Before the Deluge 2.0

Updated case for co-investment in flood management infrastructure following Cyclones Hale and Gabrielle.

30 NOVEMBER 2023 | v1.0 | FOR APPROVAL

Te Uru Kahika

Regional and Unitary Councils Aotearoa

Statement on behalf of the Chairs of New Zealand's regional and unitary councils.

The regional sector of New Zealand's local government is governed by the mayors and chairs of regional councils and unitary councils, directed by the Regional Chief Executive Officers' group, and supported by 26 Special Interest Groups made up of subject-matter experts from around the country.

Our role is to facilitate deep partnerships between communities, local government, and central government, focusing on the things that matter to our communities.

We share your objective to provide stability, grow economic prosperity, improve the environment, and boost social cohesion. We are the link between the Government's strategic imperatives and the on-the-ground regional sector functions that deliver real-world impacts for communities.

In late 2022, we forwarded the '*Before the Deluge*' business case to Government Ministers. Ironically this landed with Government only weeks before the devastation of Cyclones Hale and Gabrielle and attention was diverted to recovering from these events.

As we saw from that flooding, and from other earlier events in Westport, Nelson, Ashburton and beyond, these severe weather events cause loss of life and livelihoods. They also create tremendous strain on Government resources and funds in response and recovery, and in repair of Crown assets.

We welcome this opportunity to present this 'refreshed' co-investment business case *'Before the Deluge 2.0.'* This shows how co-investment in flood management infrastructure will improve New Zealand-wide community resilience against extreme weather events.

We seek your leadership to include Government co-investment of $197m in the upcoming Mini-Budget toward the construction of 80 ready-to-go flood management infrastructure projects throughout New Zealand.

Regional and Unitary councils have already approved their $131m contribution to these projects. They are set to complete delivery by 2026/27, provided Government chooses to make an urgent co-investment decision. As described in the details that follow, this co-investment reflects that flood management infrastructure is a matter of national interest, protecting other key infrastructure such as roads, railway lines, power and communications, schools, and hospitals, along with local and regional communities, businesses, public facilities, and marae. More than that, upgrading our flood protection to be fit for the future is the fiscally responsible approach and a sound public investment and will encourage business investment in the regions.

The insurance industry is adopting a 'now you see me, now you don't' attitude' as the risk of flooding increases because of the more intense and frequent severe weather events we are experiencing. To mitigate the risk of insurance sector withdrawal or retreat and avoid significant cost to the public and the Crown, New Zealand needs to take the right strategic path. This is a time when decisive leadership and action to bolster our flood risk mitigation infrastructure is required, without delay.

In 2020, post-Covid recovery funding of $217m enabled a previous three-year joint Crown-regional council programme to complete 55 flood protection projects. This investment saved billions of dollars in flood damage, particularly in Kaitāia, Tairāwhiti and Taradale/Napier. This achievement also gave rise to a substantial improvement in capacity and capability within local and central government, and the private sector.

The flood mitigation infrastructure construction sector now has fresh momentum which should not be allowed to wane. The task of restarting, if there is a gap, will face head winds. For the sake of long run benefits, now is the time to maximise current time, capability, social licence, and delivery cost-benefit opportunities.

This proposal has the support of local Mayors and Chairs on behalf of their communities throughout New Zealand, as expressed in the letters attached to this business case.

We are all aware that Cyclones Gabrielle and Hale storm events were extraordinarily expensive for New Zealand and had heart-rending impacts on New Zealanders. The next set of tropical cyclones or atmospheric rivers will have equally devastating effects in other parts of New Zealand. All parts of New Zealand urgently need better quality defences against these flood risks.

We look forward to your commitment. We would be pleased to meet with you to provide any further information you may require to support us to meet this critical need.

Daran Ponter
Chair, Greater Wellington Regional Council

Peter Scott
Chair, Environment Canterbury

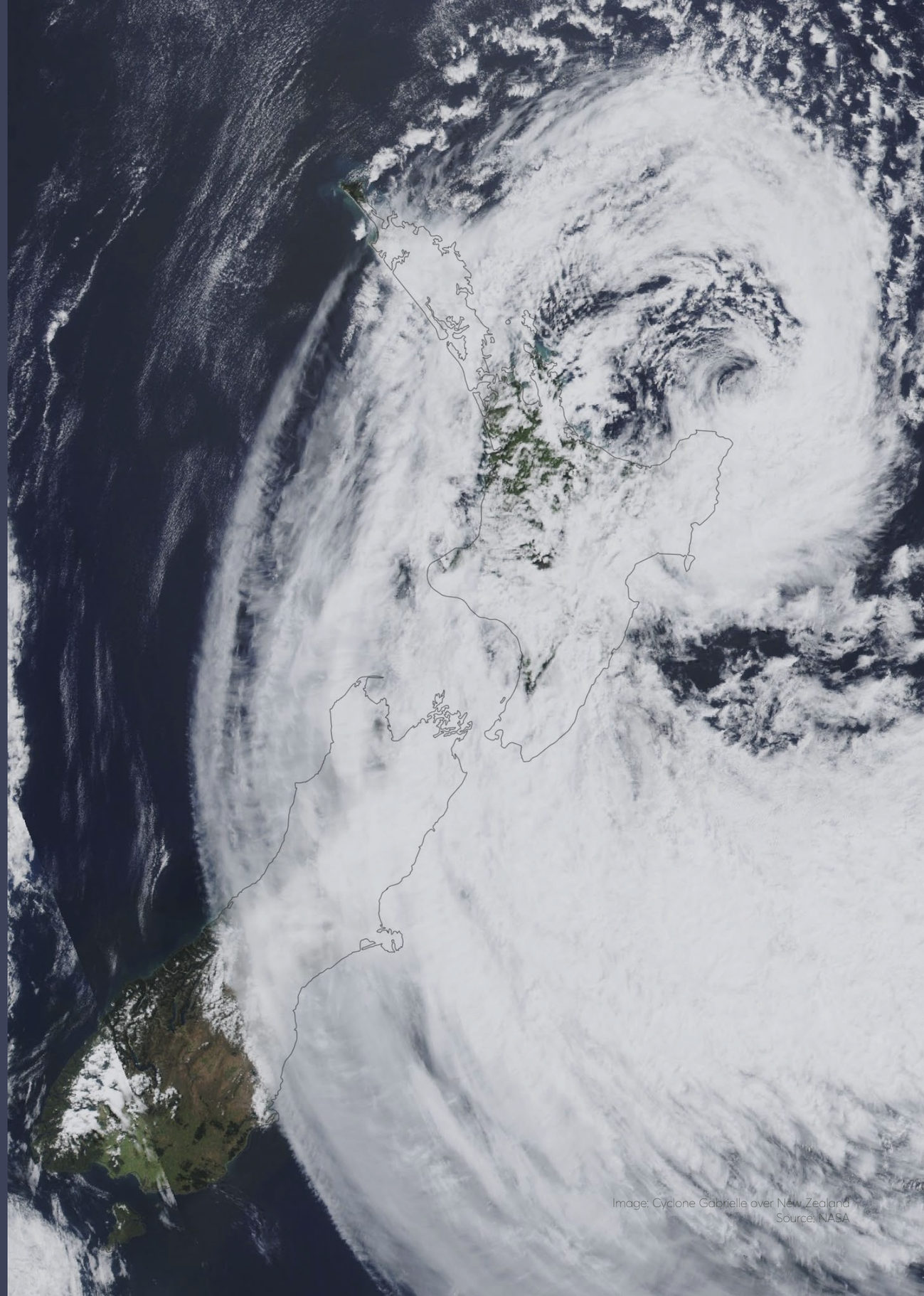


Image: Cyclone Gabrielle over New Zealand
Source: NASA

Navigating this document

Executive Summary

Our programme is aligned with the incoming government's signalled priorities and represents a no-regrets investment that can commence immediately.

Our refreshed co-investment case.

We are re-submitting a refreshed version of our previous co-investment case *Before the Deluge*, previously submitted in December 2022 and available on the Resilient River Communities website.

This refresh has:

- Removed projects that have been funded since *Before the Deluge* was submitted, as well as those funded through the North Island Weather Events 2023 recovery programme;
- Updated costs to account for construction price increases; and
- Created a stronger link between the projects, as well as councils' broader programmes of work, to the Protect, Accommodate, Retreat, Avoid (PARA) framework.

In this refreshed case, we put forward 80 flood protection projects spread across New Zealand to be delivered over the next three years, with all projects being completed by 2026/27. This entails a total capital expenditure of $329.35 million.

Over the last 40-50 years New Zealand's flood protection infrastructure has fallen well behind what's needed to mitigate against our climate change risks. In response, the insurance sector is threatening to pull a disappearing act. We urgently need to take the right strategic path because our options are increasingly and rapidly shrinking, at significant cost to the public. **This is a time when bold, decisive leadership and action is required, without delay.**

Below, we outline our investment ask. This reflects the most effective and cost-efficient path forward; one that delivers the best value for money while lifting the resilience of our regions, with additional benefits of economic growth, productivity, and improved quality of life across New Zealand.

Our specific investment ask is:

1 Approval

The approval of $197.61 million in Crown co-investment toward the delivery of these 80 flood protection projects.

2 Continuation

The continuation of a governance arrangement that informs and protects the investment proposition and assures delivery within the agreed timeline.

3 Commitment

A commitment to working with the regional sector of local government on developing a 10-year pipeline of co-investment in flood resilience infrastructure.

We must act with urgency to maintain the confidence of businesses and the insurance industry to invest in growing the New Zealand economy, by funding national-scale resilience.

The scale of the challenge we're dealing with.

Flooding has long been our number one natural hazard risk in New Zealand. However, the stakes continue to increase year-on-year. This is because four things are happening in parallel.

First, most of our **flood protection infrastructure** was built more than half a century ago and not designed for the impacts of climate change. In other areas, such as Wairoa, this type of flood protection infrastructure simply does not exist. This means most of our flood protection schemes are not fit for the current and future challenges presented by climate change.

Second, the **value of what these schemes are protecting has rapidly increased**. This includes private property such as homes, businesses, and farms, as well as Crown assets on non-rateable land. Critical infrastructure such as our roading and transport networks, waters, energy and telecommunication links – the lifelines of our economy – are at risk of damage and disruption with a major flood event; as we have already experienced several times this year alone.

Third, and relatedly, **Crown contributions toward flood protection have ceased since the 1980s**, despite agencies with Crown infrastructure and network utility responsibilities gaining considerable benefit from our flood protection infrastructure. This has put an undue burden on ratepayers who can no longer afford to cross-subsidise national-level benefits.

In short, our current state of flood risk is not a failing of the regional sector of local government, but reflects the absence of a key partner – central government – in the strategic funding of this public good. Without this co-investment, our country's critical infrastructure and major Crown assets continue to remain at-risk of destruction from the next major flood event.

Fourth, our **risk of climate change-induced flood events is increasing** in both frequency and magnitude of impact. These 'climate events' combined with the day-to-day 'climate normals' mean that we need to approach flood protection differently.

The burgeoning flood risk discussed in this business case is already causing significant harm to our society and for the government. We are increasingly paying the toll of inaction with loss of life. Another key emerging trend is the escalation in price of private insurance, and the growing threat of insurance withdrawal, with consequent transfer of financial risk to the government.

Simply put, there is an increasing risk of extensive harm to our lives and wellbeing, and risk of damage to our property, livelihoods, and the economy where flood protection is inadequate or absent.

Our flood management infrastructure has always been a matter of national interest. This is underpinned by the historical majority investment by central government in the existing network of schemes across New Zealand, that have time and time again proven to be sound public investments.

It is now a priority matter of national interest to upgrade our flood protection to be fit for the future.

Image: Aftermath of Cyclone Gabrielle in Eskdale
Source: Christel Yardley, Stuff.co.nz

Refreshed co-investment case
Te Uru Kahika Regional and Unitary Councils Aotearoa
EXECUTIVE SUMMARY

Background to flood risk in New Zealand.

With the rapid and ongoing succession of adverse weather events over the last eleven months, it's safe to say 2023 was our *annus horribilis* – and the year is not over yet.

What began as a 'summer of cyclones' has continued throughout the year and across the country, often repeatedly hitting some of our most affected regions – Hawke's Bay and East Coast Tairāwhiti, in particular.

An overview of the impacts of these weather events over the past year is shown below. Cumulatively, this has resulted in 17 deaths; several injuries; hundreds of homes damaged beyond repair; widescale damage to farms, crops, and ecosystems; damage to critical roading infrastructure and transport and utility networks; and disruption to schools and businesses. This is increasingly going to become our 'new normal' in a climate-changed world.

Refreshed co-investment case

Te Uru Kahika Regional and Unitary Councils Aotearoa

EXECUTIVE SUMMARY

Key

- State of Emergency declared (regional/local)
- Loss of life and injuries
- Damage to homes, buildings, private property
- Damage to roads and critical infrastructure
- Damage to utilities and networks
- Central govt. spend

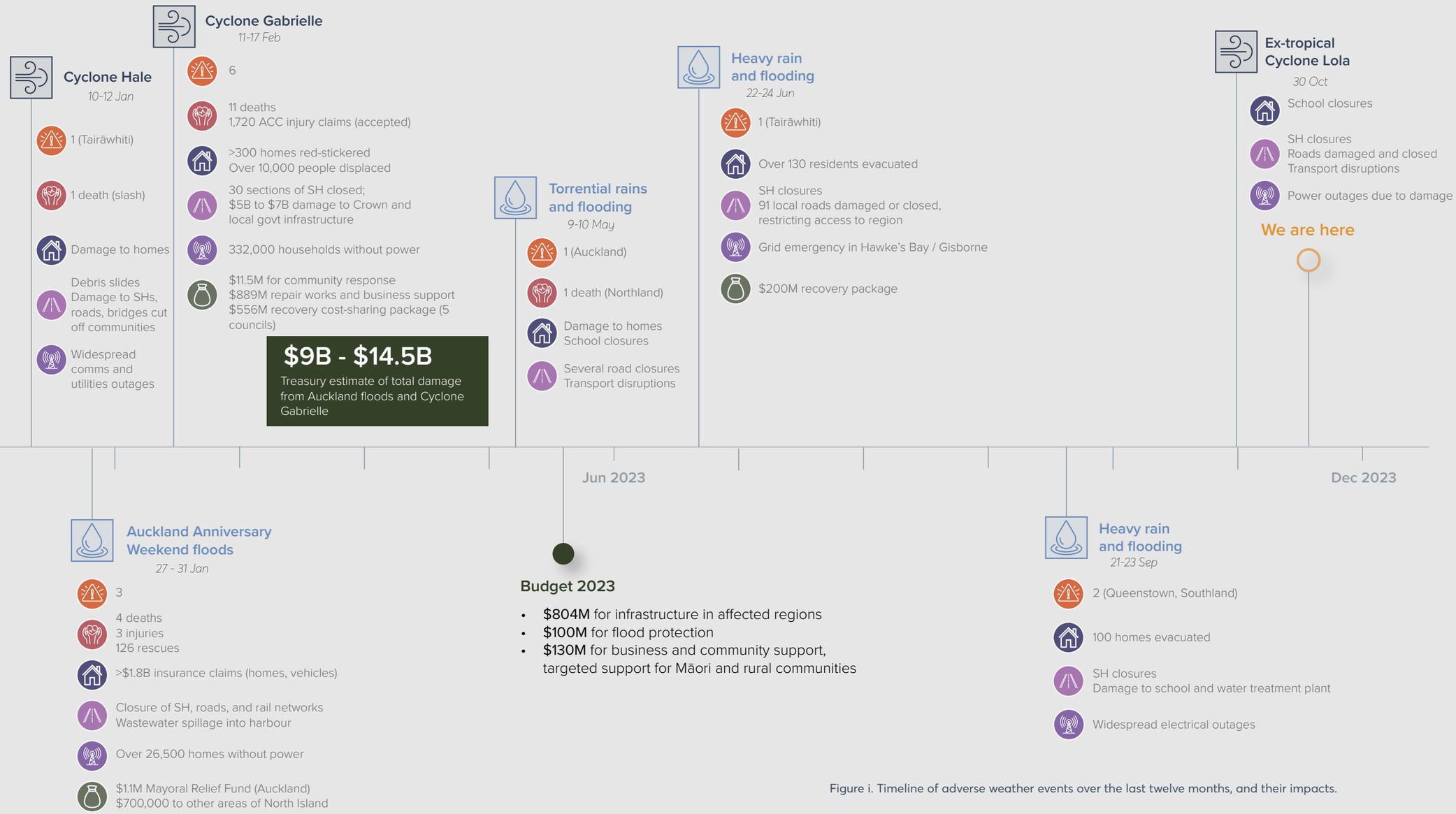


Figure i. Timeline of adverse weather events over the last twelve months, and their impacts.

The case for a 'step change'.

New Zealand urgently needs a step change in how flood protection is funded and delivered, so that we are establishing the appropriate level of 'climate change' flood resilience.

As the regional sector collective will argue throughout this document, there are strong reasons why central government co-investment in improving our flood protection is needed:

- Smaller communities and ratepayers alone can no longer **afford** the necessary level and pace of funding required to accelerate our flood resilience measures;
- A significant number of high-value **Crown assets on non-rateable land benefit** from these flood protection schemes;
- Our **critical infrastructure is also protected** by flood schemes and remains at risk of damage from the next major flooding events;
- International and local evidence shows investing in flood **risk reduction is more effective and cost-efficient** than post-disaster spending;
- The Crown ultimately bears the **cost of post-disaster response and recovery**, where (any) flood protection measures fail;
- Relatedly, this **increases Crown liability** (and debt) in terms of unforeseen expenditure;
- Without urgent central government action and intervention, the **insurance sector is likely to withdraw or fully retreat** from the market, as they have already indicated. This is largely avoidable if rapid action on a nationally co-funded programme occurs;
- It is **unfair and inequitable** that the costs of constructing and maintaining these flood schemes fall to local ratepayers, while the benefits are realised at a national level.

Climate change-induced flood risks are no longer 'unprecedented'. These are very real, foreseeable risks that require a shift in our approach to planning, funding, and delivery of improved flood resilience. The status quo is no longer a viable option in the reality of today's world.

While national direction on adaptation is still in gestation – for example, the planned (but not yet confirmed) Select Committee Inquiry into Managed Retreat and Adaptation and the reforms to new resource management legislation – our population remains vulnerable to the next deluge.

Flood risk mitigation infrastructure therefore remains our first and most critical step in building resilience. It mitigates the flood risk for our communities, our infrastructure, our schools and hospitals, our cultural assets such as marae and urupā, and our economy. And it enhances our ability to cope with and recover from major flooding events. This alone means that flood protection will and must always have a place alongside other longer-term adaptation measures within a multi-tool 'Protect, Accommodate, Retreat, Avoid' (PARA) approach.

It is clear there is a strong national and financial interest, and a moral imperative for central government to return to the table to co-invest in improving flood risk mitigation infrastructure.

Why now?

The Hale and Gabrielle storm events of 2023 were devastating, with billions spent toward recovery. This does not include the seventeen lives lost and harm to wellbeing that cannot truly be quantified.

The next set of tropical cyclones or atmospheric rivers will have equally devastating effects in other parts of New Zealand. Most parts of New Zealand are equally vulnerable. All parts of New Zealand urgently need better quality defences against flood risks.

