī, Waimate, Moteo	

Heretaunga Plains Drainage catchments



What do schemes cost and how are they paid for?

Combined the annual operating cost for these schemes in 2024-25 was $16.8 million.

Each scheme has a different cost structure and budget. There are some costs that are common like insurance or pump station running costs, but each scheme has its own operating budget which is approved in the Council's Long Term Plan after public consultation.

Schemes are paid for through a combination of targeted and general rates. The amount of rates paid each year varies depending on factors such as whether any reserve funding collected from targeted rates is available.

Between now and mid-2027, Regional Council is reviewing its flood, drainage and maintenance schemes. The recommendations from these reviews will be considered as part of the 2027 Long Term Plan.

Major flood scheme reviews – *The Reimagining Project*

We are underway reviewing our two major flood schemes – Heretaunga Plains and Upper Tukituki

These two major schemes are the focus for the Reimagining Flood Resilience project.

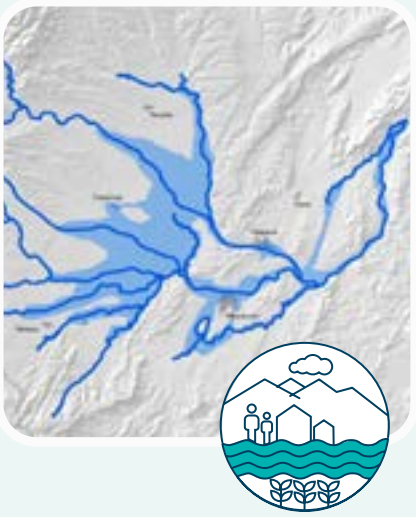
Both the Heretaunga Plains and Upper Tukituki Flood Schemes are currently designed to provide protection from a 1 in 100-year flood event or an event that has a 1% chance of occurring in any given year (except for Taradale where the stopbank was raised to provide a 1 in 500-year level of service in late 2022). But how should these schemes look and perform in future?

Through the Reimagining project, HBRC wishes to explore what the future of Heretaunga Plains and Upper Tukituki Flood Schemes could look like, including:

1. What do we want flood resilience schemes to deliver for our communities now and into the future?
2. How do we balance management of risks from flooding with affordability?
3. Some storm events will be too big for the schemes – how do we actively manage flood waters that overtop stopbanks?
4. How should flood resilience reflect Mātauranga Māori?
5. How can engineering solutions work alongside nature to provide improved flood resilience?
6. How much are communities willing to pay to increase their resilience to flooding, and how should this be paid for?

The Heretaunga Plains Flood Control Scheme is the largest in the Hawke's Bay Region, providing a level of flood protection for 80% of the population of Hawke's Bay.

The Upper Tukituki Scheme is smaller scale, protecting 4% of Hawke's Bay's population, but has a significant role in managing flood risk for a large rural area and the townships of Waipawa, Waipukurau, and Ōtāne.



Through exploring these questions with our partners and communities, decisions can be made about the future of these schemes and where and how funding can be applied to make changes and improvements.

Some outcomes may be short term, such as making improvements to existing stopbanks or gravel extraction practices. Others may be intergenerational, such as land-use change or moving existing stopbanks to create "room for the river".

Post-cyclone flood protection improvements

Since Cyclone Gabrielle, we have focused on repairs and reducing risk to life.

Together, insurance and a $250 million cost-share agreement with the Crown have enabled us to rapidly repair and upgrade our existing flood and drainage schemes and telemetry and to build new flood defences in Category 2 areas so that communities can remain where they are.

These include:

Ōhiti Road | Ōmāhu – Building a 960m stopbank along Taihape Road and adding another to protect nearby subdivisions.

Pākōwhai – Strengthening the existing stopbank and adding a new 8.5km one along the Tūtaekurī-Waimate Stream.

Pōrangahau – Creating a 1.7km flood protection network including a new stopbank and protective ridge for Kaiwhitikitiki Urupā.

Waiohiki – Realigning the stream and constructing a 1,035m stopbank.

Wairoa – Delivering major infrastructure including strategic stopbanks and a large spillway to divert Wairoa River floodwaters.

Whirinaki – Building residential and industrial stopbanks plus improved drainage.

Havelock North (delivered by Hastings District Council) - Restoring stream banks, retaining walls, weirs and other assets damaged in Cyclone Gabrielle.

Together, the planned works will lift the overall standard of flood protection for these communities. The risk of flooding can't be eliminated altogether – no system can do that – but these extra defences will buy critical time in a severe event, helping people get out safely and reducing the risk to homes, livelihoods and lives.

> *"The risk of flooding can't be eliminated altogether – no system can do that – but these extra protections will buy critical time in a severe event, helping people get out safely and reducing the risk to homes, livelihoods and lives."*

It's important to understand there are no guarantees of any similar cost-share arrangements with the Crown following flooding events in the future.

Implementing independent review recommendations

The Regional Council is taking action on recommendations from four independent reviews, three related to Cyclone Gabrielle in 2023 and one on the June 2024 Wairoa flood event.