Can we afford to continue down this path of inaction, when the alternative is investing a mere fraction of that toward mitigating flood risk in the first place?

> *Every dollar invested in risk reduction will save many more dollars in future economic costs, keep people safer and reduce the stress, trauma and loss to the community from similar event in future... The question that should be asked now is whether we can afford to wait.*
>
> *-Insurance Council of New Zealand*[1]

The benefits of investing in flood protection infrastructure.

As the leader of the new government, National already recognises that[2]:

> ***"High quality infrastructure drives economic growth, boosts productivity and enhances our way of life."***

Dollar-for-dollar, flood protection infrastructure delivers one of the highest cost-benefit values compared to other large-scale infrastructure projects, ranging between 1:5 and 1:8. This means for every $1 invested in flood protection, there are between $5-$8 in direct losses avoided.

The costs of inaction.

We've seen the cost of not investing play out recently in Westport, where a $23 million investment (in today's dollars) would have avoided over $200 million in recovery and indirect costs. This cost-benefit ratio is, in fact, closer to 1:9.

This is to say nothing of the ongoing health and psychological trauma for flood-affected communities, the disruption to our social fabric, and the anxiety of living with an uncertain future flood risk in the absence of adequate flood protection.

The benefits of investment in flood protection.

On the other hand, we continue to see evidence that the $217 million post-Covid economic recovery co-investment by central government in 55 'shovel-ready' projects in 2020 has been worth its weight in gold, generating direct (**avoided economic losses and loss of life**) and wider **social, cultural, and environmental benefits**. The Taradale stopbank in Hawke's Bay, and the Awanui River flood scheme are just two examples of these projects that delivered the necessary flood protection during the 2021/22 floods, and are showcased later in our document.

Our proposed co-investment not only **builds the flood resilience of our communities**; it **enhances the resilience of other critical infrastructure**. What's more, construction of these projects allow us to **grow the economy** in those regions that would most benefit from this cashflow boost. It also **maintains insurance sector coverage**, which in turn gives businesses the **confidence and certainty to grow** and invest, **improving regional productivity and exports**. These benefits are realised regardless of whether a flood event occurs.

Yet another example illustrating the importance of quality flood protection infrastructure is the Waipaoa stopbanks in Tairāwhiti. These "unsung heroes"[3] of the region helped **protect a large area (around 10,000 ha) of high-yield, prime horticulture land** in the Poverty Bay Flats during Cyclone Gabrielle. In contrast, we've seen other regions across the country affected by widespread damage to crops, resulting in disrupted supply chains, price surges, and food insecurity challenges for many households.

Chief Executive of LeaderBrand – one of the largest produce growers nationally – has said, of this flood resilience in Poverty Bay[4]:

> ***"By day four (of Cyclone Gabrielle) we were able to start harvesting things like fresh lettuce and sweetcorn on blocks that weren't flooded, and by Sunday we were harvesting some of the sauvignon blanc in our vineyards."***

Investment in flood protection has proven time and time again to have **significant resilience dividends** for government, for our economy, and for our people, now and into the future.

List of 80 proposed projects.

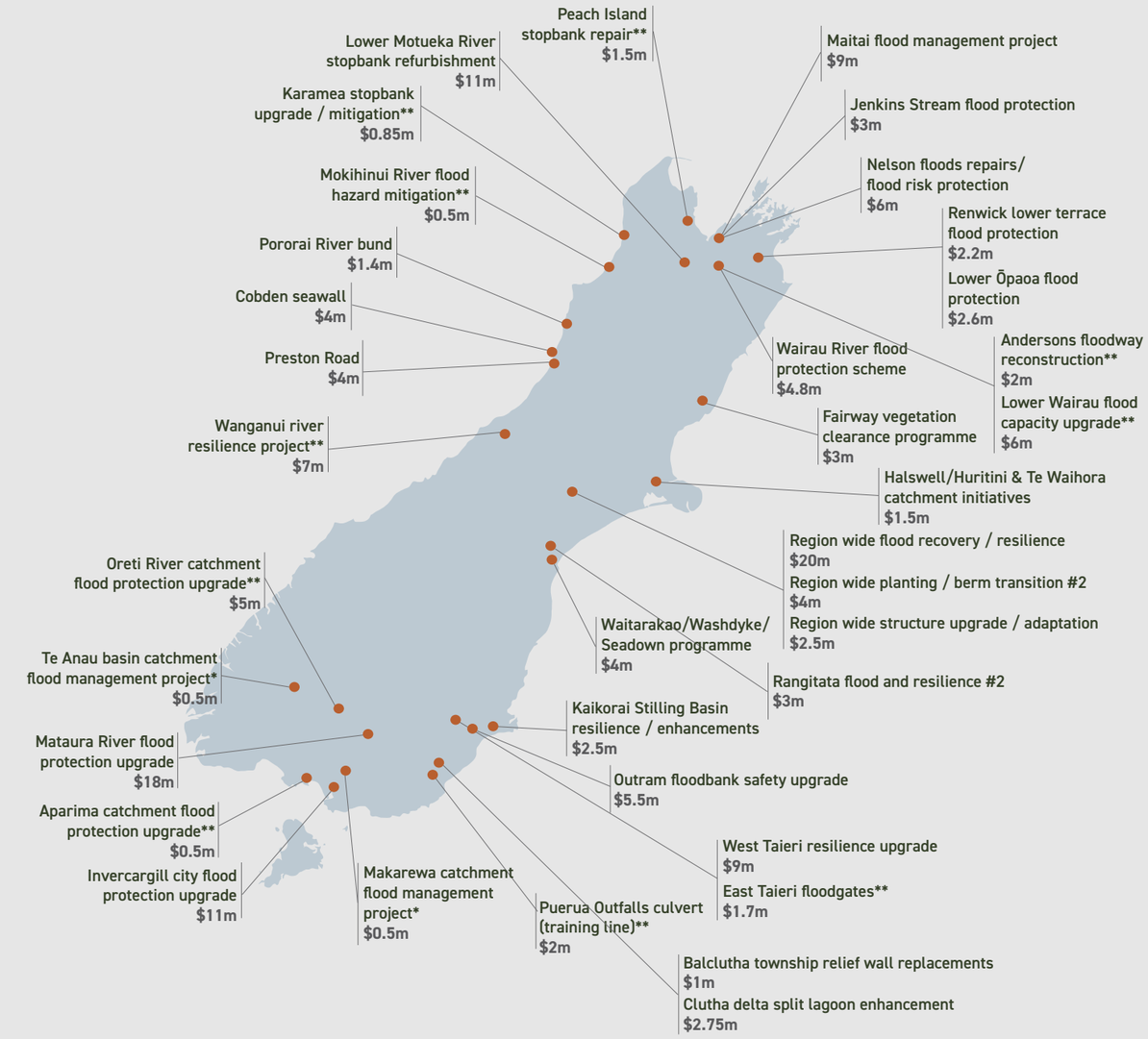
An overview of our 80 priority flood protection projects is shown below, with full detail provided in the Appendices. These projects total $329.35M.

North Island	South Island
44 projects	**36 projects**
$165.55m investment	**$163.80m investment**

All projects have a duration of three years until completion, except where otherwise indicated:
* = 1 year
** = 2 years

The immediate project needs in Tairāwhiti, Hawke's Bay, and Horizons have been addressed with the help of funding allocated as part of Cyclone Gabrielle recovery programmes.

Figure ii. Locations of the 80 proposed flood protection projects across the country.



The investment required.

The breakdown of co-investment required to improve our flood resilience is shown below.

This represents the costs of the three-year plan (i.e., 80 projects in this co-investment case) and the longer-term (ten year) programme of work needed to ensure our flood management infrastructure is fit-for-purpose within a decade.

While the scope of this investment case only includes the 80 projects, we situate this within our longer-term pipeline of work to signal the direction we're headed in, in terms of seeking to build a partnership with central government and other relevant industry sectors (e.g., insurance) to improve our 'climate change' flood resilience.

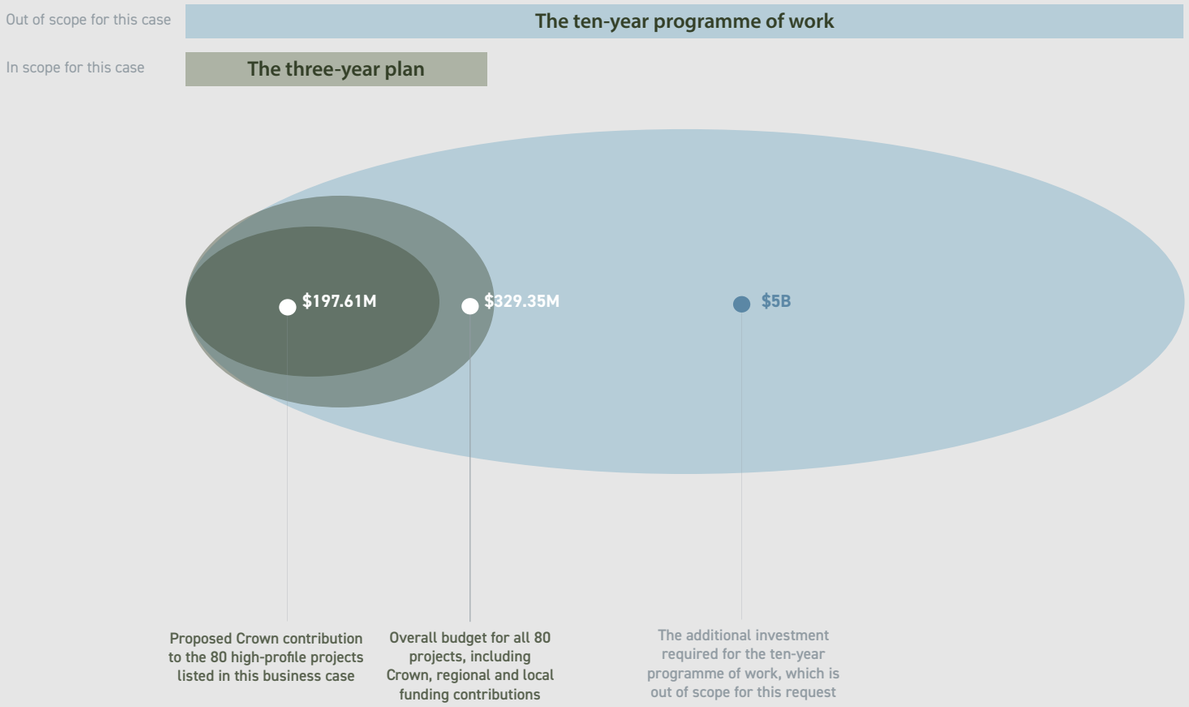


Figure iii. An overview of the coinvestment required across central government and the regional sector in the near (3 years) and long term (10 years).

Consolidated spend across regional councils and central government.

A high-level delivery timelline and regional council spend (along with central government co-investment) is shown below.

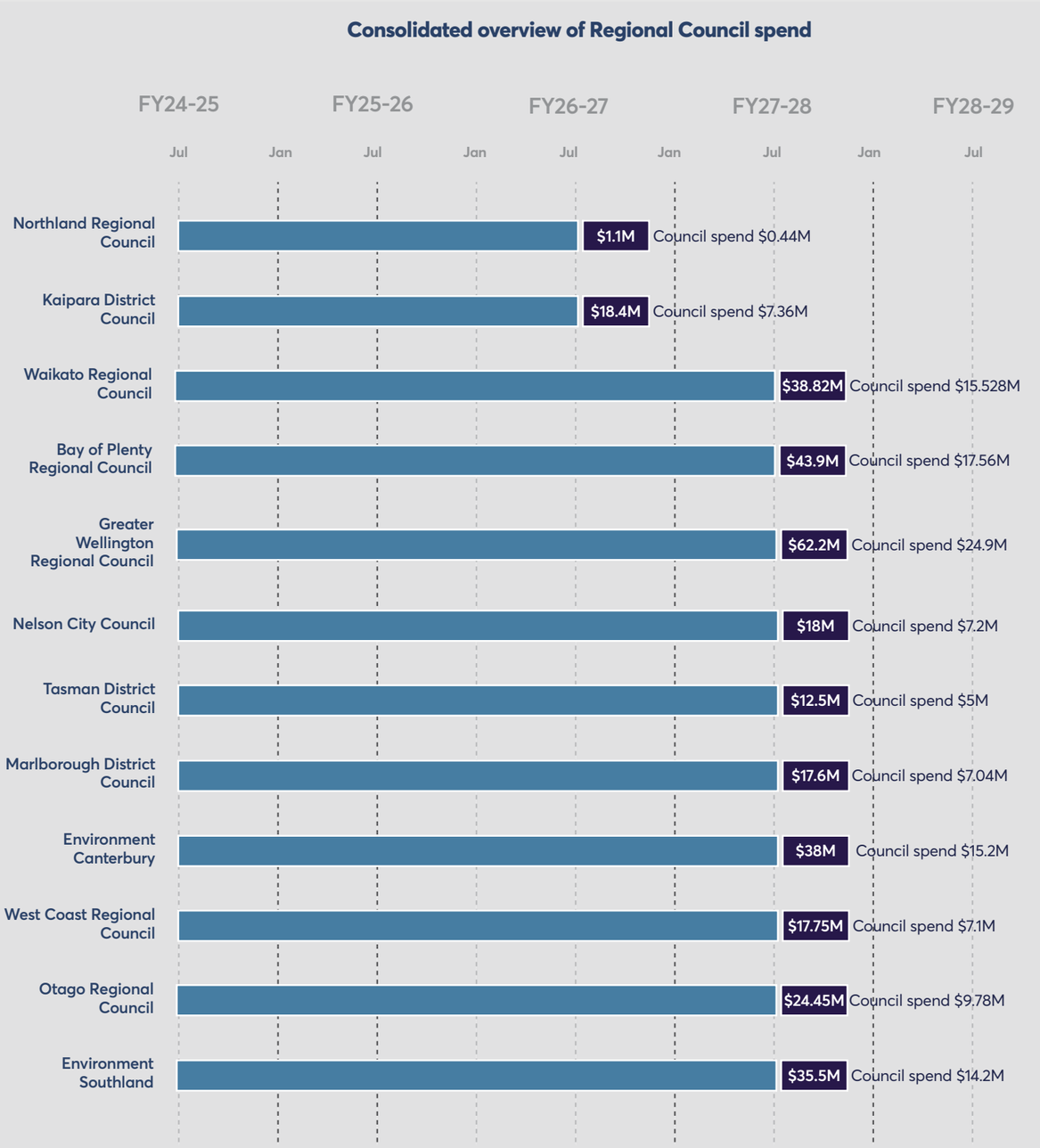


Figure iv. Consolidated Gantt chart showing staging of delivery across regional councils.

The path to delivery.

The sector's ability to deliver

The progress reporting on the 55 post-Covid economic recovery-funded 'shovel ready' projects has demonstrated the regional sector's capability and capacity to deliver on flood protection projects on time and to budget.

Successful delivery is based on the robust project delivery methodologies that have been implemented and refined across the sector over the last few decades. This has been further strengthened by governance and leadership frameworks that provide oversight, accountability, and coordination across the sector.

Beyond project completion itself, we have also seen the realisation of wider economic, social, and environmental benefits, shown in the case studies throughout this business case. These include local job creation; economic value generated to local business and economies; iwi engagement; and improved health of our waterways, wetlands, and freshwater ecosystems.

On this basis, we continue to remain confident in regional and unitary councils' ability to deliver on the proposed projects and benefits.

A roadmap to flood resilience

The delivery of our three-year programme of work (80 'shovel-ready' flood protection projects) is situated (shown in green, below) within a longer-term timeline of regional sector initiatives.

The examples showcased overleaf are just two of the 80 flood protection projects being proposed. The full list of projects details and staging is provided as Appendices.

Importantly, the projects proposed have already been evaluated for their 'readiness', deliverability, and ability to obtain the necessary consents. These are **'shovel-ready**' projects, advanced enough in their development to commence as soon as the necessary funding has been secured.

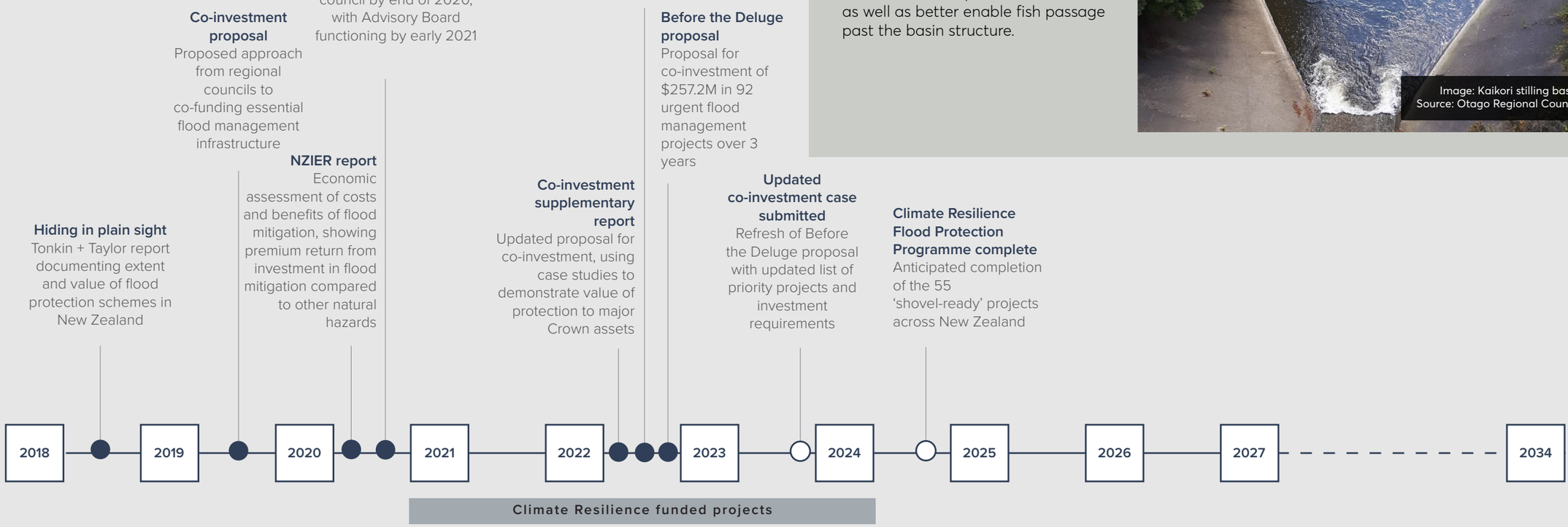


Figure v. Timeline showing the regional sector's long-term flood resilience programme of work in New Zealand.

Image: Waipoua SH2 left bank protection upgrade
Source: Greater Wellington Regional Council

Waipoua SH2 left bank protection upgrade,
Greater Wellington Regional Council

This project will construct a new rock revetment on the left bank of the Waipoua River to protect the SH2 bridge abutment, and the walking / cycle trail, from flood damage.

Kaikorai stilling basin resilience and environmental enhancements
Otago Regional Council

This project will replace the stilling basin on the Kaikorai Stream that was significantly damaged in the 2017 flood. This will improve flood resilience as well as better enable fish passage past the basin structure.

Image: Kaikori stilling basin
Source: Otago Regional Council

Strategic alignment with incoming government priorities.