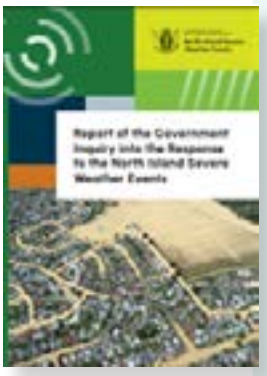
- Hawke's Bay Independent Flood Review - Pae Matawai Parawhenua
- Government Inquiry into the Response to the North Island Severe Weather Events
- HBCDEM Response to Cyclone Gabrielle
- Review of the Management of the Wairoa River Bar

We have made strong progress, with

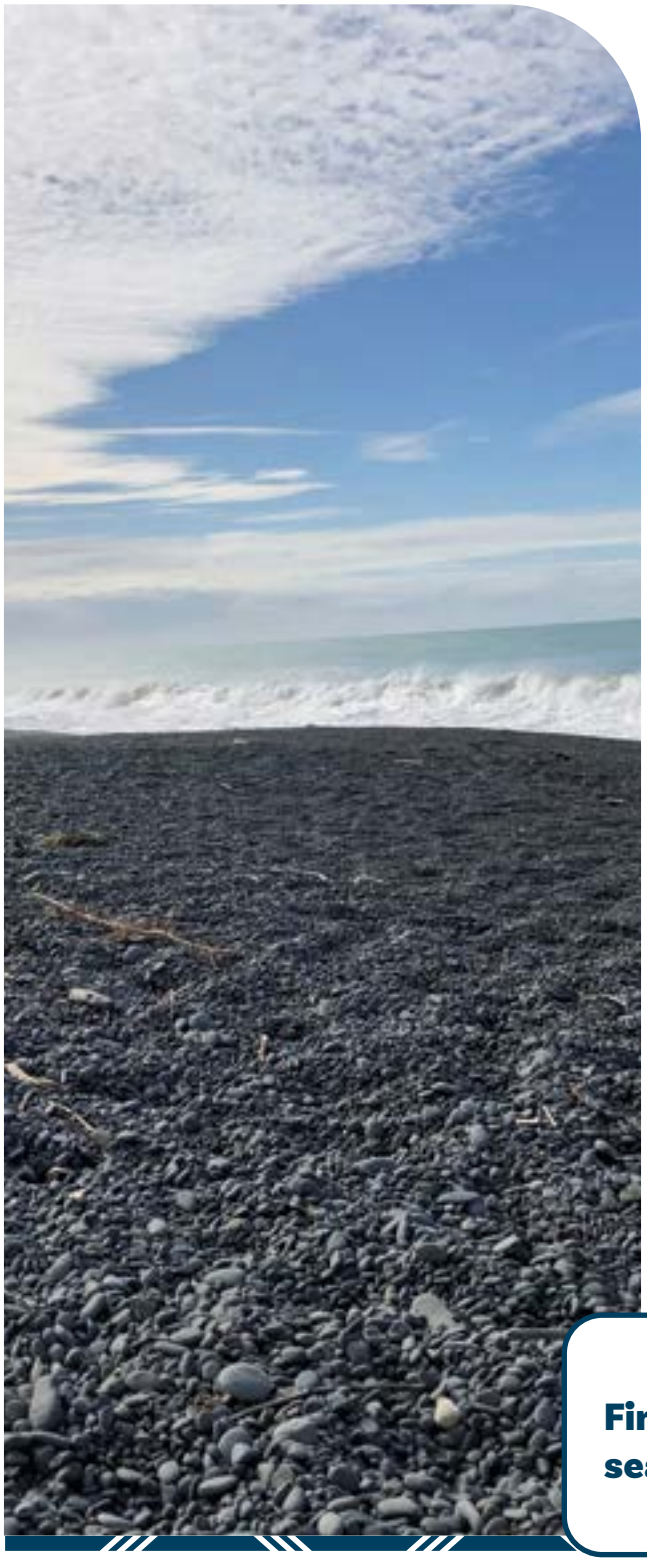
46 of 52

recommendations progressed (5 complete and 41 underway).

New funding of $1.7 million was allocated in the 2025-26 Annual Plan for priority work arising from the review recommendations. Already, people are making good use of the newly developed Extreme weather hub one initiative to come out of the recommendations. The hub provides regularly updated webcam images of local river mouths, rainfall and river data maps, giving communities the tools to make fast decisions for themselves in emergency situations. We're also working with communities to refine trigger levels for alerts if rivers rise, making it easier for people to know when to act.



Coastal hazard mitigations



Across the region there are examples of coastal hazard mitigations (e.g. groynes, rock revetment walls, a sea exclusion stopbank and beach renourishment) to reduce risk to private property and public assets in low-lying coastal locations.

In a first for Hawke's Bay, we have worked collaboratively with Napier City and Hastings District Councils and tangata whenua to develop the ***Clifton to Tangoio Coastal Hazards Strategy 2120*** to develop a common understanding of the risks along this stretch of coastline and to respond to community concern about the effects of coastal hazards in a more coordinated and forward-looking way. The Coastal Hazards Strategy's dynamic adaptative pathway approach is seen as a potential model for the rest of Hawke's Bay.