There is strong strategic alignment between investment in flood protection projects and the incoming government's signalled priorities (as outlined in the **Government's 100 Day Plan** and in the **coalition agreements agreed with NZ First and ACT**) of expediting regional flood recovery and economic prosperity, as well as building future-ready infrastructure that delivers a greater level of 'climate change' resilience.

This investment is also well-aligned with the incoming government's **Infrastructure for the Future plan**[5], which will see partnership with local government to create long-term (30 year) pipelines of infrastructure investment through regional deals. Environmental resilience investments feature specifically as part of these regional deals, and our list of 80 priority flood protection projects accelerates the path for regional councils to begin working with central government in identifying priority infrastructure projects.

Our investment case is also fully supported by all local authorities, as evidenced by the Mayoral Letters of Support in Appendix 3.

This is a 'no regrets' investment, and conditions are ideal to progress this initiative; preferably as part of the 'Mini Budget', or alternatively, as part of Budget 2024.

Below, we outline alignment with existing strategic objectives such as the **National Adaptation Plan** and the **Ministry for the Environment's community-led retreat and adaptation inquiry discussion document**; both of which recognise the importance of 'protect' solutions within a multi-tool PARA (Protect, Avoid, Retreat, Accommodate) framework.

Regional councils are already implementing PARA approaches as part of their flood risk management planning and related statutory obligations, as we will show through this document. It is the 'protect' measures for which we are seeking co-investment, within this business case.

	Government priorities	Existing government strategic objectives				Government funding
	Government's 100 Day Plan	National Adaptation Plan	Inquiry into community-led retreat and adaptation funding	Resilience of critical infrastructure	Local Government Act	Regional Infrastructure Fund
Intent	Establish and expedite regional requirements for flood recovery and priority infrastructure projects. Deliver resilient, future-proofed infrastructure and rebuild our economy.	Make considered decisions, at-place, about the balance of PARA solutions in building our climate resilience.	Emphasise PARA in adaptation, and the need to invest in minimising disaster risk pre-emptively. Identify funding models that address inequities in our current approach to disaster funding.	Emphasise the importance of our critical infrastructure in enabling the economy; supporting our jobs and wellbeing; and promoting societal, cultural, and environmental benefits.	Require authorities to promote the wellbeing of communities, now and in the future, and disclose land/ natural hazard information to property owners.	With the establishment of a **National Infrastructure Agency**, this fund will prioritise regional and national projects of significance, with the specific criteria of generating resilience in the regions.
Our alignment	We present a priority list of flood management (resilience) infrastructure projects that facilitates the discussion to establish regional requirements for recovery from Cyclone Gabrielle and other recent major flooding events. Projects deliver improved flood protection, increase the resilience of other critical infrastructure, and are an investment in regional economies as a 'driver of prosperity'.	Proposed projects use a combination of hard engineering and nature-based solutions that reduce the likelihood and impacts of flood risk for communities without adequate flood mitigation schemes. This allows time for other adaptation options to be implemented and take effect. The NAP also references flood risk infrastructure and provides information about Westport as a case study.	The logic in our business case emphasises the need to invest in avoiding or minimising flood impacts, rather than in clean-up and recovery. Current funding arrangements aren't equitably borne, nor sustainable long-term and do not reflect the significant national interest in flood protection.	Flood protection infrastructure plays a crucial in promoting the resilience of other infrastructure, and delivering a greater level of future-ready 'climate resilience' to our most at-risk communities while the longer-term path to climate adaptation takes effect.	Greater flood resilience supports the economic, social, cultural, and environmental wellbeing of our communities. Resilient flood management infrastructure also enables local councils to fulfil their statutory obligations in managing risks from natural hazards, such as flooding.	Our proposed projects support the coalition agreements' focus on improving regional resilience, prioritising infrastructure of significance, lifting the economic growth and productivity of regions, and delivering public goods that inherently provide social insurance. Treasury have previously invited us to prepare a refreshed business case targeting funding sources largely aligned with a focus on future-ready resilience.

Figure vi. Alignment of our co-investment case in flood resilience with broader strategic priorities and objectives.

Refreshed co-investment case

Te Uru Kahika Regional and Unitary Councils Aotearoa

EXECUTIVE SUMMARY

Strategic Case

This section contextualises our programme of work in flood resilience, outlines our case for change, and delves into the strategic alignment of this investment with current government settings and intentions.

Flood risk in New Zealand

The scale of the challenge we're dealing with.

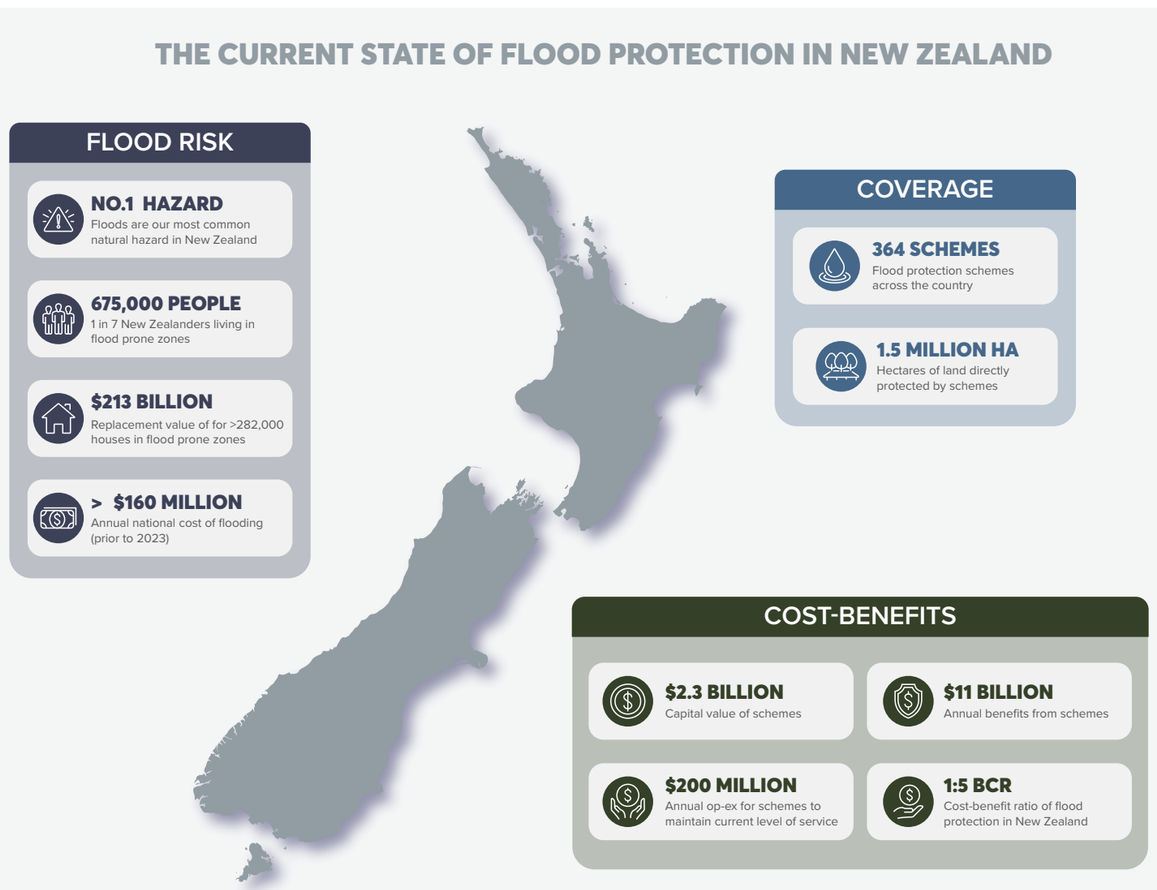
Flooding is our most common natural hazard in New Zealand[6], with a major flood event happening on average every eight months – although the events of 2023 would seem to indicate otherwise. NIWA estimates that nationally in any given year there is a 50% chance of a 1:150 year (average return interval) flood[7].

While there are fluvial (riverine), pluvial (extreme rainfall), or coastal floods, it is riverine flooding that poses the biggest risks to life in New Zealand. Fluvial flooding is also the main focus of our co-investment case, although pluvial and coastal flooding may also occur in tandem as a result of a severe weather event.

Across the country, there are 364 schemes currently in place that serve as river management and flood protection infrastructure. These schemes directly protect our people, land, infrastructure, and taonga; minimising the loss of life and damage to key assets and critical infrastructure such as our waters, transport networks, utility networks, and hospitals.

Our flood protection schemes are a core economic enabling infrastructure; central to our economic prosperity and wellbeing as a nation. Put simply, this makes flood protection a matter of national interest.

The infographic below provides a high-level overview of key flood-related metrics, including the benefits generated by our flood management infrastructure.



Sources: Tonkin & Taylor. (2018). Hiding in plain sight report; NZIER. (2020). Investment in natural hazards mitigation; Ministry for the Environment. (2023). Community-led retreat and adaptation funding.

Figure 1. The current state of flood risk and flood protection in New Zealand.

Flood risk in New Zealand

The scope and objective of our current co-investment proposal.

Despite the billions of dollars in benefits generated, including for major Crown assets and critical infrastructure on non-rateable land, our flood mitigation schemes have long been under-invested in by central government. They are increasingly under pressure to deliver a higher level of flood resilience needed in a climate-changed world.

Importantly, there are many more regions across our country that remain vulnerable to flood risk, such as Wairoa[8], and require urgent flood management infrastructure to maintain resilience in the face of the next major flood event, and the one after that. Yet, ratepayers are unable to afford this investment on their own, within the required timeframes. Urgent co-investment is needed from central government to address inequities and to fund an issue of national interest.

This business case seeks a central government commitment to co-invest $197.61 million, in partnership with regional councils, toward 80 'shovel-ready' flood management infrastructure projects urgently needed across New Zealand. The investment objective and scope is described at right.

This is a refreshed version of our previous co-investment case *Before the Deluge* submitted to Government at the end of 2022. In this refreshed case we have:

- Updated the strategic context to include changes in the landscape in reference to the flooding events of the past year;
- Updated the list of projects to exclude those being funded via regional recovery spending;
- Updated the costings for the remaining projects to adjust for construction price increases;
- Situated the projects within a broader multi-tool PARA approach to flood resilience efforts that are occurring at the national and regional levels;
- Discussed the cost-benefits of investing in the 80 projects, grounded in international research, sector experience, and calibrated against recent case examples in New Zealand, and,
- Incorporated mechanisms for progress reporting and post-investment review that ensure probity and guarantee on-time delivery, within an established governance framework that has overseen the successful delivery of 55 similar 'shovel-ready' flood management infrastructure projects over the last three years*.

Investment scope

In scope

- Crown investment of $197.61 million in cap-ex for 80 'shovel-ready' flood management infrastructure projects across 12 councils
- Regional council co-investment of $131.74 million alongside the Crown to deliver the 80 identified projects
- The delivery of these 80 projects over the next three years with all projects being completed by 2026/27.

Out of scope

- Investment by Crown or regional councils outside the 80 identified projects

Investment objective

The objective is to reduce the impact of future flooding events on some of our most at-risk communities, acknowledging that other adaptation solutions are already being planned and rolled out over the next few years.

The outcomes delivered

These projects will deliver an improved level of flood resilience for our communities and our critical infrastructure. Over the longer term, these flood protection projects will facilitate the design and implementation of the longer term programme of climate adaptation work needed. There are also broader co-benefits that will arise from investment in flood protection, as discussed in the Economic Case.

* This refers to the tranche of 55 flood projection projects that received a $217 million co-investment as part of the government's COVID-19 recovery programme in 2020.. It is also known as the 'Climate Resilience Flood Protection Programme'.

Building our flood resilience

Requires a multi-tool integrated approach.

There is clear evidence that upfront investment in risk management can save millions[9], as we have shown throughout *Before the Deluge*, and will show in this co-investment case.

While central government has co-invested in 55 'shovel-ready' flood protection projects in 2020, this funding wasn't part of a longer-term strategic investment in flood protection. Indeed, since 1990 central government has backed away from adopting a more planned, proactive approach to investing in flood protection; to the detriment of lives, livelihoods, and our economy, and at great cost to our nation.

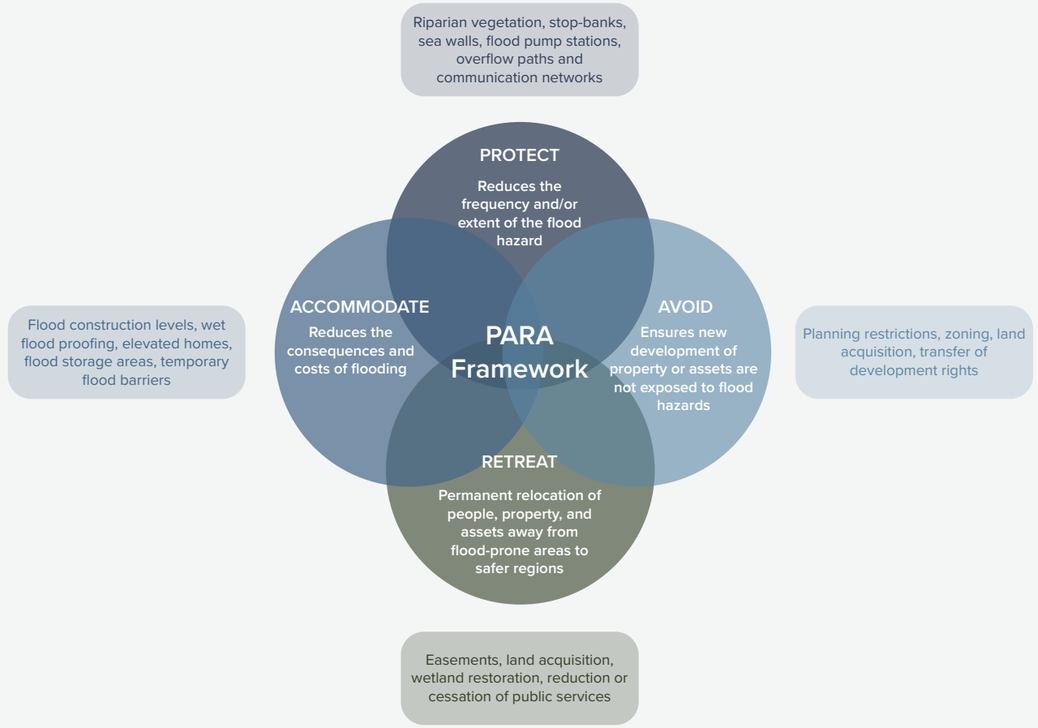
We've had first-hand and recent examples of how much extreme weather events can cost us. As these events become more common, adaptation to protect lives and livelihoods become more important.

Adaptation involves reducing the vulnerability of people and systems impacts, enhancing adaptive capacity by building the capacity of people and systems to respond and by strengthening resilience to enable people and systems to cope[10].

A full range of adaptation options need to be considered in building community resilience, and this needs to account for the increased risks posed by climate change as well.

Internationally, this multi-tool approach is recognised as the PARA approach (Protect, Accommodate, Retreat, and Avoid), and is endorsed locally by the National Emergency Management Agency (NEMA), the Department of Internal Affairs, and the Ministry for the Environment in improving our flood resilience from pluvial and fluvial flooding[11].

The infographic below summarises this PARA approach, with specific examples for each solution. It also shows there is overlap across the four approaches; each with their own inherent strengths and limitations.



Source: Doberstein, B., Fitzgibbons, J., & Mitchell, C. (2019). Protect, accommodate, retreat or avoid (PARA): Canadian community options for flood disaster risk reduction and flood resilience. Natural Hazards, 98(1), 31-50.

Figure 2. The PARA framework outlining four complementary but related approaches to flood resilience, with examples for each.

Building our flood resilience

We need to be strategic about which PARA solutions we deploy, where, and when.

Specific elements of the PARA approach include:

- **Protection**, which involves physical structures (e.g., stop banks/levees and pumping stations) and systems to protect people, property and critical infrastructure from damage;
- **Accommodation**, strategies that allow continued use of flood-prone areas through enhancing community preparedness and resilience and/or limiting the extent of flood damage (e.g., elevating homes and buildings, flood-proofing, flood storage areas, and changes to making flood risks clear in LIM reports);
- **Retreat**, or the permanent relocation of homes, buildings, and infrastructure away from flood prone areas, and
- **Avoid**, halting or limiting development in flood-prone areas through planning and policy controls.

This approach recognises that adaptation needs to be place-based and risk-based to ensure the options adopted will meet the specific needs and circumstances of the community, and is tailored to the local context.
No single approach will ever deliver the level of flood resilience we require in a climate-changed world. What's more, not all tools are suitable across all contexts. For instance, retreat may not be a feasible or immediately-deployable solution for densely-populated urban areas.

That's why we need to be strategic about which tools we deploy, and when, bearing in mind the climate change implications and equity considerations over the long term as part of the resilience planning process. This can only happen through an effective and long-term partnership with central government.

Refreshed co-investment case

STRATEGIC CASE

What does 'protect' look like?

Our flood protection schemes are our nation's first line of defence against floods. With careful planning and due consideration of ecosystem and environmental health principles, these schemes function as an 'immediate' adaptation tool.

In fact, 'protect' is often the first step in adapting to climate change because it delivers an immediate level of resilience against floods, with the added benefit of allowing time for other complementary 'accommodate', 'avoid', and 'retreat' tools to be implemented and take effect.

However, structural solutions on their own aren't a fail-safe option since guaranteeing absolute protection against floods is impossible. There will always be a level of 'residual risk' remaining, and this must be addressed by building resilience into other complementary measures such as our flood control and warning systems, communications networks, and improving the accuracy of the data underlying our flood risk modelling.

'Protect', then, involves an integrated risk-based approach that combines physical infrastructure (i.e., 'hard engineering'); nature-based solutions; emergency management, planning, and regulation; and relying on dependable forecasting, monitoring, and communication networks.

Collectively, we refer to these solutions as **flood management infrastructure**, reflecting the critical role of flood protection schemes in improving the resilience of our communities and our infrastructure during flooding events.

On the following page, we showcase a few examples of how flood protection schemes, when integrating ecosystem health obligations, can deliver improved flood resilience and wider co-benefits. These are recently completed projects that received co-funding through the Climate Resilience Flood Protection Programme in 2021.

Image source: Environmental Protection Agency

Alignment with PARA

Regional councils are already deploying PARA solutions at-place.

The Local Government Act (LGA, 2002) requires councils to prepare Long Term Plans in consultation with their communities and prepare Infrastructure Strategies that demonstrate how the communities' infrastructure needs will be met over a 30-year horizon.

As part of these LGA requirements, councils have to define how investment programmes are planned and funded, utilising Long Term Plans and Asset Management Plans to achieve this. It follows that these planning instruments are key tools that have a significant impact on how councils approach flood management, as well as the related infrastructure.

The programme of work outlined in our investment case is unashamedly focussed on protection and accommodation, and includes a mix of hard engineering and nature-based solutions.