Find out more at hbrc.govt.nz search: #communityconversations

Pathway	Short Term (0-20 years)	→	Medium Term (20-50 years)	→	Long Term (50-100 years)
UNIT E1: AHURIRI PATHWAY 6	Status quo	→	Sea wall	→	Sea wall
UNIT E2: PANDORA PATHWAY 3	Status quo	→	Storm surge barrier	→	Storm surge barrier
UNIT D: WESTSHORE PATHWAY 3	Renourishment	→	Renourishment + Control Structures	→	Renourishment + Control Structures
UNIT C: BAY VIEW PATHWAY 3	Status Quo / Renourishment	→	Renourishment + Control Structures	→	Renourishment + Control Structures
UNIT B: WHIRINAKI PATHWAY 4	Status Quo / Renourishment	→	Renourishment + Control Structures	→	Sea wall
UNIT L: CLIFTON PATHWAY 5	Status quo	→	Sea wall	→	Managed Retreat
UNIT K2: TE AWANGA PATHWAY 3	Renourishment Groynes	→	Renourishment + Groynes	→	Renourishment + Groynes
UNIT K1: HAUMOANA PATHWAY 2	Renourishment + Groynes	→	Renourishment + Groynes	→	Managed Retreat
UNIT J: CLIVE/EAST CLIVE PATHWAY 1	Status Quo	→	Renourishment + Groynes	→	Retreat the Line/ Managed Retreat

The Coastal Hazards Strategy identifies nine units (areas of coastline) from Clifton to Tangoio and proposes long term adaptive pathways for each. Over time, the Strategy will be extended to other areas.

In the short to medium term, the Coastal Hazards Strategy's recommended pathways generally involve beach renourishment and/or the construction of coastal structures to reduce erosion and increase the beach crest to reduce inundation. These approaches "buy time" ahead of a longer-term planned retreat in some locations.

The total cost of the works to implement the Coastal Hazards Strategy is likely to be large, with high-level independent estimates putting the figure at $130 - $285 million over the Strategy's 100-year timeframe. In contrast, if nothing is done, the cost of planned retreat has been estimated at $2 billion.

Currently no funding is included in any council's long-term plan for implementing the Strategy.

Four of the nine units – Westshore, Bayview, Te Awanga, and Haumoana - have proposed actions in the short term and the trigger points for the proposed actions have been reached. The Regional Council is currently engaging with these communities on the desirability of the recommended responses and their affordability. This will help the Regional Council decide how much should be collected from general rates compared with targeted rates.

Part 3

District view

This section provides an overview of the unique flooding risks and mitigations for each district in Hawke's Bay. It is a stocktake of what we know at this time from reports, policies, plans, procedures, MOUs and contractual arrangements. It can be updated as new information comes to hand and conversations with communities' progress.

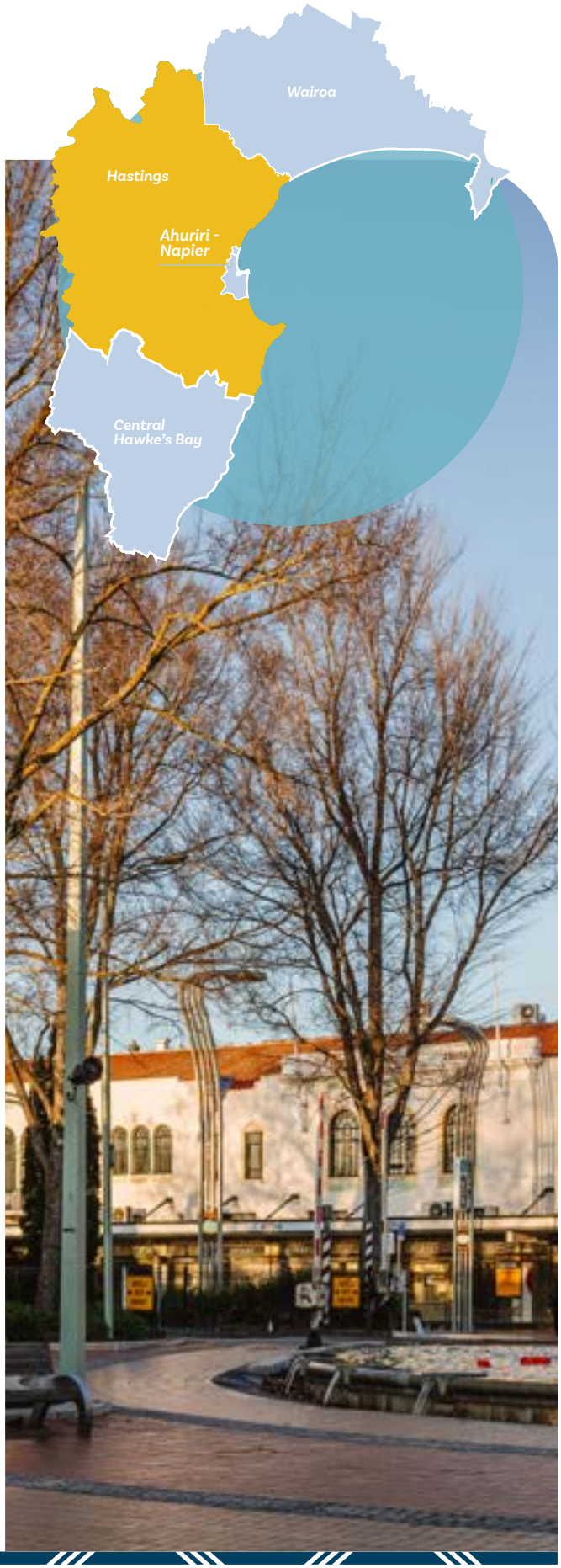
For each district, a table shows what we know now and what is already being done to manage flood risks (current state) and the plans or options for further reducing flood risk in the future (boosting flood resilience).

Hastings

With a population of 85,965 (2023) Hastings District covers 5,229km² and serves as a crucial agricultural and economic centre for the region. The district has a diverse landscape, with a mix of urban and rural areas with significant stretches of eastern coastline. The Tūtaekurī, Ngaruroro and Karamū rivers meet the sea at the Waitangi estuary. This is a hotspot of infrastructure with rail and state highway bridges crossing the rivers as they reach the estuary.

Key findings from the 2025 Climate Change Risk Assessment include amongst other things:

- River and rainfall flooding risk is the most severe hazard for the Hastings District, with 39% of commercial properties and 11% of residential properties exposed and 48% of the population at risk of isolation in a present day 2% AEP event.
- Significant vulnerability of three waters[4] infrastructure, with the major East Clive wastewater treatment plant, 19-31% of stormwater infrastructure, and 13-16% of wastewater infrastructure directly exposed to more than 10cm of river and rainfall flooding in a present day 2% AEP event.
- Coastal flooding exposure is increasing with climate change, affecting 4% of residential properties by 2130 under a high emissions scenario (SSP5-8.5).



[4]Drinking, storm and waste water

Hastings

Current state

Heretaunga Plains Flood Control Scheme (Hastings and Napier)

The Heretaunga Plains Flood Control Scheme (HPFCS) covers the low-lying river plains of the Tūtaekurī, Ngaruroro and lower Tukituki Rivers.

Most of the HPFCS is designed to convey flood waters up to 1% AEP. Some densely populated areas, including an upgrade to the Ngatarawa stopbank, have been or a planned to be upgraded to 0.2% AEP.

The total annual operating cost for the HPFCS was $5.5 million ex GST in 2024-25. HPFCS ratepayers pay 70% of this cost with the balance funded via the general rate and reserves.

More information is available in the Heretaunga Plains Flood Control and Drainage Asset Management Plan.

In addition to the HPFCS a small number of Hastings ratepayers are within the footprint of the Upper Tukituki Flood Control Scheme.

Post-Cyclone flood mitigation projects

There are five significant infrastructure projects in Hastings District, so that communities severely impacted by Cyclone Gabrielle can remain where they are. As part of the region's cost-share agreement, the Crown is paying 75% of the work and ratepayers will pay 25%.

- Ōhiti Road, Ōmāhu $10m
- Pākōwhai $50m
- Whirinaki $23.05m
- Waiohiki $9.42m
- Havelock North $10m (delivered by HDC)

Esk - Tangoio

Following Cyclone Gabrielle, the government introduced a land categorisation framework to assess flood risk across the region. The Esk and Tangoio areas were classified as Category 3 because they are considered to have an unacceptable risk to life that could not be mitigated through community scale infrastructure.

Boosting flood resilience

Major Scheme Review - The Reimagining Project

Through this project the Regional Council is reviewing the long-term approach to the Heretaunga Plains Flood Control Scheme as well as the Upper Tukituki Scheme. This will involve healthy discussion with communities about the balance between protection levels and affordability, and residual risk[5]. Principles guiding the project include:

- **Making room for rivers and revised scheme design**– Designing new secondary systems like spillways and storage areas to minimise community impact during extreme floods[6].
- **Collaborating with the community** – Working with mana whenua, local residents and business to come up with flood risk solutions.
- **Using local knowledge** – Integrating what locals know into flood management planning.

The project has five phases:

Phase 1: Project design (Sept-June 2025)

Phase 2: Stakeholder Reference Groups (July-Dec 2025)

Phase 3: Community socialisation (Jan-June 2026

Phase 4: Recommendations, consultation and decision making as part of the 2027 Long Term Plan (June 2026-June 2027)

Phase 5: Implementation (July 2027+)

Together with the other work funded as part of the cost-share agreement such as more resilient telemetry, these works will lift the overall flood resilience for these communities. The risk of flooding can't be eliminated altogether – no system can do that – but these improvements will buy critical time in a severe event, helping people get out safely and reducing the risk to homes, livelihoods and lives.

The Category 3 Voluntary Buy-out Programme was managed by Hastings District Council. A key element of the programme is that land in Category 3 areas cannot be used by current or future owners for residential activities.

[5]The risk that will always remain even after taking steps to reduce or eliminate it have been made.

[6] These are called "Over-design events", Cyclone Gabrielle was an over-design event.

Hastings

Current state

Small Schemes

There are several smaller flood, drainage and maintenance schemes in Hastings District.

- Maraetotara flood maintenance
- Whirinaki drainage
- Esk River maintenance
- Clive / Muddy Creek drainage
- Haumoana drainage
- Karamū drainage & enhancement
- Puketapu drainage
- Pākōwhai drainage
- Poukawa drainage
- Puninga drainage
- Raupare Twyford drainage and enhancement
- Tūtaekuri Waimate Moteo drainage
- Te Ngarue Stream maintenance

The annual cost to operate these schemes varies depending on a number of factors, but in 2024-25, the total combined Regional Council operating cost for these schemes was $3.4 million.

A small number of Hastings ratepayers are also within the footprints of :

- Napier/Meeanee/Puketapu drainage scheme
- Makara flood protection scheme.

The Regional Council has an Environmental Code of Practice that provides clear standards of practice for river control and drainage works.

Coastal Hazards

Coastal erosion has been a problem for a long time in Hastings District. Over many decades, communities have proposed and sometimes implemented their own 'protective structures' for stretches of the coastline, particularly along the Cape Coast. There are existing structures protecting properties and community assets at Haumoana, Clifton, and Waimārama.