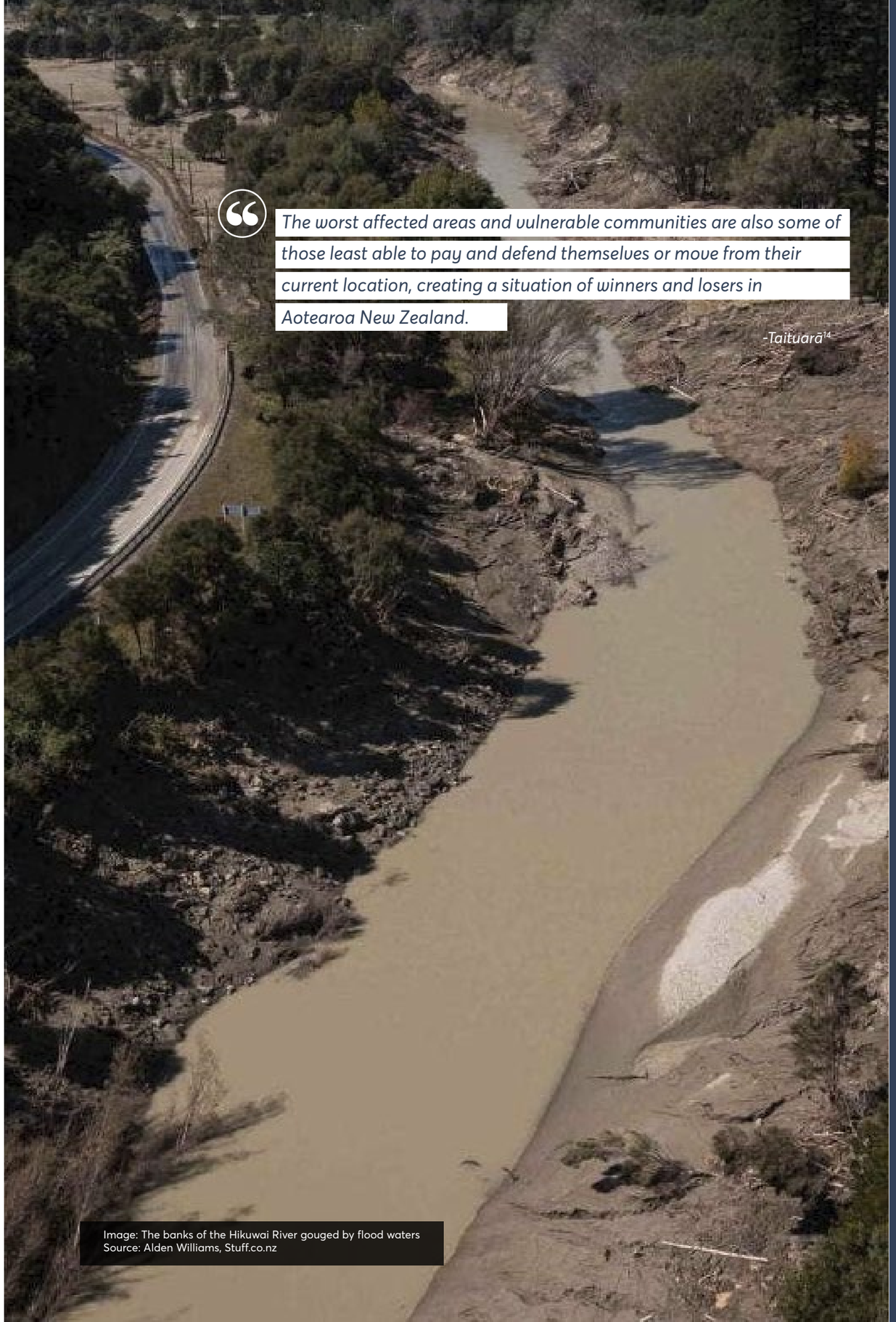
However, it's important to clarify that this isn't the sole focus of river management activities. Other elements of adaptation are not ignored. In fact, across councils, programmes of work are already underway that make good use of other solutions in our PARA toolbox.

In the following pages, we delve into a selection of case examples from the Greater Wellington, Waikato, and Canterbury region, to show different councils' application of the PARA framework. We are not seeking funding for these broader activities within this investment proposal. In short, while councils are engaged in applying a range of PARA tools within their remit, it is the 'protect' solutions that require the greatest level of investment currently; one that cannot be fronted at a local and regional level alone. This is what we are seeking funding for.

We also recognise that approaches to retreat or avoiding development in flood-prone areas need to be delivered through other legislative and policy instruments many of which are in development by central government, or delivered through other agencies as set out in the National Adaptation Plan[13].

In the interim, many of our existing flood protection schemes need urgent improvements in the level of service and protection. This is not simply about building our stopbanks higher. It is about making sure that our existing flood management infrastructure is fit for purpose and can cope with the rapid onset of climate change and urban intensification, particularly in areas where levels of protection are low or absent.

While we work to enhance our flood resilience, we must also recognise that 'protect' measures remain our most practical and readily-available option to buy time for communities who cannot afford to wait until decisions about retreat and spatial planning come into place. Protection does and always will play a critical role in flood risk management, especially for our most vulnerable communities.



> *The worst affected areas and vulnerable communities are also some of those least able to pay and defend themselves or move from their current location, creating a situation of winners and losers in Aotearoa New Zealand.*
>
> *-Taituarā*[14]

Image: The banks of the Hikuwai River gouged by flood waters
Source: Alden Williams, Stuff.co.nz

STRATEGIC CASE

Alignment with PARA

Greater Wellington's application of the PARA framework.

The framework Greater Wellington Regional Council (GWRC) and communities use to evaluate, manage flood & erosion risk is a comprehensive and effective approach to protect communities from flooding and erosion. It considers flood hazard from the absence of flooding up to the Probable Maximum Flood (PMF)*, which is the largest flood that could possibly occur. The framework sets community expectations and puts in place strategies to protect, accommodate, retreat from and avoid the effects of flooding and erosion. This approach is set out in GWRC's Guidelines for Floodplain Management Planning[15].

Overall, this framework sets out how GWRC works with communities to evaluate and manage flood and erosion risk. It is helping to create a safer and more resilient environment for the communities in the region.

It is important for communities to be able to assess their specific needs and create a plan that works for them. The combination of options chosen will be different for different communities but the important thing is that it is an integrated set of strategies that manage all flood risk from the smallest to the biggest and that there are no gaps in the strategy chosen. This creates a platform for the difficult conversations required to ensure that the level of protection provided by stopbanks for example, is matched to the strength of planning controls and land use.

The figure below demonstrates two types of community protect and the third is what happens when there are gaps in the system.

- In *Community A*, the low-level of protection provided by channel management and stopbanks is effective since it is primarily a farming community, and the risk of flooding is not as severe as other areas.
- *Community B* require higher levels of protection because the assets at risk are much greater and the ability to pay for such protection is also greater.
- *Community C* indicates a gap in the flood risk management strategies and consequential flooding. This showcases the importance of GWRC's management of the flood hazard – the planning controls and emergency management in place allow for prevention of unsuitable development in vulnerable areas and prepare for any larger floods that may occur.

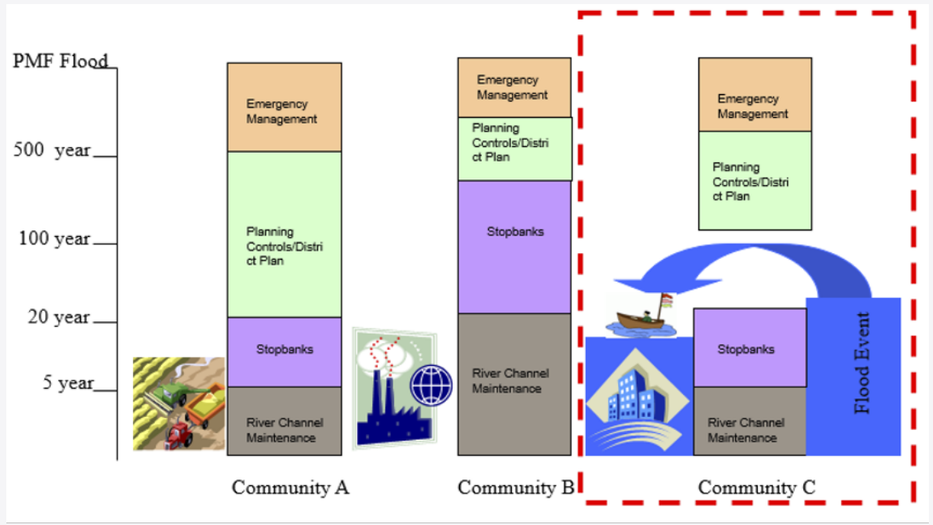


Figure 3. Community scenarios illustrating the importance of Greater Wellington's PARA approach in managing flood hazards.

* This is the Floodplain Management Planning Framework. GWRC is responsible for fifteen flood risk management schemes within the Wellington Region managed with the FMP and Environmental Strategy framework. The FMPs generally have a 100-year vision with implementation taking up to 40 years. The work plan is developed and agreed with the community. FMPs and Environmental Strategies guide GWRC's 30-year infrastructure plan.

Refreshed co-investment case

STRATEGIC CASE

Greater Wellington's application of the PARA framework.

The figure below shows how the measures for which co-investment is sought in this refreshed *Before the Deluge* case fit within the PARA framework developed for flood risk management. The links in this example are particularly related to the Waipoua projects in the Wairarapa. For this example, the Te Kauru Upper Ruamahanga Floodplain Management Plan (URFMP)[16] sets out the final agreed flood risk management strategies, including the specific PARA responses (see URFMP part 1, s3 p11).

We have further examples relating to the application of the PARA approach for the projects proposed in the Hutt Valley and the Kapiti Coast areas of the Wellington Region.

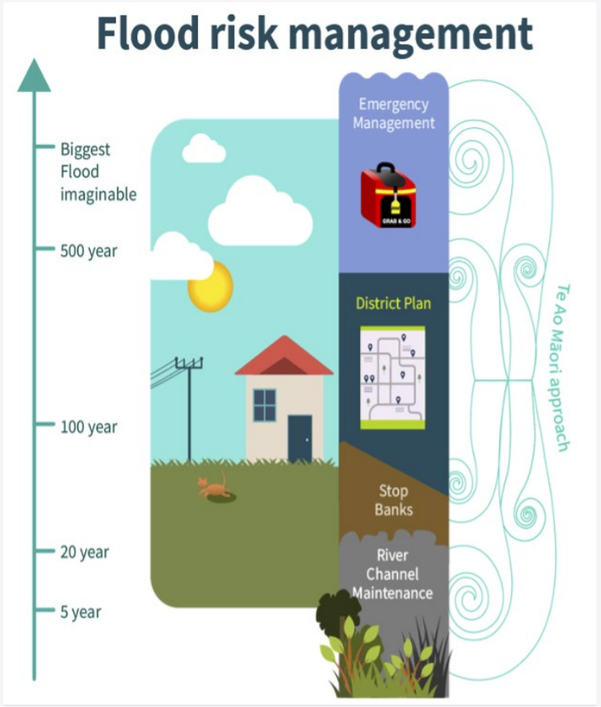


Figure 4. Community scenarios illustrating the importance of GWRC's PARA approach in managing flood hazards.

Protect: **Stopbanks** and other engineering controls. Risk management is through the construction of engineering flood and erosion defences, noting that these measures only manage the flood risk up to the design flood standard and larger floods will occur that are too big for the stopbanks to contain. River channel management is included as an integral part of a stopbank system (see URFMP part 2 for all structural solutions and s7 p101 for those included for the Waipoua Stopbanks for which co-funding is being sought).

Avoid: **Planning controls.** The District Plan provides policies and rules on development in flood risk areas. These include to avoid and control development in flood hazard areas through District Planning rules. The most recent information has been provided to Masterton District Council and included in the Proposed Wairarapa Combined District Plan. Policies and Rules are also included in the Regional Policy Statement and the Regional Plan (see URFMP p126).

Retreat: **Permanent relocation** of people and property away from flood prone areas. For this URFMP the development of a 50m wide vegetative buffer on either side of the river has been agreed with the relocation of assets out of this area. This will allow room for the river with minimal intervention for erosion. Purchase has been allowed for as a way to initiate the managed retreat of assets within the buffer (see sections 3.2 p12 [also 3.2.2 and 3.2.5] and 3.3 p20 [also 3.3.6 and 3.3.8]).

Accommodate: **Emergency Management**, including Flood Warning & Response. Managing the risk, particularly the risk from really big floods, through emergency readiness, response, and recovery procedures (see URFMP s3.4 p23). This is carried out in combination with Emergency Management providers. In addition to this, we have now updated the Regional flood response procedures and also ran a Masterton-specific flood exercise with Masterton District Council, Wellington Region Emergency Management Office, and Greater Wellington Regional Council in May 2023.

Alignment with PARA

Waikato's PARA approach to flood mitigation.

The Waikato region covers 25,600 square kilometres and has a population of 497,000. It has around 20 large rivers and hundreds of smaller rivers and tributary streams with a total length of more than 16,000 km. These combined with steep terrain, low lying flood plains and areas of high rainfall make river flooding one of the Waikato region's most frequent natural hazards.

The Waikato Regional Council owns and manages flood protection, river management, catchment management (e.g. soil conservation) and land drainage schemes with a total replacement value of approximately $1.2 billion.

The Waikato Region Asset Management Plan identifies the issues, management strategies and approaches to address the issues facing this programme into the future. These issues, and strategies to address them, are set out in the table below. This work supports Council's Long Term Plan and adaptation planning discussions with stakeholders.

Table 1. Waikato Regional Council's identification of key issues (related to flood mitigation) and PARA strategies to address these.

Key issue	Strategies to address key issues
Climate change	Establishment of regional standards and guidelines. Continued investment in flood risk forecasting and prediction tools. Monitoring the effect of extreme weather events on asset functionality and condition. Identified responses are incorporated into works programmes.
Growth and development	Reviewing changes in planning and policy development, including growth strategies, to review Levels of Service required and whether asset management plans are delivering required levels.
Morphological change	Sustainable land management practices promoted across catchments. Land stabilisation initiatives including external funding (e.g., Hill Country Erosion Fund). Engage with District Councils planning processes. Targeted land surveys and asset development / replacement and renewal programmes.
Treaty of Waitangi Settlements	Ongoing discussions and involvement of iwi in land use strategies, capital and maintenance projects, and approaches to respecting and adopting Te Mano o te Wai principles.
Regulatory change	Feedback to regulators on proposed changes and involvement in industry working groups (e.g., Rivers Group) with regular scanning of regulatory changes on the horizon.
Sustainability of schemes	Review how sustainability of schemes is assessed, including how Levels of Service could be evaluated, changed and delivered in the future.
Land use change	Sustainable land management practices promoted across catchments. Engage with District Councils planning processes. Broaden scope of hydraulic modelling services to better inform sustainable development.
Ageing assets	Condition and performance assessments. Maintenance and renewal programmes.
Environmental performance	Monitor balance achieved between environmental and economic objectives. Comply with relevant legislation, rules and regulations and consent conditions where relevant.
Lake level function	Monitor lake levels to determine whether a weir or culvert is required to maintain a lake at a critical level.
Natural disasters	Assessment of all natural hazard risks. Flood risks management. Raise community awareness as to emergency procedures and response. Input to District Council plan reviews to highlight issues.
Knowledge fade	Adequate resourcing. Succession planning. Corporate systems and information capture.
Community awareness of our function and benefits	Community education, promotion and engagement. Regular community targeted information / publicity.

Refreshed co-investment case

STRATEGIC CASE

The PARA framework is a methodology within Council's draft sustainable infrastructure decision making framework. The framework considers the short, medium and long-term effects of infrastructure decisions on the cultural, environmental, social and economic aspects of our regional communities.

An example of where this PARA approach has been applied is a comprehensive catchment project recently delivered within the Lower Waikato Flood Scheme. Waikato Regional Council worked with landowners to undertake retirement of steep hill country, afforestation, pole planting, riparian fencing and planting, and actions to reduce and prevent stream bank erosion such as rock revetments. Collectively, these activities have built stability and capacity into these river and catchment systems, effectively slowing down runoff in high rainfall events, retaining flood flows within the channel and allowing waterways to 'move'. This is an important and cost-effective piece in the puzzle to support the protection of roading, infrastructure, properties and communities, such as Ngāruawāhia and Huntly, in the mid to lower reaches of the Lower Waikato River.

Waikato Regional Council have also been leading the development of a cost-effective, New Zealand-designed and manufactured fish-friendly flood pump retrofit fitting able to be used to retrofit many of the older flood pumps around the country. The first is being installed in early 2024 in the Waikato, with technical and funding assistance from Callaghan Innovation.

The Waikato flood resilience projects put forward for co-investment in this refreshed *Before the Deluge* business case involve a $39 million 'shovel ready' programme of work across 12 projects. They encompass the PARA approach and take into consideration assets at risk of failure, people and property at risk, avoidance of future legacy issues, as well as sustainability. These projects are demonstrative of the Council's approach of environmental interventions and upgrades that support sustainable infrastructure and flood protection, reflecting a sizeable financial commitment on their part.

Image: Willow / blockage removal
Source: Waikato Regional Council

Image: Set back fencing allowing room for the river to move
Source: Waikato Regional Council

Image: Fish passage pumps being loaded for shipping from Europe
Source: Waikato Regional Council

Alignment with PARA

Environment Canterbury's commitment to PARA.

Environment Canterbury (ECan) is committed to the PARA approach in Canterbury's actions on flood and river resilience, and have made it part of their proposed 30 Year Infrastructure Strategy for 2024-2054.

ECan manages $852 million (2022) of flood protection and drainage assets within 58 dedicated schemes. The maintenance of these schemes is critical to deliver agreed levels of service to protect local communities. The strategic review of schemes is ongoing as the need to adapt infrastructure for climate change is at the forefront. Canterbury has over 78,000km of rivers and 800km in coastline. ECan's workload is increasing as more communities ask for dedicated support for ongoing flood issues which touch on all PARA principles. Canterbury is also unique as it has 64% of the nation's braided rivers, which are diverse and hold significant ecological and cultural value. In May 2021 Canterbury was impacted by its biggest flood event in decades which caused some $22 million in damages to flood protection infrastructure. Financial losses to private property and other infrastructure were far in excess of this value. With knowledge gained from that event and from subsequent technical reviews, ECan are actively planning upgrades of critical infrastructure, retreat, land purchase and natural solutions.

Being prepared in advance is important and can make a significant difference when an event does occur. ECan is proactively looking at improvement opportunities for both flood warning service and Civil Defence and Emergency Management (CDEM) activities. This includes possible additional resources, investigations into digital solutions improvements, flow forecast modelling, and training and development opportunities. Alongside this, ECan's natural hazards team document flood events when they occur, carry out floodplain modelling investigations, and work with district councils to develop planning provisions that ensure flood hazards are avoided or mitigated. ECan also provides a site-specific flood hazard advice service, which includes recommendations on suitable building locations and floor levels.

ECan has put forward a proposed $38 million 'shovel-ready' programme within the current business case. It consists of seven key projects (some made up of multiple workstreams) and while some individual projects are only focused on some of the PARA principles, holistically the proposed programme embraces the full PARA approach. This programme has been carefully considered from a comprehensive risk-based perspective to ensure no future legacy issues are created, immediate issues are dealt with to keep people safe, and critical planning and preparedness can be progressed.

Co-investment will not only enable this key piece of work to be completed, but also look to other sections of the river where this approach is needed and would not otherwise be able to occur for another 10 or more years. Several projects such as structure upgrade / adaptation and fairway vegetation clearance embrace multiple aspects of the PARA framework. These projects are critically needed to reduce risk to life and assets, and although retreat is not possible in every case now, the implementation of the proposed scope allows more time for strategic planning and critical community conversations.