HBRC has a Memorandum of Transition with Hastings District and Napier City Councils to transfer management of existing assets, and build and manage future infrastructure assets to respond to coastal hazard risks related to the ***Clifton to Tangoio Coastal Hazards Strategy 2120.***

Boosting flood resilience

Small scheme reviews

Regional Council is reviewing all small schemes with the aim to assess how well these schemes are functioning in discussion with local landowners, review the funding for each scheme and decide their future. Key questions include:

- Do they work as intended?
- Will they work in the future?
- What are the alternatives?
- What could the costs be to scheme ratepayers?

Outcomes of the reviews will be considered as part of the 2027 Long Term Plan.

Haumoana and Te Awanga are two of four coastal areas in the *Clifton to Tangoio Coastal Hazards Strategy 2120* that have recommended action in the short term (0-20 years). There are two design variants for Te Awanga and Haumoana in the Coastal Strategy. Option A is a 20m extension of the Tukituki groyne. Option B is 4 new groynes and a 10m Tukituki groyne extension. When originally costed, these options were estimated as set out in the tables below, but current day estimates could be much higher.

The capital costs are estimated at:

	Option A	Option B
Te Awanga	$6.2m	$22.8m
Haumoana	$5.1m	$11.4m

The annual operating costs are estimated at:

	Option A	Option B
Te Awanga	$2.3m	$3.0m
Haumoana	$1.3m	$1.5m

The Regional Council is currently discussing the affordability of the options with the Haumoana and Te Awanga communities including how much should be paid for by general rates and through targeted rates for properties identified as beneficiaries of works. Also being discussed is the option to reduce cost by focusing on reducing erosion only.

Napier

Napier City is the most urbanised land area within the Hawke's Bay region, covering 105km^2 with a population of 64,695 (2023).

The city faces river, surface, and coastal flooding risks given its location and topography. Much of Napier has been built on land that was uplifted during the 1931 earthquake or has been reclaimed since that time.

Nearly 8,000 homes are less than 150 centimetres above the spring high tide mark, and a considerable area of the city, including the airport, is less than 50 centimetres above the spring high tide mark. Coastal erosion and inundation are significant natural hazards.

The water table around Napier is often close to the surface, meaning the city is vulnerable to any rise in groundwater, which compounds risks posed by the highly liquefiable soils found under much of Napier's low-lying suburbs. The high-water table and flat topography make it difficult to move stormwater from the city to the sea to prevent localised surface flooding of properties and businesses.

Flooding can come from:

- Overspill from the Tūtaekurī River including issues associated with the combined Ngaruroro-Tūtaekurī-Karamu river mouth
- Overspill of tributaries, such as the Taipo stream in the Ahuriri catchment
- Localised ponding in low-lying land behind the rivers and in rural areas where roadside drainage and waterways have less capacity and is the last to drain
- Surface flooding from heavy rain overwhelming urban stormwater networks; 75% of stormwater is pumped from below sea level
- Coastal inundation or storm surge on the coast overtopping the beach crest or Ahuriri Inlet stopbanks, made worse by coastal erosion including from sea level rise.

Surface flooding in Napier suburb

Napier flood event

On 9 November 2020, intense rainfall fell in Napier city resulting in several suburbs flooded or affected by landslides. Several homes were damaged beyond repair. This event classified as a 1 in 120-year event exceeded the design capacity of the city's drainage network (stormwater, overland flow paths, and pumped open waterway network). The worst affected areas were Napier South, Maraenui and Pirimai.

Key findings from the 2025 Climate Change Risk Assessment include amongst other things:

- Coastal flooding is a significant and increasing risk - with approximately 71% of residential buildings, 66% of commercial properties and 86% of industrial buildings exposed in a 1% AEP event with 1m of sea-level rise.
- River and rainfall flooding also poses a significant risk to the built environment including lifeline infrastructure, residential properties, commercial properties and industrial buildings (including the regionally important Hawke's Bay Airport and Napier Port).
- Three waters infrastructure is significantly vulnerable to all types of flooding, particularly water supply in a 1% AEP river and rainfall flood event in 2100.
- High risk of business isolation during river, rainfall, and coastal flooding, with the potential for significant disruption to Napier's economy, even in areas not directly flooded.

Napier

Current state

Heretaunga Plains Flood Control Scheme (Napier and Hastings)

The Heretaunga Plains Flood Control Scheme (HPFCS) covers the low-lying river plains of the Tutaekuri, Ngaruroro and lower Tukituki Rivers.

Most of the HPFCS is designed to convey flood waters up to 1% AEP. In some densely populated areas, including an upgrade to the Taradale stopbank, the design has been upgraded to be 0.2% AEP.

The total annual operating cost for the HPFCS was $5.5 million ex GST in 2024-25. Scheme ratepayers pay 70% of this cost with the balance funded via the general rate and reserves.

More information is available in the Heretaunga Plains Flood Control and Drainage Asset Management Plan.

Awatoto industrial

A Memorandum of Understanding (MoU) between the Awatoto Industrial Action Group (AIAG), Hawke's Bay Regional Council, and Napier City Council focuses on enhancing flood resilience for the Awatoto industrial area. This collaboration was formalised on October 4, 2024, in response to the significant flooding caused by Cyclone Gabrielle, which inundated the area with up to 2 meters of water and disrupted critical infrastructure, including Napier's wastewater treatment plant.

Boosting flood resilience

Major Scheme Review - The Reimagining Project

Through this project the Regional Council is reviewing the long-term approach to the Heretaunga Plains Flood Control Scheme as well as the Upper Tukituki Scheme. This will involve healthy discussion with communities about the balance between protection levels and affordability, and residual risk[7]. Principles guiding the project include:

- **Making room for rivers and revised scheme design**– Designing new secondary systems like spillways and storage areas to minimise community impact during extreme floods[8].
- **Collaborating with the community** – Working with mana whenua, local residents and business to come up with flood risk solutions.
- **Using local knowledge** – Integrating what locals know into flood management planning.

The project has five phases:

Phase 1: Project design (Sept-June 2025)

Phase 2: Stakeholder Reference Groups (July-Dec 2025)

Phase 3: Community socialisation (Jan-June 2026

Phase 4: Recommendations, consultation and decision making as part of the 2027 Long Term Plan (June 2026-June 2027)

Phase 5: Implementation (July 2027+)

[7]The risk that will always remain even after taking steps to reduce or eliminate it have been made.

[8] These are called "Over-design events", Cyclone Gabrielle was an over-design event.

Napier

Current state

Small Schemes

There are two smaller flood, drainage and rivers/stream maintenance schemes in Napier.

Brookfields Awatoto Drainage Scheme

The total annual operating cost for the scheme was $250,000 ex GST in 2024-25.

Napier ratepayers within the scheme area pay around 90% of this cost with the balance funded from the general rate and reserves.

$30 million of Cyclone Gabrielle cost-share funding is earmarked for the replacement and improved capacity of two pumpstations in the Brookfields Awatoto scheme.

Napier/Meeanee/Puketapu Drainage Scheme

The total annual operating cost for the scheme was $1.7m ex GST in 2024-25. Napier ratepayers within the scheme area currently pay around $1.5 million and Hastings ratepayers $36,000. The balance is funded from, the general rate, loan and reserves.

Coastal Hazards

Napier ratepayers currently pay $400k for beach renourishment at Westshore (with a 50/50 split between NCC and HBRC) to manage erosion at Westshore to the 1986 line.

HBRC has a Memorandum of Transition with Hastings District and Napier City Councils to transfer management of existing assets, and build and manage future infrastructure assets to respond to coastal hazard risks related to the Clifton to Tangoio Coastal Hazards Strategy 2120.

Boosting flood resilience

Recent reviews of these drainage schemes identify significant costs to increase the level of protection to be more suited to an urban environment.

A 1 in 100-year level of protection for existing HBRC and NCC assets is estimated at $200 million (under at 8.5 climate scenario to 2050). Of that $50 million would be investment by HBRC under the current legacy arrangement of dual management and ownership.

The Regional Council and Napier City Council are working together to transfer sole responsibility for the Napier Urban Waterway Stormwater Network to Napier City Council. The proposed transfer of HBRC assets to NCC would be based on geographic location. The proposal would see NCC take on the management of HBRC's urban waterway assets from 1 July 2026, an extension of an existing contractual arrangement, with full ownership to follow on 1 July 2027 subject to consultation through the 2027 Long Term Plan. This change is intended to align with potential timelines for establishing a Regional Water Organisation under Local Water Done Well. The asset transfer will ensure one point of accountability for service delivery and have a positive impact on flood risk for a large area of Napier.

It also addresses one of four recommendations resulting from the review of the November 2020 flood event "Napier City Council and Hawke's Bay Regional Council should review the existing arrangements for management of the flood scheme to ensure the most effective integration and coordination of the assets where possible".

Westshore and Bay View are two of four coastal areas in the ***Clifton to Tangoio Coastal Hazards Strategy 2120*** that have recommended action in the short term (0-20 years). When originally costed the recommended beach renourishment was estimated to cost $2 million each year (in addition to what is currently provided). Current day estimates could be more. There is no funding included in the Regional Council's or Napier City Council's long-term plans for this new work.

In the medium term (20-50 years) control structures in Westshore and Bay View as well as a seawall in Ahuriri and a storm surge barrier in Pandora are recommended in the Coastal Hazards Strategy.

The Regional Council is currently discussing the affordability of the recommended options with the Westshore and Bayview communities and how much should be paid for by general rates and through targeted rates for properties identified as beneficiaries of works.

Wairoa

The Wairoa District covers a large geographical area of 4,077km^2. The district's population of 8,826 (2023) is primarily concentrated in the Wairoa township, with the remainder dispersed across rural areas and coastal settlements including the Mahia Peninsula. The hill country in the district is prone to erosion and slipping, leading to high sediment loadings of streams and rivers in large rainfall events. The Wairoa River has the region's largest catchment of around 660km^2.

Key findings from the 2025 Climate Change Risk Assessment include amongst other things:

- River and rainfall flooding is the most severe hazard, affecting residential properties and the manufacturing sector.
- Three waters infrastructure (including pipes and components such as pump stations) is significantly exposed to river and rainfall flooding.

Wairoa District has experienced numerous heavy rainfall and flooding events over the past few decades. Most notable are Cyclone Bola (1988), Cyclone Gabrielle (2023), and the June 2024 storm. In 2022, there were two closely spaced weather events on 21-31 March and 12-14 April (Ex-Cyclone Fili). Cyclone Gabrielle was assessed as a 1-in-70 year flood event in Wairoa.

Wairoa

Current state

Category 2 flood mitigation project - North Clyde

Wairoa was badly affected in Cyclone Gabrielle, with over 600 properties identified as Category 2 under the Government's land categorisation framework. A similar area was flooded during Cyclone Bola in 1988.