An example within ECan's programme that captures the full PARA approach is work on the Ashburton/Hakatere north branch where land is being purchased to retreat the stopbank along a very narrow section of river. This will not only give the river more room but will also enable gravel extraction which is a key issue in that area.

Image: Ashburton/Hakatere braided river
Source: Braided River Aid

The case of Westport: flood risk reduction still on hold.

Finally, although outside the scope of investment for this case, we draw comparisons to the previously-submitted business case Co-investment in Westport's Resilience[17].

This case sought $45.46 million in funding as well as non-financial support from central government, in partnership with the local community, toward recovery from the Westport floods of July 2021 / February 2022 and enabling longer-term flood resilience in one of the country's most economically deprived Districts.

The preferred path forward comprised an integrated suite of PARA measures, summarised in the figure at right. Importantly, each interdependent component would enable a multi-tool, long-term approach to building community resilience against flooding.

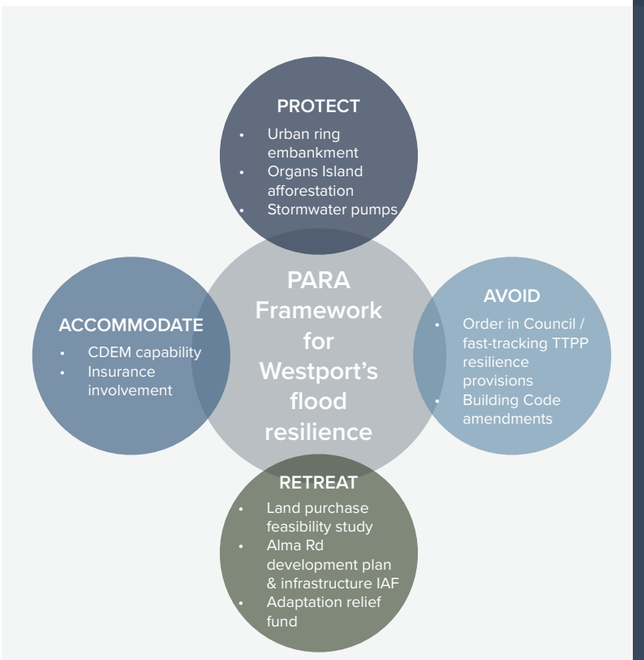
Combined, this package of initiatives was estimated to avoid at least $400 million in direct damages to buildings alone, let alone the wider human, economic, and social costs.

With appropriate design and implementation considerations, these initiatives were also expected to give rise to a broader range of recreational (through embankments doubling as cycleways) and ecological (enhancing fish breeding areas and securing old landfill sites adjacent to the estuary) benefits.

Proposed initiatives were staged, meaning they did not have to be implemented all at once, with the 'protect' structural and nature-based measures demanding much more urgency and fast-tracking. This is the same logic underpinning our current co-investment case, showing the need to 'buy time', while also emphasising that resilience cannot happen through a single solution alone.

In May, $22.9 million – under half the requested funding – was approved through Budget 2023, with the bulk of this directed at 'protect' measures. Without the remaining central government co-investment, however, Westport remains unable to implement a flood mitigation scheme and develop community resilience against future flooding events and the impacts of climate change. More than two and a half years after the floods, residents in high flood-risk areas continue to remain frustrated at the prolonged stressed and ongoing uncertainty[18].

As we will show later (pp 68-69) of this document, there were considerable costs associated with not investing earlier in a package of flood resilience measures in Westport. These risks continue to loom over the District, waiting to become realised as costs to lives and livelihoods with the next major flooding event.



Source: West Coast Regional Council. (2022). 'Co-investment in Westport's Resilience', Proposal to Hon Nanaia Mahuta, Minister of Local Government.

Figure 5. Westport's PARA approach outlined in the 2022 'Co-investment in Westport's Resilience' proposal.

Our work to date

Regional and unitary councils' collective approach to community resilience.

The collective of regional and unitary district councils make up the regional sector of local government. For ease of reference, we refer to this as the 'regional sector collective' throughout this document.

The collective comprises the 16 regional and unitary district councils across the country. It is supported by 26 professional groups or Special Interest Groups (SIGs) – one of which is the River Managers' SIG – drawing on local expertise and shared interests across councils to boost the wellbeing of our environment and our communities in response to the impacts of climate change and natural hazards such as flooding.

The regional sector's approach to building community flood resilience has been refined over the last five years, and now reflects a three-pronged approach, as indicated at right.

Underpinning this is a demonstrated commitment to adopting a multi-tool PARA approach to developing community flood resilience, prioritising environmental and ecosystem perspectives, and adopting nature-based solutions where possible.

Flood management infrastructure

Get the right **flood management infrastructure**, in the right place, performing the right level of flood management service, with the right priority and the right environmental sensitivity.

Climate change and adaptation

Actively contribute to **climate change adaptation** planning / policy actions.

Informed decision-making

Make **best use of the information** held by councils to help property owners to make informed decisions about building resilience against flood risks (e.g., LIMs) and to improve flood warning.

Figure 6. The regional sector's three-pronged approach to community resilience.

The River Managers' Special Interest Group (SIG)

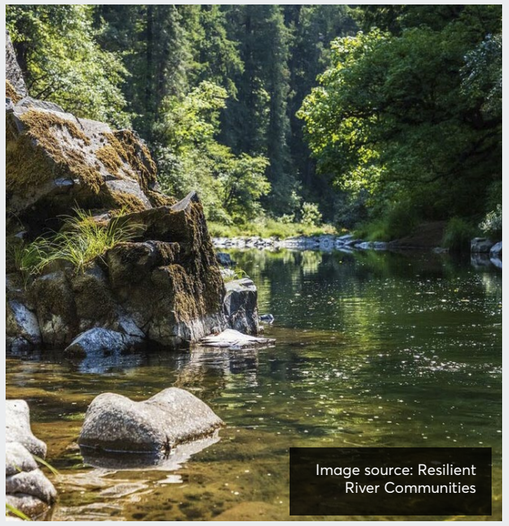


Image source: Resilient River Communities

The River Managers' Special Interest Group (SIG) has a vision that we have improved community and ecosystem resilience through collaboration, advocacy, and delivery.

Through the River Managers' SIG, the regional sector has long championed the need for central government partnership in flood management and resilience to achieve the best possible outcomes for our country. They have assessed and quantified the risks and investment approaches required, built co-investment pathways between central government and the regional sector, and set out a pragmatic roadmap for a flood resilient New Zealand over the coming decades[19].

This decade-long plan is detailed on the following page, alongside a timeline of regional sector initiatives.

Integrating environmental and ecosystem health perspectives.

In addition to alignment with the PARA framework, the work of the regional and unitary councils also integrates environmental concerns and ecosystem perspectives. Below we provide extracts from recently-completed flood protection projects, that demonstrate consideration of these perspectives. Further detail on these projects is provided on pages 79-85.

Otiria Moerewa flood mitigation spillway, *Northland Regional Council*

A combination of nature-based and hard infrastructure solutions, this project put community at the centre of the spillway and bridge replacement work, with a focus on cultural induction and tikanga.

Amongst other social and cultural benefits, this work restored the natural flow of two rivers' while reducing flood risk by around 75%. Local hapū also planted around 10,000 native species, and kaitiaki (cultural monitors) were employed to oversee the project and assist with monitoring water quality and fish surveying, due to the rich cultural history and number of taonga sites in the area.

Image: Kaitiaki and volunteers carry out stream health checks at Otiria Stream
Source: Northland Regional Council

Image: Stead Street pump station construction
Source: Environment Southland

Stead Street pump station replacement, *Environment Southland*

In addition to the direct flood protection benefits for 116 properties, new energy-efficient pumps installed provide safe passage for valued 'mahika kai' fish species across 27km of waterways.

Combined with extensive native planting by iwi-owned and operated conversation organisation Te Tapu o Tāne, this pump station "once in a generation" project will see the health of the Kōreti estuary restored to its once-healthy state.

Robson Lagoon flow management structures upgrade, *Otago Regional Council*

A solar-powered flow control gate replaced ageing infrastructure at Robson Lagoon, encouraging the flows of tributaries to a regionally significant wetland and protecting the natural and ecological values of the 566-ha lagoon complex.

This wetland, ranked 5th out of the country's top 10 wildlife habitats, is home to over a broad variety of indigenous flora and fauna, including many rare and threatened culturally-significant species.

In addition to the environmental, cultural, and local procurement benefits, preservation of these wetlands will have significant intergenerational benefits for the community and for local ecosystems.

Image: New solar power gate at Robson Lagoon
Source: Otago Regional Council

Our roadmap to flood resilience.

The timeline at the bottom of the page sets out the work completed in recent years, as well as the indicative upcoming programme of work, with details on specific programmes in the coloured boxes.

The last three years: Climate Resilience 'shovel-ready' funded projects

In 2020, central government co-invested $217 million into 55 flood protection projects across the country, as part of the COVID-19 recovery programme. This investment represents the most significant contribution to flood management from central government in over 30 years and has fast-tracked 'shovel-ready' projects to improve long-term community flood resilience much sooner than planned.

This programme was the first step in establishing an effective ongoing co-investment partnership for flood resilience between central and local government. Select examples of projects are provided as case studies in *Before the Deluge*, throughout this document, and on the Resilient Rivers Communities website.

The anticipated completion date for these projects is in 2024, with significant benefits already being demonstrated through projects such as the Taradale stopbank upgrades (see p70) and the Awanui River flood scheme upgrade in Kaitāia (see page 71). The sector's successful delivery of these 55 essential flood protection projects and anticipated outcomes to date is important for retaining central government's confidence in this and in future investments. It is on the basis of this successful track record and sector maturity that we make our current case for continued co-investment in building flood resilience, over the next three and ten years.

The current joint programme has assisted achievement of a substantial improvement in capacity and capability within both the public sector (local and central) and the private sector. The flood mitigation infrastructure construction sector now has fresh momentum. The investment made to establish this momentum should not be allowed to wane. The ask of restarting it, if there is a gap, will face head winds. For the sake of long run benefits, now is the time to maximise current time, capability a, and cost delivery benefit opportunities.

The next three year plan

The three-year plan focuses on 80 priority flood management infrastructure projects that deliver immediate and improved flood resilience, in complement with national direction around PARA and regulatory reforms. These projects comprise a re-assessed list of the 92 projects originally included in *Before the Deluge*, excluding those already funded via the Cyclone Gabrielle Recovery Funding packages. This three year plan is the focus of the present business case, totalling $329.35M: of which we propose $131.74 is funded through regional councils and $197.61M through central government.

The ten-year programme of work

The long-term focus is on getting our nation's flood management infrastructure 'fit for purpose' within a decade. Specifically, this work will deliver higher levels of 'climate change' flood resilience – that is, resilience against a 1 in 100 year flood or better, under a RCP6 climate change scenario (medium efforts to curb emissions and moderate increases in extreme weather events). This will improve the 364 flood protection schemes currently in place across the country, while implementing new and additional schemes at other locations.

We expect this programme of work will require an investment of around $5 billion over ten years. The regional sector has already committed around $200 million per year (i.e., half the cost or $2.5 billion) toward investment in improving our flood resilience over the next decade. The sector collectively seeks to build a sustainable partnership with central government and other relevant agencies (including the insurance sector) in making this level of flood resilience a reality for New Zealand.

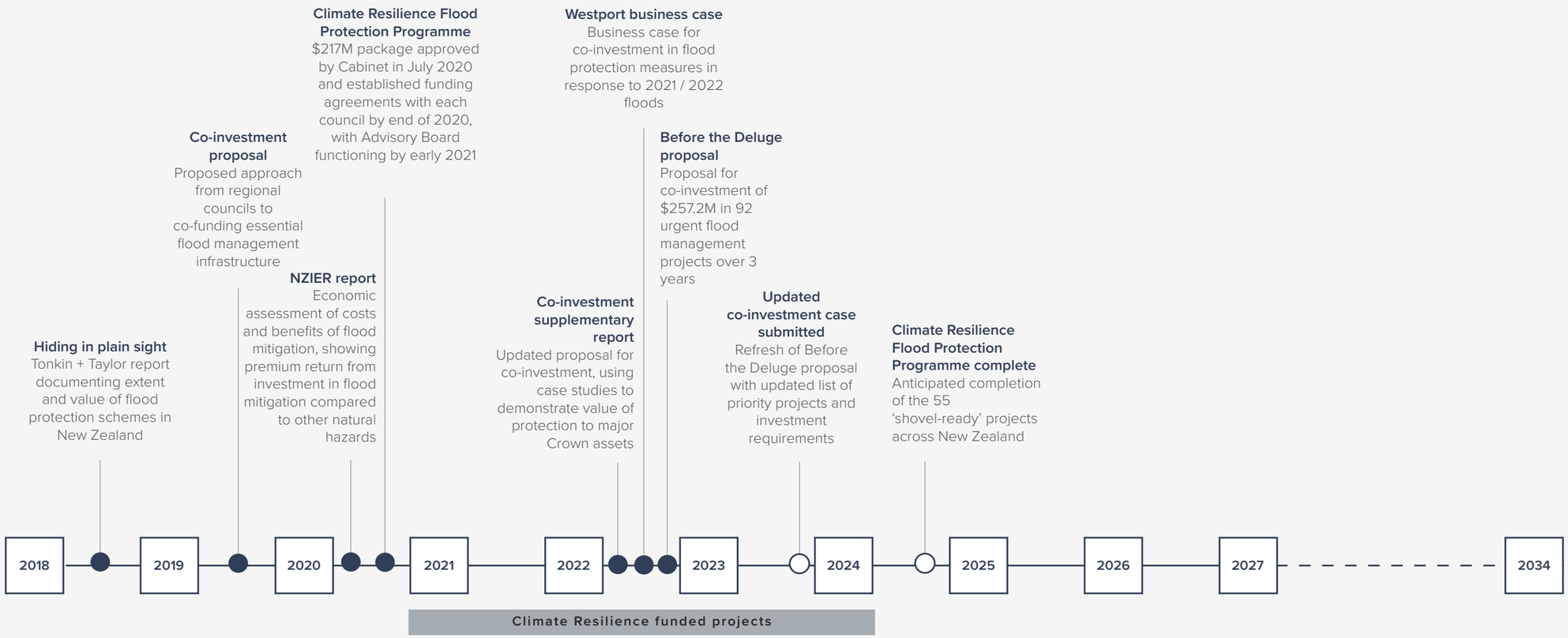


Figure 7. Timeline showing the regional sector's long-term flood resilience programme of work in New Zealand.

The current co-investment case

Flood protection infrastructure remains a matter of national interest.

Many of our river management and flood protection schemes were constructed up to half a century ago, and weren't designed to cope with the pressures of population growth and climate change we're currently experiencing. Most of these schemes also urgently need upgrades and/or repairs to maintain the expected levels of service.

Importantly, the value of assets being protected has drastically increased. These include Crown assets such as schools, hospitals, and airports; critical infrastructure such as our waters, transport networks, energy and telecommunication links; and cultural assets and taonga such as our marae and urupā.

Damage to these assets means significant and widespread disruption to lives, livelihoods, our economy, and our recovery, as we have seen with the recent spate of adverse weather events. **This makes river management and flood protection a matter of national interest.**

Prior to the 1980s, central government provided significant levels of co-investment toward these schemes, in recognition of the wider national interest and government responsibilities in being a joint investor benefitting from these schemes*. This continues to remain standard practice across comparable economies internationally, including in most of Europe, the UK, the US, and Australia.

Our proposals for co-investment, dating back to 2019, make the case for central government to 'return to the table' as a co-investment partner in river management and flood protection schemes. In late 2022, we built on this tenet in submitting *Before the Deluge*: a business case that sought central government co-investment in 92 'shovel-ready' flood protection projects across the country, totalling $482.2 million over three years.

Since then, a lot has happened, including an unprecedented number of adverse weather events, as well as shifts in the regulatory and political landscape.

We cover these changes over the next few pages, noting that many of the same pressures and challenges – such as the risk of insurance retreat or withdrawal, funding pressures, and challenges around equity and affordability – have since intensified.

Nevertheless, our central premise remains the same. We maintain that flood protection remains our most immediate and critical adaptation tool, that has the additional benefit of enabling 'time' for other resilience solutions to be designed, implemented, and fully take effect. The projects listed in our proposal have been developed and prioritised as being the right solution, for the right place, at the right time – that is, now.

The regional sector has the expertise and local knowledge that can best inform planning and delivery of projects, and we are best positioned to deploy our relatively smaller funding base effectively in a way that prioritises community needs.

Central government, on the other hand, is best positioned to provide consistent and cohesive national direction through legislation, as well as funding resources, that will enable us to jointly remedy long-entrenched inequities.

Together, this partnership based on complementary roles and responsibilities, will allow us to deliver the level of long-term flood resilience needed for a climate-changed New Zealand.

* See *Before the Deluge* p18 for a history of how our flood protection has evolved over the decades.

We are not simply asking for funding here.

Instead, we are asking for central government to return to their role as partner with the whole of local government sector, in an arrangement that builds on the relative strengths of each partner and ensures collective responsibility for climate change and flood risk resilience.

Image: Diggers clearing silt and debris in Eskdale, Hawke's Bay
Source: Christel Yardley, Stuff.co.nz

A timeline of events

A series of adverse weather events over the last twelve months has had devastating impacts on our communities, wellbeing, and economy.

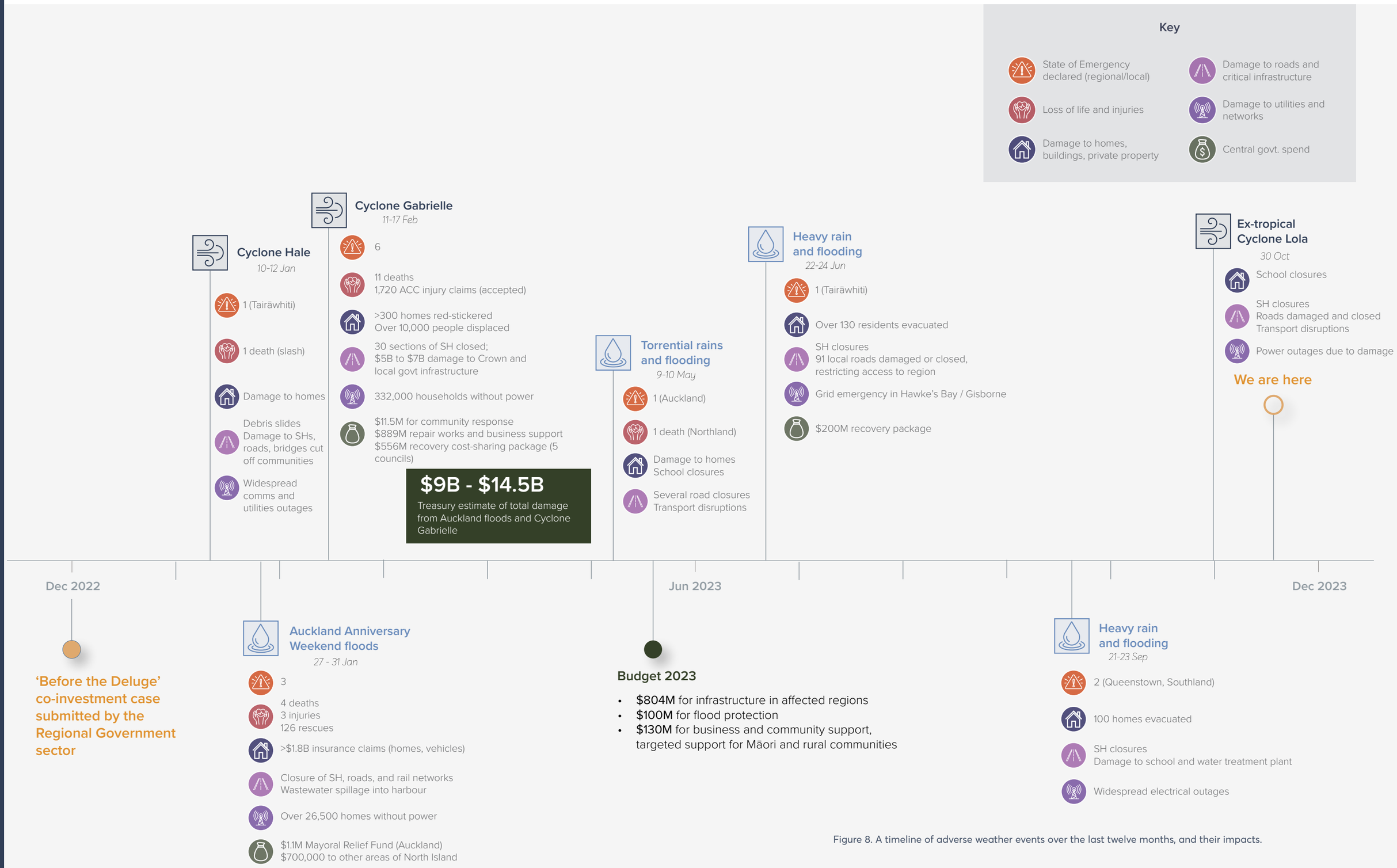


Figure 8. A timeline of adverse weather events over the last twelve months, and their impacts.