As part of the cost-share agreement, the Government agreed to 100% fund the capital build of a new flood mitigation solution estimated to cost $70 million. Crown Manager, Lawrence Yule was appointed in August 2024 to help Regional Council and Wairoa District Council achieve improved flood protection for the community as quickly as possible.

River mouth and Wairoa River bar management

Mouths of rivers and streams in Wairoa District are in a relatively natural state made up of sand and gravelly materials with no man-made structures influencing their positions. Estuaries and lagoons with tidal influences also feature in a number of the district's larger rivers e.g. Wairoa, Nuhaka, Maungawhio.

HBRC has a programme and protocol for river mouth openings, involving input from local communities.

Funding for river and stream maintenance including river mouth openings is from general rates. There has been a significant increase in spend over the over the last 2-3 years to meet expectations.

Small Schemes

There are five small schemes in Wairoa District.

Most of those schemes were set up between 1950 and 2000. They are typically gravity-fed with some control structures and/or small pumping to reduce the impacts of flooding on adjacent land during relatively modest rainfall events.

Three are drainage schemes Ohuia-Whakaki, Opoho, and Paeroa. Ratepayers within the scheme areas pay 90% with the balance funded from general rates.

Two are river and maintenance schemes - Kopuawhara, and Wairoa. These are funded from general rates.

The combined total annual operating cost for the schemes was $660k ex GST in 2024-25.

Coastal Hazards

In Wairoa District, there are a number of dispersed communities along the coast. The largest is the community at Mahia Beach/Mahanga/Opoutama.

Low-lying coastal settlements and infrastructure are exposed to flooding risks during large swell events and severe storms. The Regional Council does not currently hold any coastal mitigation assets for coastal flood management, other than river mouth maintenance works. There are several localised coastal protections that property owners or roading asset managers maintain at their own costs.

Boosting flood resilience

Once the new flood scheme is built, Wairoa ratepayers will pay 70% of the costs for ongoing operations and maintenance. This was estimated to cost Wairoa ratepayers within the direct rating footprint $110 in annual operating costs and $10 in the indirect footprint[9] . The remaining 30% will be funded from the general rate.

Following the significant flooding event on 26 June 2024 which affected over 400 properties in the area adjacent to Kopu Road, an operational review of Wairoa River Bar Management was commissioned by the Regional Council and Government commissioned its own separate review. As a result, a new plan for Wairoa River mouth openings was announced on 23 May 2025.

The Intermediate Management Plan, a collaborative effort between HBRC, Wairoa District and Tātau Tātau o Te Wairoa, outlines a proactive approach to managing flood risks. Part of the plan has been implemented with the lowering of a section of the beach crest between Rani-houa (Pilot Hill) and the old pier. Longer-term, relocating the river mouth is under consideration.

Small scheme reviews

The Regional Council is currently reviewing Nuhaka and Wairoa schemes.

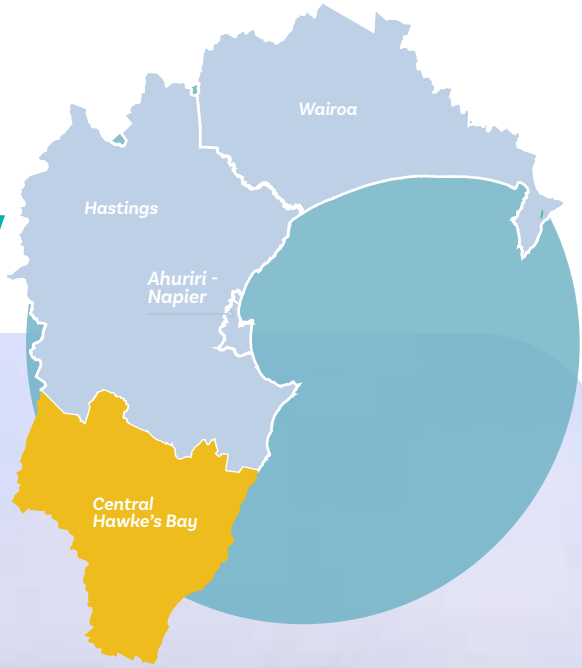
The aim is to assess how well these schemes are functioning in discussion with local landowners, review the funding for each scheme and decide their future. Key questions include:

- Do they work as intended?
- Will they work in the future?
- What are the alternatives?
- What could the costs be to scheme ratepayers?

Outcomes of the reviews will be considered as part of the 2027 Long Term Plan.

[9]As consulted on in the Three-Year Plan 2024-2027 but current day estimates could be higher.

Central Hawke's Bay



Central Hawke's Bay is a predominantly rural district covering 3,333km² with an estimated population of 16,050 (2023). It is comprised of the Tukituki catchment and Pōrangahau and Southern Coast catchment where the land use is predominantly pastoral farming and cropping. The rivers that run through this region are an important source of water to farmers and orchardists.

Key findings from the 2025 Climate Change Risk Assessment include amongst other things:

- River and rainfall flooding risk is the most severe hazard influenced by climate change for Central Hawke's Bay with 43.7% of commercial properties and 12.6% of residential properties exposed to a present day 1% AEP event.
- Three waters infrastructure is susceptible to flooding wIth 23% of stormwater pipes currently exposed to a 1% AEP event.

Central Hawke's Bay

Current state

Upper Tukituki Flood Scheme (CHB and Hastings ratepayers)

The Upper Tukituki Flood Control Scheme (UTTFCS) aims to protect the river plains from frequent flooding of the Tukituki River and its tributaries, the Waipawa, Makaretu, Mangaonuku and Tukipo Rivers.

The scheme protects the people who live within the scheme boundaries including the urban centres of Waipawa and Waipukurau and Ōtāne, and around 24,750 hectares of productive farmland.

The total annual operating cost for the UTTFCS was $5m exluding GST in 2024-25.

More information is available in the Upper Tukituki Flood Control Scheme Asset Management Plan.

Makara Flood Scheme (CHB and Hastings ratepayers)

This scheme was established in the 1980s to help improve the productivity and stability of 800 hectares of river flats following a series of severe flood events in the 1970s. It helps to protect the road network in the Makara valley and community assets around Elsthorpe.

The scheme includes two detention dams as well as soil conservation planting programmes to reduce the silt run off from 2,225 hectares of hill country.

The annual operating costs of the scheme was $161,000 excl GST in 2024-25.

Boosting flood resilience

Major Scheme Review - The Reimagining Project

Through this project the Regional Council is reviewing the long-term approach to the Heretaunga Plains Flood Control Scheme as well as the Upper Tukituki Scheme. This will involve healthy discussion with communities about the balance between protection levels and affordability, and residual risk[10] . Principles guiding the project include:

- **Making room for rivers and revised scheme design**– Designing new secondary systems like spillways and storage areas to minimise community impact during extreme floods[11].
- **Collaborating with the community** – Working with mana whenua, local residents and business to come up with flood risk solutions.
- **Using local knowledge** – Integrating what locals know into flood management planning.

The project has five phases:

Phase 1: Project design (Sept-June 2025)

Phase 2: Stakeholder Reference Groups (July-Dec 2025)

Phase 3: Community socialisation (Jan-June 2026

Phase 4: Recommendations, consultation and decision making as part of the 2027 Long Term Plan (June 2026-June 2027)

Phase 5: Implementation (July 2027+)

Smaller scheme reviews

The Regional Council is currently reviewing the future of:

- Makara and
- Pōrangahau.

The aim is to assess how well these schemes are functioning in discussion with local landowners, review the funding for each scheme and decide their future. Key questions include:

- Do they work as intended?
- Will they work in the future?
- What are the alternatives?
- What could the costs be to scheme ratepayers?

Outcomes of the reviews will be considered as part of the 2027 Long Term Plan.

[10]The risk that will always remain even after taking steps to reduce or eliminate it have been made.
[11]These are called "Over-design events", Cyclone Gabrielle was an over-design event.

Central Hawke's Bay

Current state	Boosting flood resilience
Gravel extraction Gravel management is essential to maintaining flood capacity in the Tukituki River. With co-funding from Kānoa (the Government's Regional Economic Development & Investment Unit) as part of its Covid-19 recovery package, we have been able to undertake five tranches of gravel extraction in the Upper Tukituki catchment in the past four years. The last tranche through this funding will take place this summer (Dec-Feb 2026). This is expected to take our total gravel removal to around 1.2 million cubic metres removed at a cost of $8 million. Of which, $5.12 million was funded by Kānoa and the balance by ratepayers in the scheme area. Based on current rating levels, Regional Council will not be able to maintain this level of gravel extraction once this project comes to an end.	
Category 2 flood mitigation – Pōrangahau Pōrangahau has a long history of floods, and Cyclone Gabrielle reinforced the need for a resilient, long-term plan to help protect the community. This $14.59m project will help better protect homes and cultural sites and mean 138 properties will be reclassified from category 2C to Category 1 so residents can stay where they are. Design work continues to take shape and will include a stopbank on the northern side of Pōrangahau River, a smaller protective ridge on the southern side to help shield the Kaiwhitikitiki Urupā, and raising, relocating – or protecting with small stopbanks – the most vulnerable homes south of the river. To make this affordable, the initial build will be funded from general rates	Once the flood scheme is built, Pōrangahau ratepayers will pay 70% of ongoing operations and maintenance costs. This was estimated to cost ratepayers about $340 (direct) and $100 (indirect) in annual operating costs[12]. The remaining 30% will be funded from general rates.

[12]As consulted on in the Three-Year Plan 2024-2027 but current day estimates could be higher.

Central Hawke's Bay

Current state	Boosting flood resilience
Waipawa River During Cyclone Gabrielle, the Waipawa River had an estimated flood flow of 1,800 m/s. This caused the river to overtop the stopbank and flood some areas within Waipawa township. As part of the level of service upgrades through the NIWE Flood Resilience program, the stopbank that runs 3km along the left side of the Waipawa River will be upgraded to increase the height and width to meet 1% AEP post cyclone, plus 700mm freeboard to allow for climate change. The estimated cost for this project is $9 million. In 2021, erosion control work was completed on the Waipawa riverbank near the State Highway bridge. The aim was to minimise erosion by deterring the water away from the banks by realigning and deepening and widening the river to allow for more water, and building up the riverbanks. This was funded by the COVID-19 Recovery and Response Fund which provided 64% of project costs, alongside 30% funding from Waka Kotahi. The remaining 6% was funded by Regional Council ratepayers.	Any future flood resilience work will be agreed as part of the Major Scheme Review (see the Re-imagining Project discussed earlier).
Coastal Hazards HBRC does not currently hold any coastal mitigation assets in CHB for coastal flood management, other than river mouth maintenance works. There may be localised coastal protection works that property owners or roading asset managers maintain at their own costs.	

HAWKE'S BAY

REGIONAL COUNCIL

TE KAUNIHERA Ā-ROHE O TE MATAU-A-MĀUI