The current state of play

A summary of changes since we submitted *Before the Deluge*.

Since submitting our previous co-investment case in late 2022, there has been considerable change in the regulatory landscape and in response to the severe weather events of this year. These changes include the introduction of new reforms and national direction – the exact nature of which remains uncertain – as well as existing challenges that have since intensified. We provide a summary in the infographic at right.

We note that while government spending has increased 'favourably', this has primarily been post-disaster spending on recovery or long-overdue investments in improving flood protection in the worst-affected regions. It is not the most cost-efficient nor prudent use of public funds, nor does recovery spending deliver the same value for money as proactive spending on flood resilience.

Our co-investment case is seeking a fraction of this spending to be allocated toward protective measures that would minimise the economic, social, environmental, and cultural harm from floods.

Over the next few pages, we explore each of these factors adding pressure on our existing flood management schemes and heightening the vulnerability of flood risk for many in our communities across New Zealand.

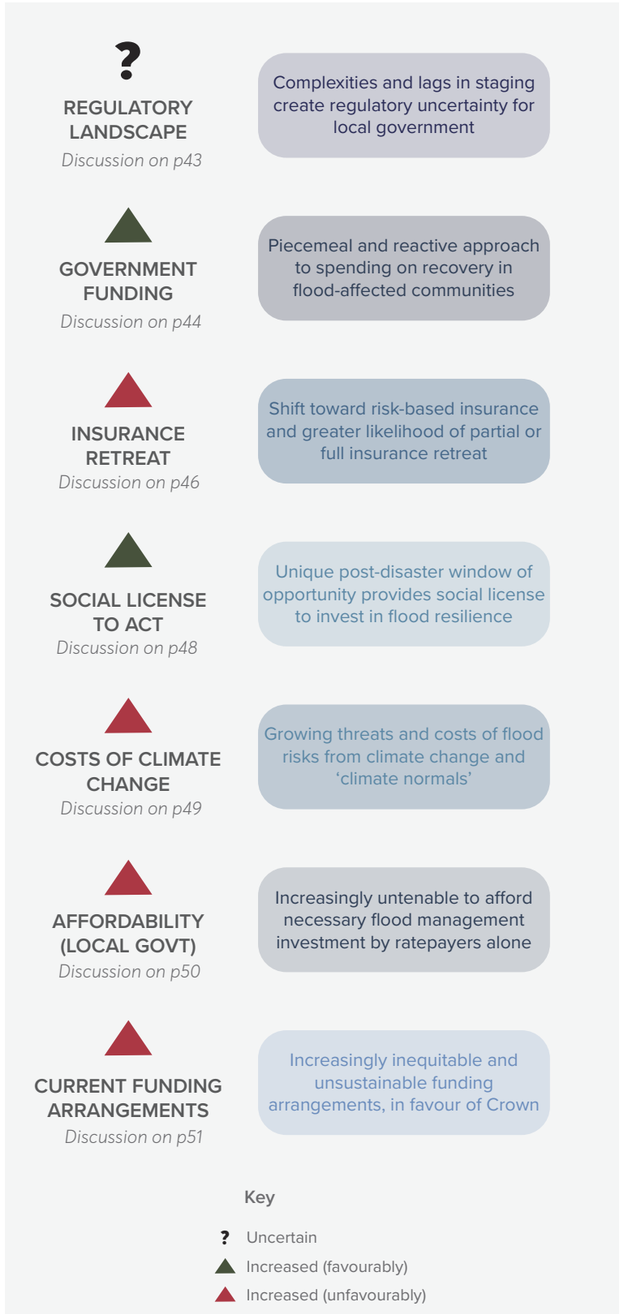


Figure 9. An overview of key changes since our previous co-investment case was submitted in late 2022.

The regulatory landscape

The regional sector continues to operate in regulatory uncertainty, in relation to flood resilience and climate change adaptation.

Within the last twelve months alone, we've seen significant and dramatic shifts in our regulatory landscape, including:

- A major rehaul to our resource management systems – although it is now uncertain as to how this will land;
- The introduction of the Emergency Management Bill as part of a system reform;
- The Ministry for the Environment's inquiry into (and discussion document on) community-led (managed) retreat and adaptation funding;
- Department of the Prime Minister and Cabinet's publication of a discussion document on what constitutes 'critical infrastructure' and on enhancing the resilience of our critical infrastructure (and a response from regional government emphasising the need for flood management infrastructure to be included in this definition); and
- Policy initiatives around cyclone recovery, including the Ministerial Inquiry into Land Use in Tairāwhiti to address legacy issues with forestry slash.

Many of these policy actions address specific recommendations for agencies outlined in the National Adaptation Plan. Individually, they make up different 'tools' in our PARA toolbox. However, the alignment across these somewhat disparate initiatives is not immediately apparent.

With the recent change to a National, NZ First, and ACT coalition government, some of these reforms may or may not proceed. New direction and guidance on climate change adaptation and infrastructure resilience is also likely to be introduced, such as: plans for a thirty-year pipeline of infrastructure investment, partnering with local government through regional deals, and the implementation of a National Infrastructure Agency to coordinate funding such as the Regional Infrastructure Fund.

Regional and local government welcome this national direction, in terms of providing clarity on how the sector discharges their responsibilities (under the LGA) around natural hazard management and planning. The sector looks forward to partnering with central government in progressing this work quickly and efficiently, noting that we are particularly effective in successfully delivering critical infrastructure.

However, it will be a while before these decisions and accompanying policy directives are developed and come into effect. It will be even longer before these are fully functional solutions that can be deployed across different regions and contexts, to begin meaningfully lifting our flood resilience.

In the meantime, our communities remain vulnerable to the next major flooding event(s). This represents a significant threat to our nation's flood resilience, especially in high-flood risk areas. This is why investing in 'protect' measures to expedite our resilience must be our priority action.

Government response

The government has spent billions in flood recovery efforts this year alone, where less than a tenth invested in 'protection' would have provided greater resilience.

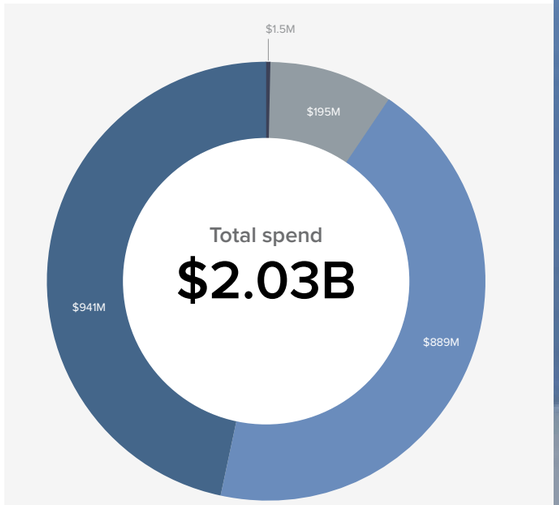
In addition to the regulatory reforms and policy initiatives introduced, the government has spent billions on flood recovery this year alone. As shown in the infographic at right, the **total government spend following the North Island weather events was $2.026 billion**.

This includes a $100 million Flood Resilience Co-Investment Fund allocated as part of Budget 2023; a helpful start for those regions impacted by the recent weather events, but insufficient to cover the investment to build resilience needed elsewhere in the country.

The $2.03 billion spend *excludes* additional regional spending in Hawke's Bay, Tairāwhiti, and Auckland, as part of cost sharing agreements with local and regional councils, as shown below. This regional spending includes investment in flood protection infrastructure to protect Category 2 properties (for instance, in Wairoa, Hastings, and Napier) as a means of ensuring these properties become re-eligible for insurance coverage.

Central government spending on flood recovery in 2023 alone has topped several billion dollars, and this amount is growing as our communities continue to contend with emergent severe weather events and their impacts.

Our central messaging remains that while this was a welcome spend for flood-affected communities, this is not the most effective use of public funds. Instead, we are asking for a fraction of this to be redirected toward expediting our flood protection infrastructure across the country before the next major flood hits.



Source: Beehive. (2023). 'Summary of initiatives in the North Island weather events response and recovery package'.

Figure 10. Government spend on North Island flood recovery in 2023.

Figure 11. Government spend on regional recovery packages in 2023.

Sources: Beehive. (2023). 'Cyclone recovery', retrieved https://www.beehive.govt.nz/portfolio/labour-2020-2023/cyclone-recovery

Image: Silted floodwaters flow out into the sea in Hawke's Bay
Source: Mark Taylor, Stuff.co.nz

The business of insurance

The threat of insurance retreat presents a major Crown liability.

We have previously covered the risks of increasing insurance premiums and full or partial withdrawal by the sector in *Before the Deluge**. Following our summer of cyclones, the state of play has only worsened.

While 2022 set a new record for insurance claims related to climate-induced extreme weather events at $351.2 million[20], this amount was quickly overshadowed by the flooding events of 2023. **As of September this year, insurers have paid out over $3.5 billion in what the sector is now terming 'climate events' alone**[21], as shown in the figure at right.

The sector is also increasingly shifting toward risk-based pricing[22], meaning customers pay much higher premiums in flood-prone areas, with the threat of full insurance withdrawal imminent. This will likely surpass the previous estimate of over 10,000 homes across major cities in New Zealand being expected to experience full insurance retreat by 2050[23].

Lenders are also on-track to see increased losses on loans over the long-term. In fact, in 2022 the Reserve Bank identified that nearly a quarter of banks' residential mortgage exposures in Auckland are 'at risk' to a 1-in-100 year flood event[24]. With insurance retreat impacting the servicing of residential mortgages and commercial loans, this will necessitate government intervention and will ultimately have widespread and significant impacts on our economy. We are already seeing this play out with the buy-out of category three homes across flood-impacted regions.

This suggests our financial systems and institutions, and ultimately our economy, are vulnerable to growing climate change-related flood risks. The point, however, is that unlike with other natural hazards such as earthquakes, flood risk can more easily be mitigated through investing proactively in 'protect' infrastructure and other (PARA) resilience approaches.

There is also significant Crown liability at stake if we do not take swift and decisive action to invest in flood protection measures. Accounting for the projected costs of climate change on storms and flooding events alone, Crown liability is expected to increase to between $231 and $261 million per year by 2050[25].

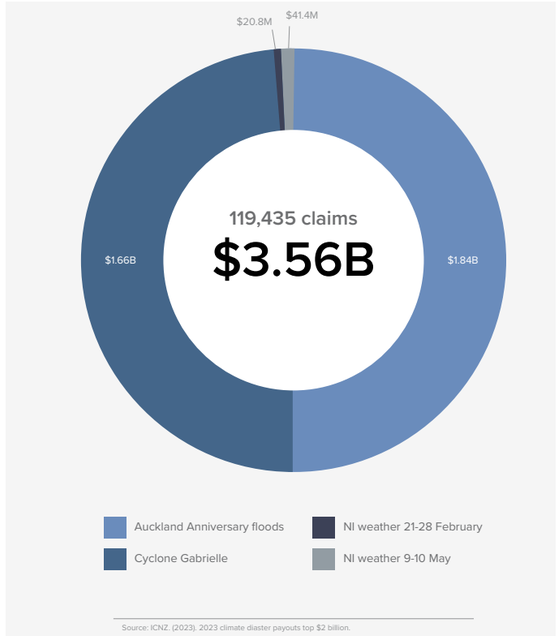


Figure 12. Insurance payouts related to 'climate events' in 2023.

Where government spending on storms and floods was once projected to range between $147 to $187 million by 2050, these figures have been well-surpassed, as shown on the previous page. Enhancing our flood resilience will have a significant effect in reducing the Crown's fiscal liability to flood events in the long-term.

Excluded from the insurance figures (figure 12 above) is critical national infrastructure; most of which has little or no insurance cover. The costs of these will largely fall to central and local government, borne by taxpayers and ratepayers[26].

The insurance sector has consistently been vocal about their commitment in maintaining sector support, so long as there is equivalent national commitment and investment in flood risk mitigation and resilience measures. Specifically, Insurance Council of New Zealand has noted[27]:

> ***"we support maintaining the affordability and availability of insurance, but this will only occur if there is a proactive focus on controlling, avoiding, and accepting some level of residual risk in the face of climate change."***

In fact, the sector has specifically called for a national programme of investment in flood protection infrastructure for priority locations[28].

* See pages 35-37 of Before the Deluge

> *Every dollar invested in risk reduction will save many more dollars in future economic costs, keep people safer and reduce the stress, trauma and loss to the community from similar events in the future... The question that should be asked now is whether we can afford to wait.*
>
> *-Insurance Council of New Zealand (ICNZ)[29]*

Image: Rooftop rescue in Esk Valley, Napier
Source: Royal New Zealand Air Force

Public sentiment

The cyclone events of 2023 provide a unique post-disaster window of opportunity for decisive investment in our flood resilience.

The spate of severe weather events have crystallised for most of the general public the 'new normal' realities of climate change. These events have showcased risks beyond flooding, including other hazards and indirect impacts such as landslides and slips, road closures, and damage to homes and infrastructure.

These weather events have also served to highlight the vulnerability of large swathes of our communities and our infrastructure. For many, these flooding events and cyclones will have become the catalyst for seeking change.

The 'silver lining' is that these successive weather events can collectively act as a focusing event. They present a unique post-disaster window of opportunity[30] for political action, providing the social license for a new government to step in and take restorative and long-awaited action.

Not every flooding event provides this window of opportunity; this has resulted from a combination of the unprecedented nature of Cyclone Gabrielle (being both the most significant weather event in New Zealand this century and a 'sudden mass fatality event'), as well as the quick succession of other flooding events that have 'book-ended' this flooding event.

Now more than ever, there is an urgent need to restore public trust and confidence in our institutions. We are already seeing this happen within the regions: for example, the landslides triggering the Ministerial Inquiry into Land Use in Tairāwhiti, a change to the National Environmental Standards for Plantation Forestry, and Gisborne District Council's subsequent efforts toward a regional forestry plan change and improvement of harvesting practices.

We have already evidenced the need for urgent flood management infrastructure in some of our most at-risk regions. Many of these communities have long run out of the luxury of time. These communities and central government cannot afford to wait until the next deluge hits.

Public support for this investment is unlikely to be challenged at this crucial juncture, while many of our communities are still recovering. Now is the time to mobilise this social license into transformative action that will minimise harm and lift the flood resilience of current and future generations.

> *People want to see action. Their tolerance for grey areas is fading.*[31]

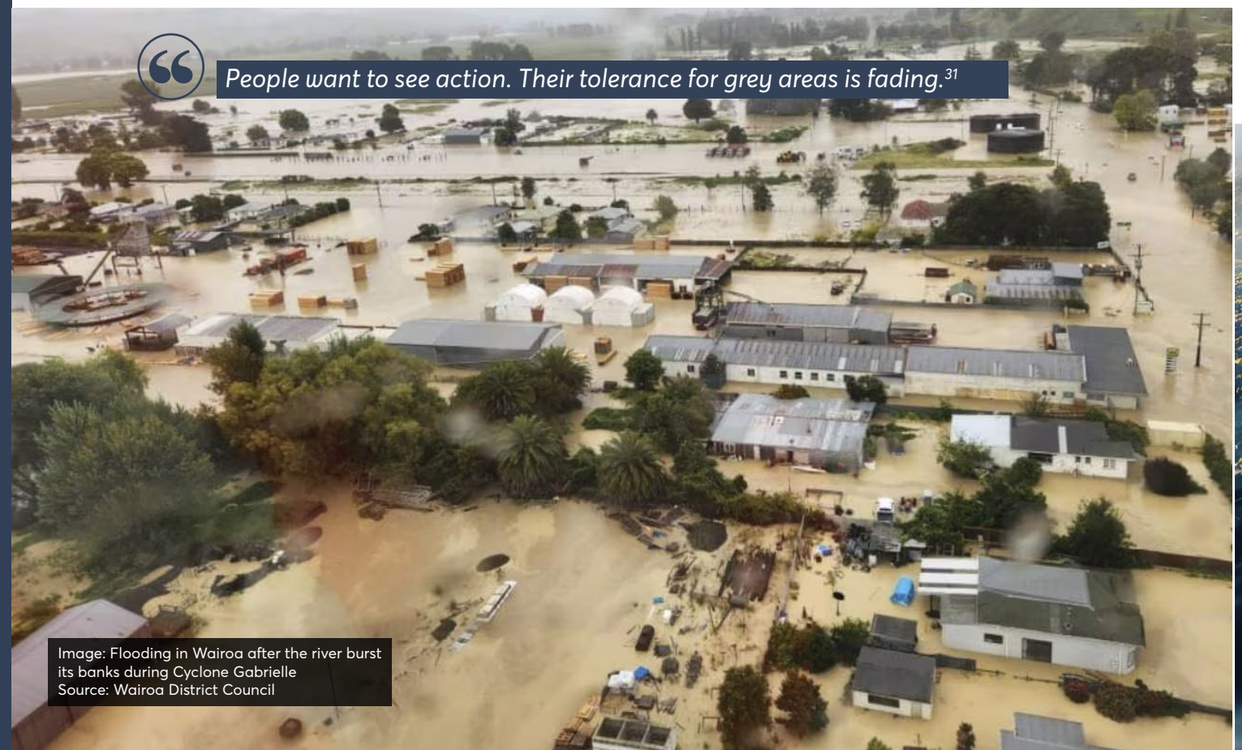


Image: Flooding in Wairoa after the river burst its banks during Cyclone Gabrielle
Source: Wairoa District Council

The growing threats and costs of climate change

There are three facets of climate change that warrant urgent investment in flood protection.

In *Before the Deluge* we explored the growing impacts of climate change as a 'risk multiplier' of flood risk, and that many of our existing flood schemes were not designed to cope with these accelerated impacts. These are not static risks, but are emerging in dynamic and sometimes unpredictable ways.

In recent months, the emergent empirical evidence on climate change indicates there are three aspects we need to be concerned about.

First, we are seeing **rapid intensification** of storms becoming more frequent, as was recently observed with Hurricane Otis in Mexico. Rapid intensification refers to a sharp increase in the maximum wind speed of a tropical cyclone (at least 30 knots over a 24-hour period). It is fuelled by a warming planet with warmer oceans, which provides greater energy for storms.

Compared to the period between 1971-1990, tropical cyclones are now around 29% more likely to undergo rapid intensification[32], and this phenomena is likely to become more frequent due to climate change. Rapid intensification is especially relevant given New Zealand's location and the geography of our extended coastline, making us more vulnerable to flood risk than many other nations.

Second, and relatedly, these types of storms are becoming increasingly **harder to predict**, meaning there is limited time to communicate and prepare for their destruction[33]. This is especially concerning in the face of the limited predictive power and accuracy of our current forecasting models, as was the case with the performance of weather models in the lead-up to the Auckland Anniversary floods[34].

Third, it is becoming increasingly apparent that there has been a consistent **underestimation of the financial costs** of climate-induced weather events by billions of dollars per year, globally[35]. In New Zealand, the proportion of major flood costs attributable to human-caused (anthropogenic) climate change has previously been estimated at $140 million for the period 2007-2017; which in itself is likely an underestimate and is likely to increase over time[36]. These are immense and significant economic costs that will impact GDP, productivity, and sustainable economic development[37].

Together, these facets of climate change warrant urgent action in improving our flood resilience, and at a rate much sooner than initially accounted for in councils' LTPs. While a multi-tool PARA approach is essential to our climate change response, we cannot afford to simply wait until longer-term adaptation and retreat pathways are figured out.

Image: Rapid intensification storm
Source: Earth.com

The affordability challenge

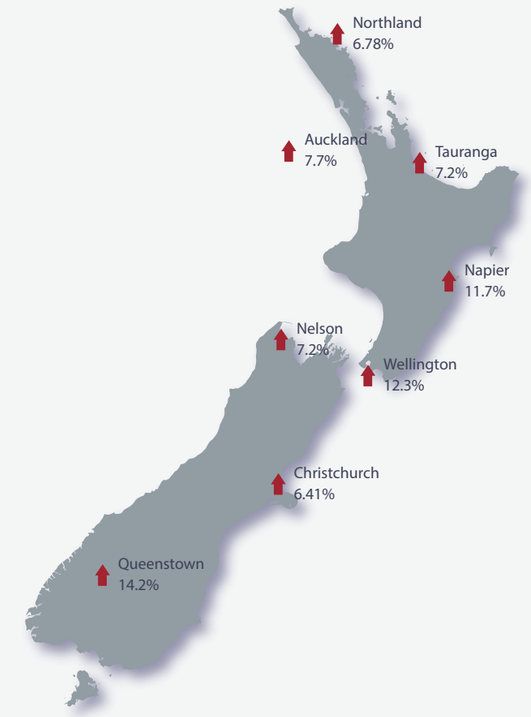
Affordability shouldn't be a barrier to good adaptation.

It is clear thus far that communities across New Zealand need urgent flood management infrastructure to provide a degree of resilience against upcoming weather events. Yet, the pace and level of investment for this necessary infrastructure cannot be sustained at a local and regional council level alone. This is because the affordability challenges outlined in our previous co-investment case have since intensified.

This issue has also been called out in the Review into the Future for Local Government[38], which emphasises that local government funding systems are increasingly under pressure to address complex wellbeing challenges and increasing community expectations. There has also been a gradual transfer of many functions – including river management and flood protection of critical national infrastructure – from the taxpayer to the ratepayer. This alone has equity implications, as we know the risk and impacts of flooding are not borne equitably across regions and population groups[39].

As a result, local councils have had to increase rates at levels consistently higher than the Consumer Price Index, while also foregoing investment in crucial community services and infrastructure to simply keep pace. Within the last year alone, ratepayers on average faced a rate increase of between 6.4% to upto 14%[40], with proposed rates increases of up to 15.4% anticipated for some councils as part of upcoming planning decisions[41].

For many communities, experiencing the brunt of the flooding events of 2023 have co-incided with other economic pressures such as the increased cost of living challenges, the pressures of inflation, and for many, re-fixing of mortgages on higher rates. Businesses have also noted external pressures such as labour shortages and supply chain disruptions. Rates alone are insufficient to fund the necessary investment needed to enhance our nation's flood resilience in the short-term. Yet, affordability should not be a barrier to good adaptation; in fact, the Report of the Expert Working Group on Managed Retreat[42] identifies places with high flood risk, limited protective infrastructure, and affordability challenges as warranting central government funding interventions. This is but one thread in our case for urgent government co-investment in managing accentuated flood risk.



Source: 1News. (2023). 'Rates rise: How much more will you be paying?', Thur 6 July 2023.

Figure 13. Rates increase (%) over the last year, across a selection of towns and cities in New Zealand.

An untenable funding model

Our current approach to funding flood resilience and recovery is increasingly inequitable and unsustainable.

We have already outlined in *Before the Deluge** that the current approach to funding flood protection and resilience measures is neither sufficient, equitable, nor sustainable. These very issues are the focus of the *Community-led retreat and adaptation funding: Issues and options* paper[43], summarised at right.

Our existing 364 flood protection schemes provide an estimated benefit of $11 billion annually[44], with much of this protecting Crown assets on non-rateable land and critical national infrastructure. The Crown realises significant benefits from flood protection infrastructure without contributing to the capital and operational costs of ensuring these schemes are fit-for-purpose.

This means the benefits of river management and flood mitigation are currently being experienced more widely by the nation, while the costs fall to specific ratepayer bases already contending with affordability challenges. On the flipside, where disaster strikes the sizeable costs of response and recovery are shouldered by all New Zealanders.

This post-disaster spending represents disproportionately higher costs that do not even begin to cover the longer-term psychological, health, and cultural impacts on flood-affected communities. It is also evident that is a poor use of funds, in terms of both value for money and fiscal responsibility.

Recovery spending is piecemeal and ad-hoc, preventing communities from taking a longer-term approach in considering which solutions might be most effective in building their resilience. This can also incentivise perverse risk in the community, due to the established expectations of receiving financial assistance post-disaster.

It also has the unintended effect of focusing investment on those communities most visibly affected post-disaster, rather than directing necessary investment toward those communities who may be at greater risk and more vulnerable to flood risk overall.

With growing cost of living pressures, affordability challenges, insurance risks, and looming threats of climate change and new 'climate normals', it is no longer feasible for local ratepayers to fund the necessary level of investment, at the required pace, on their own. This is neither equitable nor sustainable to build our nation's resilience in the long-term.

What's more, a reactive funding approach is incredibly costly. The 'ambulance at the bottom of the cliff' model is no longer tenable. Nor is it a cost-efficient means of spending. Without a step change, we run the risk of 'locking in' and exacerbating pre-existing inequities across communities. So how do we move forward?

- **Affordability**
  Growing affordability challenges for some communities
- **Uncertain cost-sharing**
  Unertainty about how costs will be shared and role of central government
- **Disincentives to invest long-term**
  Reduced incentives to invest in long-term adaptation, creating perverse incentives
- **Lack of strategic spending**
  Reactive and ad-hoc spending, meaning risk of investing in wrong actions / places
- **Lack of quality data to inform decision-making**
  Lack of access to quality data and information to ensure right actions are funded
- **Constrained benefits calculation**
  Narrow understanding of benefits, meaning less direct benefits often overlooked

Source: MfE

Figure 14. Key issues with the current approach to funding flood resilience

* See pages 19 and 39

Where to from here?

Building an equitable and sustainable partnership model with central government.

Principles for co-funding resilience have already been suggested elsewhere, for example in the *Community-led retreat and adaptation funding: Issues and options* paper[45] and the *Strengthening the resilience of Aotearoa New Zealand's critical infrastructure discussion document*[46]. These are summarised in the boxes below, and boil down to two maxims: "making smarter investment decisions" and "those who benefit should pay".

Currently, agencies with Crown infrastructure and network utility responsibilities gain considerable benefit from our flood protection infrastructure, without contributions; putting an undue burden on ratepayers who can no longer afford to cross-subsidise these costs.

We note that a fraction of the costs currently being spent toward response and recovery would be better invested ahead of a flood event, rather than reactively as has occurred in Wairoa and Westport. This is the most cost-efficient and fiscally responsible solution.

It reflects the idea that disaster resilience is an issue of national interest, and as such, requires a "collective approach to a collective problem"[47].

This also reflects the fact that flood protection infrastructure is critical infrastructure in and of its own right, as well as a crucial economic enabler and key component of our nation's wellbeing. We explore these benefits briefly on the following page, and in further detail in the Economic Case outlined later in our business case.

But co-investment is just one part of our ask. The regional sector seeks to build a longer-term partnership with central government, reflecting international best-practice in climate adaptation funding and decision-making.

Not only is a partnership approach more equitable, but it also provides a level of certainty in the long-term planning and implementation of climate change adaptation measures for local government, while de-politicising some of our funding decisions. This allows all New Zealanders to benefit from increased flood resilience.

Principles underlying funding and reform

- Incentivise better decisions around adaptation
- Minimise perverse incentives
- Prioritise supporting vulnerable individuals and groups
- Provide clarity and certainty on sharing of costs, risks, and responsibilities
- Ensure those who benefit contribute to costs

- Consistent with the principles of Te Tiriti o Waitangi
- Applies to all critical infrastructures equally, regard-less of asset ownership
- Government obligation to partner with infrastructure owners/operators
- Resilience should be enhanced at least cost to businesses, community and government
- Costs of enhancing resilience should be paid by those who benefit

Sources: MfE (left) and DPMC (right)

Figure 15. Proposed principles for funding of flood resilience.

What does the solution look like?

Investing in flood protection 'tension-loads' the system while generating a 'triple dividend' of resilience.

The way forward is co-investment in flood management infrastructure in partnership with central government and regional councils. This will 'tension load' the system, enabling a higher level of resilience in the most at-risk communities, while also buying time to enable other adaptation measures to be established alongside flood management infrastructure.

The resilience provided by our flood management infrastructure is central to the wellbeing of communities, the continuity of our economy, and ultimately, the effective and prudent spending by government. Over time, this investment will yield a **triple dividend of resilience**[48], as we will explore further in the Economic Case (p62).

Image: Waipaoa stopbank being constructed in GDC. At the peak of Cyclone Gabrielle, stopbanks within this catchment helped protect major horticulture areas within Poverty Bay Flats. Source: Gisborne District Council

Strategic alignment

Our programme is aligned with the incoming government's signalled priorities and represents a no-regrets investment that can commence immediately.

In *Before the Deluge*, we outlined the strategic alignment of our flood management projects with existing national and local government-level priorities*. However, as noted earlier, there is a degree of regulatory uncertainty at this stage with national-level legislation and local government reform arising from the Future for Local Government Review. Bearing this in mind, we have outlined alignment of this co-investment case against signalled priorities and strategic objectives already in place, rather than specific pieces of legislation itself.

We appreciate the incoming government will need to explore options for and decide on their priorities, and we do not wish to pre-empt this process. Instead, we take our steer from **National's, NZ First's, and ACT's pre-election manifestos** and the **related coalition agreements** in terms of rebuilding the economy and delivering improved infrastructure.

We also note our investment case is also fully supported by all local authorities, as evidenced by the Mayoral Letters of Support in Appendix 3.

Alignment with incoming government priorities

First actions outlined in the **Government's 100 Day Plan**[49] include meeting with communities and councils to establish and expedite regional requirements for flood recovery.

Environmental resilience investments also feature as part of the incoming government's **Infrastructure for the Future plans**[50], which will see partnership with local government to create long-term (30 year) pipelines of infrastructure investment through regional and city deals.

Our co-investment case naturally accelerates these above paths by presenting a collated list of 80 priority flood protection infrastructure projects for regions across the country. The sector looks forward to meeting with the government to establish regional requirements for recovery from Cyclone Gabrielle and other recent major flooding events. Recovery implies 'building back better' to reduce the risk of future events affecting not only regions directly impacted by Cyclone Gabrielle, but other regions who may be the next to be in the line of fire.

In the short term this investment will deliver improved resilience, while other solutions for recovery and longer-term adaptation are explored in partnership with councils and local communities. This buys us the necessary time to have considered discussions, enabling complementary 'ARA' (Accommodate, Retreat, Avoid) solutions to be implemented, while providing a higher level of resilience for communities at-risk from the next major flooding event.

Importantly, these 80 flood protection projects generate enabling benefits by improving the resilience of other critical infrastructure (i.e., our transport and energy networks) to flooding. This is infrastructure to protect infrastructure.

Being infrastructure projects themselves, they have the added benefits of serving an investment in flood protection and an investment in regional economies, as a 'driver of prosperity'.

There is strong and inherent alignment with the incoming government's stated priorities, as outlined in **both coalition agreements**, as well as their legacy in delivering resilient infrastructure and rebuilding our economy.

Put simply then, this is a no-regrets investment in our nation's flood resilience, with projects being able to commence as soon as funding is secured.

* See p48 of Before the Deluge

Refreshed co-investment case

STRATEGIC CASE

There is also strong alignment with existing strategic objectives and national direction in climate resilience.

Alignment with existing national-level strategic objectives

There are two particular all-of-government strategic objectives that our flood protection projects support.

The first is climate adaptation. In a climate-changed world where the frequency and intensity of flood events is increasing, we need to make considered decisions, at-place, about the balance of PARA solutions in building our climate resilience. These objectives are outlined in the **National Adaptation Plan**.

Our co-investment case is well-aligned with these climate adaptation objectives, in aiming to improve our national flood resilience. While 'protect' measures on their own cannot guarantee an absolute level of flood safety, when designed well they will reduce the likelihood and impacts of flood risk for those communities without adequate flood mitigation schemes. This is what our 80 projects seek to achieve: delivering an immediate and improved level of resilience for those communities most at-risk to the next major flooding event.

Our project is also well-aligned with the **Ministry for the Environment's community-led retreat and adaptation funding inquiry** and subsequent issues and options paper released in August 2023. This paper positions the PARA framework front and centre, noting the more we spend on minimising disaster-risk pre-emptively, the less we will need to spend on response and recovery costs. It also identifies issues with our current approach to pre- and post-disaster funding. In particular, that the costs and benefits are not equitably borne across local and central government. This makes for an unsustainable model and leads to underinvestment in critical flood management infrastructure.

Our co-investment case builds on precisely these arguments, acknowledging that while we await direction and implementation of 'ARA' solutions, we cannot simply do nothing else. We urgently need 'protect' measures that enhance the flood resilience of our communities, our assets, and our critical infrastructure.

The second broad strategic objective is improving the resilience of our critical infrastructure. **Rautaki Hanganga o Aotearoa: New Zealand's Infrastructure Strategy** identifies the centrality of our infrastructure in enabling the economy; supporting our jobs and our wellbeing; and promoting societal, cultural, and environmental benefits. We have already discussed this at length throughout the strategic case, and will provide further evidence of these benefits in the Economic Case.

The interconnectivity of our infrastructure systems make them more vulnerable to natural disasters such as flooding, if we do not build in resilience. National has announced a **five-point plan** to boost infrastructure in New Zealand over the long-term through establishing a **National Infrastructure Agency**. This recognises the need to build future-ready infrastructure – infrastructure like flood management schemes that deliver a greater level of 'climate change' resilience.

Finally, it is worth reiterating that our projects are also well aligned with the statutory obligations for regional and local authorities, outlined in the **Local Government Act** and it's relevant amendments. Under this Act, local authorities are required to manage risks arising from natural hazards, and fully disclose land/natural hazard information to property owners. This inherently requires councils to adopt a multi-tool PARA-type approach in their flood risk management, and we have already explored examples of this earlier on pages 26-33. Effective flood risk management and improved flood resilience are also critical in promoting the intergenerational wellbeing of communities, as is required under the Act. This means that our projects proposed here are integral to local and regional councils fulfilling their statutory obligations.

Strategic alignment

Overview of alignment with strategic priorities and objectives.

The infographic below provides a snapshot summary of the main strategic priorities and objectives relevant to our co-investment proposal, and a brief overview of how this is aligned.

We also note there is strong alignment with the intent behind the **Regional Infrastructure Fund** announced as part of the coalition agreements, and described in the infographic below.

Intent	Establish and expedite regional requirements for flood recovery and priority infrastructure projects. Deliver resilient, future-proofed infrastructure and rebuild our economy.	Make considered decisions, at-place, about the balance of PARA solutions in building our climate resilience.	Emphasise PARA in adaptation, and the need to invest in minimising disaster risk pre-emptively. Identify funding models that address inequities in our current approach to disaster funding.	Emphasise the importance of our critical infrastructure in enabling the economy; supporting our jobs and wellbeing; and promoting societal, cultural, and environmental benefits.	Require authorities to promote the wellbeing of communities, now and in the future, and disclose land/ natural hazard information to property owners.	With the establishment of a National Infrastructure Agency, this fund will prioritise regional and national projects of significance, with the specific criteria of generating resilience in the regions.
Our alignment	We present a priority list of flood management (resilience) infrastructure projects that facilitates the discussion to establish regional requirements for recovery from Cyclone Gabrielle and other recent major flooding events. Projects deliver improved flood protection, increase the resilience of other critical infrastructure, and are an investment in regional economies as a 'driver of prosperity'.	Proposed projects use a combination of hard engineering and nature-based solutions that reduce the likelihood and impacts of flood risk for communities without adequate flood mitigation schemes. This allows time for other adaptation options to be implemented and take effect. The NAP also references flood risk infrastructure and provides information about Westport as a case study.	The logic in our business case emphasises the need to invest in avoiding or minimising flood impacts, rather than in clean-up and recovery. Current funding arrangements aren't equitably borne, nor sustainable long-term and do not reflect the significant national interest in flood protection.	Flood protection infrastructure plays a crucial in promoting the resilience of other infrastructure, and delivering a greater level of future-ready 'climate resilience' to our most at-risk communities while the longer-term path to climate adaptation takes effect.	Greater flood resilience supports the economic, social, cultural, and environmental wellbeing of our communities. Resilient flood management infrastructure also enables local councils to fulfil their statutory obligations in managing risks from natural hazards, such as flooding.	Our proposed projects support the coalition agreements' focus on improving regional resilience, prioritising infrastructure of significance, lifting the economic growth and productivity of regions, and delivering public goods that inherently provide social insurance. Treasury have previously invited us to prepare a refreshed business case targeting funding sources largely aligned with a focus on future-ready resilience.

Figure 16. Alignment of our co-investment case in flood resilience with broader strategic priorities and objectives.

Refreshed co-investment case

STRATEGIC CASE

Economic Case

This section assesses our options for improving flood resilience. It then discusses the cost-benefits of investment, before detailing the preferred approach.

Getting to resilience

Assessing our full range of options.

Improving 'climate change' flood resilience over the long-term requires a combination of tools and solutions, tailored to the needs and challenges of local communities. This underpins the thinking behind the PARA framework.

Getting to an improved level of resilience therefore requires an analysis of our options.

Our Economic Case begins by exploring the full range of options: from doing nothing, to investing in only 'Protect', investing in only longer-term 'ARA' solutions, and a combination of both.

Over the next few pages we discuss each of these options against key success criteria outlined at right.

Critical success factors

Timeline
The solution can be quickly implemented and take effect

Implementation
Implementation of the solution is relatively straightforward

Cost-effectiveness
The solution is cost-effective and a fiscally responsible investment

Risks (flood)
The solution reduces both immediate and longer-term (climate change) flood risk

Equity
The solution ensures those who benefit from flood resilience measures are paying for this

Viability
The solution is practical and viable in the immediate future and over the long-term

Figure 17. The critical success factors against which we assess each of our options.

The ‘do nothing’ option

This is no longer a viable option in a climate-changed world.

In this option, central government does not invest proactively in improving our flood resilience – either through ‘Protect’ or other ‘Avoid, Retreat, and Accommodate’ solutions.

This is essentially a continuation of the status quo, wherein the responsibilities and costs of river management and flood resilience are shouldered at a regional and local council level, by ratepayers. Yet, the benefits of these measures are realised at a national level by all taxpayers and by the Crown itself, who benefit from the protection of assets and critical infrastructure on non-rateable land.

Importantly, with this option central government still pays, but only after the fact – once a flood event has caused significant and widespread damage.

As we have already seen throughout this case, response and recovery costs are often exorbitant and several times the costs of investment required for mitigating flood hazards in the first instance. These costs also do not account for the tragic loss of life, longer-term health traumas, and environmental and ecosystem degradation that often occurs with major flood events.

The ‘do nothing’ option then is not only ineffective, highly risky, and cost-inefficient, but it is no longer viable.

It is the equivalent of burying our heads in the sand while we continue to bear the brunt of climate change impacts. And it comes at the expense of lives, livelihoods, and our economic resilience as a nation.

Investing in ‘ARA’ alone

Investing in longer-term adaptation alone leaves us vulnerable in the short term to the risks of the next major flood event.

The counterfactual here is investing in ‘Avoid’, ‘Retreat’, and ‘Accommodate’ (ARA) solutions, or ‘longer-term adaptation’.

As the name implies, many of these measures will take a while before they have been developed, agreed on, tested, and are ready to be implemented. Even then, it will be some time before the effect of these measures are felt in terms of improved resilience.

For instance, managed retreat is a contentious topic and requires significant time and planning, as well as social license to enact. Likewise, ‘avoid’ measures such as halting or limiting development in flood-prone areas will require legislative reform (resource management and planning) before these solutions can begin to take effect. We also need better quality and more reliable data and models, on which to base the decisions about ‘avoid’, ‘retreat’, and ‘accommodate’.

By nature of what ‘long-term adaptation’ is intended to do, this cannot and will not be a straightforward solution. We need time to carefully plan and determine the right balance of solutions for different locations; in some cases, this will require difficult decisions about retreat.

This is of course the main risk associated with this option: it leaves many of our most at-risk communities and our critical infrastructure vulnerable to the impacts of the next major flood event(s), which is becoming increasingly common. Lives and livelihoods become the collateral, while we wait.

We also need a significant funding commitment to begin moving forward with this work, and we need agreement from various parties within government and the private sector on the funding mechanisms and approaches that will be taken for different solutions.

Finally, we need legislative reform to provide consistent and cohesive national direction in this space. This reform needs to balance fairness (e.g., all locations receive the same level of assistance) with equity (e.g., some locations and communities require a greater level of assistance), amongst other considerations.

It quickly becomes apparent then that while investment in longer-term adaptation solutions are absolutely essential to improving our ‘climate change’ flood resilience as a country, it is not a straightforward nor inexpensive path to get there.

Without a parallel investment in ‘protect’ solutions, on it’s own this ‘ARA’ option will never be the solution that delivers improved flood resilience. None of the individual elements of the PARA approach are effective on their own. They need to be considered as part of a ‘systems approach’ often with differing quantums of each, or the PARA elements being used in different communities and adjusted over time. A rural community, for example, will have a different combination of PARA elements than that of an urban community. This is also why solutions need to be designed ‘at-place’.

Investing in 'Protect'

'Protect' measures can be immediately deployed to improve resilience in our most at-risk locations. This is the focus of the present business case.

As we have already outlined in the Strategic Case, local and regional councils are operating in an uncertain regulatory landscape. Even where longer-term adaptation and climate resilience options are likely to be implemented, it will be a long time before they begin to have effect. In the meantime, our communities are facing a growing risk of flooding and can no longer afford to meet the costs of mitigation on their own.

Consistent, with a PARA approach, we need to use the right tools, at the right location, and at the right time. 'Protect' measures such as hard engineering, nature-based solutions, and hazard mitigation measures need to be deployed urgently. This affords communities the necessary resilience and time to deploy other adaptation solutions. It also reduces the costs of damage, recovery, and the very real risk of insurance retreat and withdrawal.

There are significant benefits to be realised with flood protection, as we will show on the pages that follow.

What's more, co-investment by central government reflects a more equitable approach to building our flood resilience, where those who benefit share in the costs of these measures.

We acknowledge that like with the previous option, flood protection on its own will never be sufficient to get us to the level of climate resilience needed in the long-term. There will always be a level of residual risk with 'protect' measures, and this is where our longer-term adaptation and retreat solutions need to be carefully and strategically deployed.

This requires a concerted programme of work with central government, lenders and insurers, and our communities to make decisions about the level of resilience and tolerable flood risk at different locations around New Zealand. It requires use of standardised risk assessment methods and thresholds. And it will enable us to ensure that our flood management infrastructure is fit-for-purpose in relation to the degree of resilience and level of service needed.

Therefore, while our present business case focuses on a prioritised list of 80 projects that can be immediately deployed in the short-term (i.e., the next three years) to improve flood resilience in some of our most at-risk locations, our ask of central government continues to remain a commitment to building a longer-term co-investment partnership for flood and climate change resilience in New Zealand and toward establishing a decade-long programme of flood resilience.

Without this certainty of long-term partnership and co-funding, we will be continuing down an ad-hoc path of competing for contestable funding with priorities being determined by the government of the day or under urgency following disasters.

The preferred option

Summary of our multi-criteria options analysis.

A summary of our multi-criteria options analysis is shown below. It is evident that in the long-term, we need central government co-investment in the full suite of PARA options, to build our nation's resilience to floods and other climate change threats.

The flood management infrastructure projects presented in this business case represent the first and very crucial step in our longer-term approach.

Figure 18. Summary of our multi-criteria options analysis.

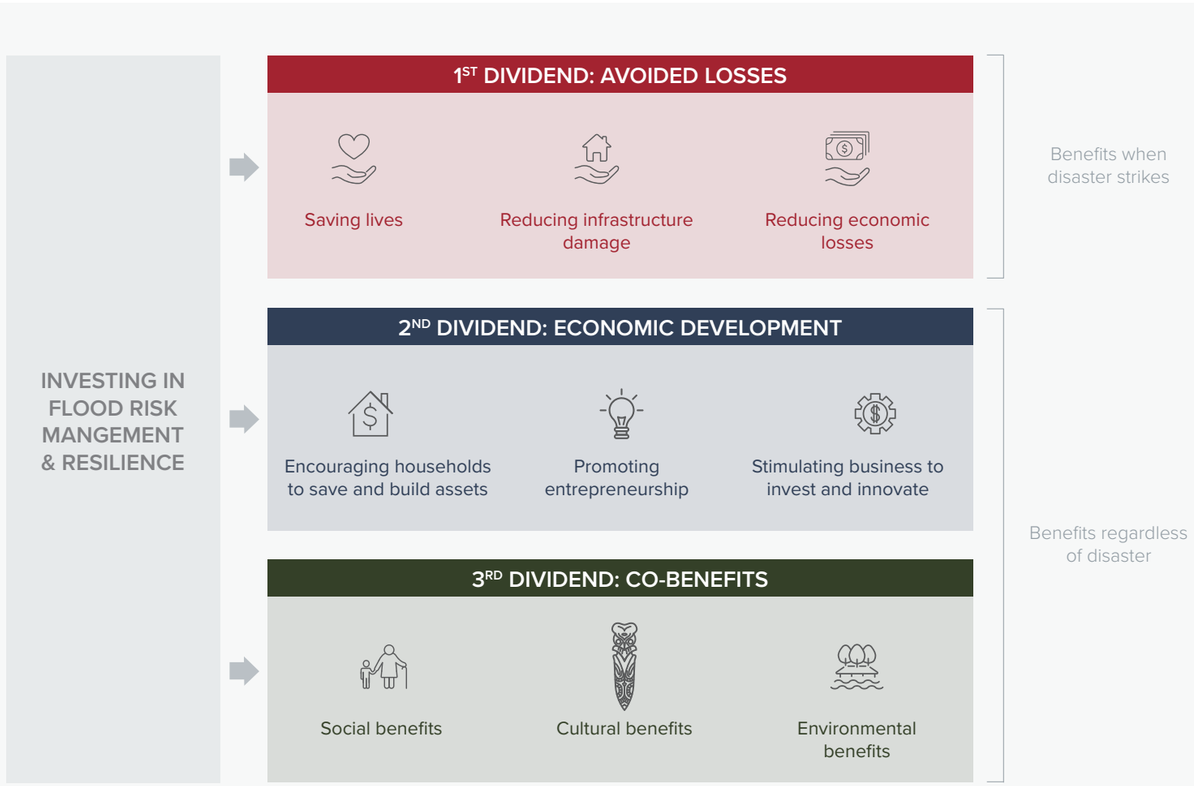
Cost-benefits

Overview of the 'triple dividend of resilience' framework.

The logic underlying our investment is that it is more effective and fiscally prudent to invest in flood management infrastructure that proactively minimises flood risk, rather than ad-hoc, reactive, and disproportionately greater spending on disaster response.

Indeed, investing in flood resilience generates benefits through the 'triple dividend of resilience' for government. This is a useful framework for understanding the benefits of investing in flood management infrastructure, and is explored further below.

While the avoided losses are primarily realised after a flood event has occurred, the second and third dividend benefit of economic development and co-benefits are realised regardless.



Source: Ministry of Civil Defence & Emergency Management

Figure 19. The 'triple dividend of resilience' as a framework for realising the benefits of flood protection.

The 'triple dividend of resilience': Direct losses avoided.

First dividend

The first dividend represents direct avoided losses such as lives saved; minimised injuries; reduced damage to critical infrastructure and buildings; and overall reductions in economic losses. These are more readily quantifiable costs avoided through investment, typically captured through a cost-benefit ratio (BCR).

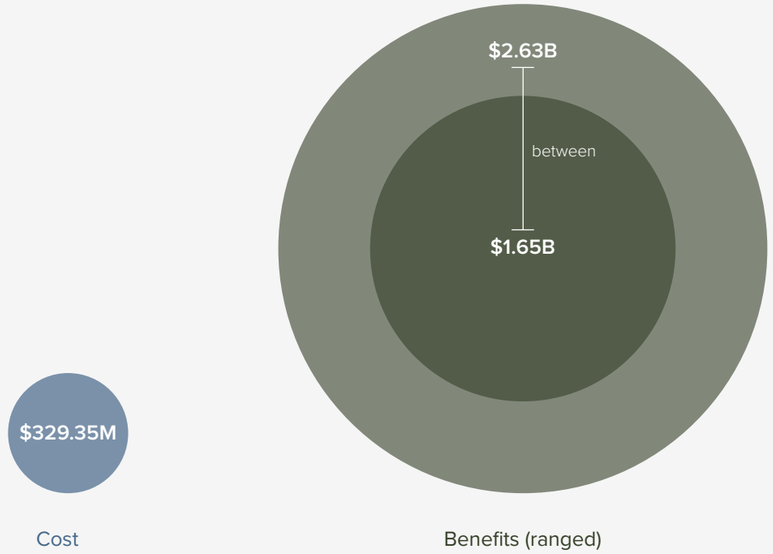
Although not all (avoided) losses can be monetised, international evidence and our own sector experience shows that BCRs for flood management infrastructure tends to range between 1:5 and 1:8[51,52]. This means for every dollar invested, there are direct benefits of between $5-$8 generated.

Calibrated against the recent case example of the 2021/22 Westport floods, an proactive investment of around $23 million (in today's dollars) would have saved over $200 million in combined recovery costs and indirect, intangible loss. This represents a BCR as high as 1:9.

With our proposed 80 projects costing a total of $329.35 million, we can therefore expect to derive benefits in the range of between $1.65 billion to $2.63 billion. We note that we are not asking for the total project cost here, but a portion of this to reflect the national interest in flood resilience.

For comparison, large infrastructure projects are considered economically viable if the BCR is greater than 1:1[53]. On the basis of BCR alone, there is compelling rationale for approving the necessary co-investment.

Yet, there are further benefits captured in the second and third dividends.



Note: expected benefits ranged between lower (1:5) and higher (1:8) BCR estimates from the research

Figure 20. Anticipated cost-to-benefit ratio (ranged) for the proposed projects in our current case.

Cost-benefits

The 'triple dividend of resilience': Economic development and business continuity.

Second dividend

The second dividend captures the benefits of business and economic continuity; immediately following floods and over the recovery period.

Food management infrastructure provides greater resilience to other critical infrastructure during flood events. This minimises disruption to business, healthcare services, education, and the economy, and provides certainty and confidence for business, individuals, iwi, and communities. Plainly, 'protect' measures provide secure places for stable economic activity during and after flood events.

One example of the importance of quality flood protection infrastructure is the Waipaoa Flood Control Scheme in Tairāwhiti, where stopbanks helped protect a large portion of Poverty Bay Flats – New Zealand's prime horticulture region – during Cyclone Gabrielle. As LeaderBrand* Chief Executive Richard Burke has noted[54]:

"By day four (of Cyclone Gabrielle) we were able to start harvesting things like fresh lettuce and sweetcorn on blocks that weren't flooded, and by Sunday we were harvesting some of the sauvignon blanc in our vineyards."

In contrast, across other regions less protected by such schemes, we have seen widespread damage to crops disrupting national supply; for example, Esk Valley apple orchards. This resulted in price surges, forcing many households to limit or stop purchasing fresh produce.

Constructing flood management infrastructure itself supports job creation and lifts regional productivity. The sidebar at right captures some of the benefits from the 55 Crown-funded projects at the halfway mark, showing this investment was 'worth its weight in gold', beyond delivering flood resilience alone.

Flood management infrastructure also limits the costs of emergency response and recovery for central government level, and reduces unplanned liability for the Crown.

As a recent example, as at September 2022 (the halfway mark), the $312 million in Kānoa funding across 55 climate resilience and flood protection projects had generated:

653
Local jobs created

$117.2M
Local business contract value

$8.4M
Māori business contract value

$11.9M
Other business contract value

Source: Kānoa Progress report, September 2022.

Beyond this, there are also significant household savings to be realised, with flood mitigation going a long way in reducing insurance premium hikes and the looming threat of partial or full retreat in flood-risk areas, which would otherwise require government intervention.

* LeaderBrand's Gisborne growing operation is based in the Poverty Bay Flats.

The 'triple dividend of resilience': Social, cultural, and environmental co-benefits.

Third dividend

Finally, investment in flood management infrastructure will enable wider social, cultural, and environmental co-benefits, as shown below. This fosters the wellbeing of communities, now and into the future; in line with local government obligations under the Local Government (Community Well-being) Amendment Act (2019).

Once again, recent examples of these benefits already being created through the 55 Crown-funded projects are illustrated in the progress reports included on pages 81-88 of this document.

These present and future wellbeing benefits also align with **Treasury's Living Standards Framework**, as we have already outlined in *Before the Deluge**.

Social benefits

- Increases community engagement and education
- Limits the likelihood of fatalities and injuries that will impose a long-term cost on health system
- Minimises social disruption and displacement during flood events; social connection retained or improved
- Minimises psychological trauma and improves individual and community resilience
- Limits health worsening for those with comorbidities, disabilities, or elderly
- Limits housing conditions from deteriorating (dampness, mould)
- Retains or improves trust and confidence in government

Cultural benefits

In collaboration with mana whenua:

- Limits costs of damage and repair for invaluable cultural assets and sites (marae, urupā)
- Protects our taonga, including land
- Holistic wellbeing retained or improved for Māori and non-Māori into the future
- Protects cultural identity, whakapapa, and sense of belonging for Māori

Environmental benefits

- Creates / enhances wetlands
- Limits cost of damage to productive farmland and crops
- Minimises damage to riverbanks (overflow, erosion, depositing sediment), land and its value
- Reduces cost of waste disposal and debris after floods to be disposed of in landfills
- Limits disruption to entire ecosystems (including aquatic life and their habitats)
- Limits contamination of drinking water and water supply for industrial/agricultural use

Figure 21. The social, cultural, and environmental benefits of investing in flood protection measures that deliver improved flood resilience.

* See p24 of Before the Deluge

The costs of failing to invest

Case study: Westport floods.

While we have covered the case of the Westport floods (2021/22) extensively in *Before the Deluge*, it is worth re-iterating in the context of examining the costs associated with a failure to invest proactively in necessary flood protection measures.

Background to Westport floods

Westport sits on a floodplain and remains one of the most flood prone regions in New Zealand with a history of major flooding events including in 1873, 1926, 1970, 2018, and more recently in 2021 and 2022. The Buller District is also one of the most deprived regions – ranking in the 92nd percentile nationally – with the lowest household income level nationally.

From 15th to 18th July 2021, a major flooding event saw the Buller River reach a peak flow of 8,900 cubic metres per second; the largest river flow ever recorded in New Zealand history.

Unfortunately, while the town was still recovering another major flood occurred in early February 2022 leading to further evacuations, damage to homes and infrastructure, access to the town being cut off, and a State of Local Emergency being declared.

The resulting costs and damage

There has been extensive economic, social, health, and environmental harm as a result of the back-to-back flooding in Westport. This is shown in the infographic at right.

Some of these harms can be quantified as costs, whereas others are especially enduring and difficult to 'value' in dollar terms.

As we have already alluded to, many of the enduring psychological stressors for the community (e.g., in the Snodgrass Peninsula part of Westport) continue to persist in the face of delayed investment decisions and uncertainty about retreat and other resilience measures to be implemented. This shows that it is not just the immediate impacts of the flood, but also government response to this, that can have an impact on community wellbeing and erode resilience in the long-term.

Sources: Buller Recovery. (2023). 'Weather events'; Paulik, R., Wild, A., Zorn, C., Wotherspoon, L., & Williams, S. (2023). 'Residential building damage assessment and evaluation for the July 2021 flood in Westport, New Zealand'.

Figure 22. Overview of the impacts and costs of the 2021/22 Westport floods.

An avoidable cost

Despite having more than $1 billion in Crown assets in Westport, there has been a decades-long reliance on ratepayers in one of the most deprived Districts in the country to fund river management and flood protection schemes.

The scale of damage and the associated (quantifiable) costs could have been largely prevented by a relatively modest earlier investment of between $10-20 million in flood protection work in the District; a cost the already 'stretched-thin' ratepayer base may have had difficulty meeting on its own.

In contrast, the costs of recovery are estimated at close to $100 million, with a further $100 million of indirect, intangible loss. We are looking at a cost-benefit ratio of nearly 1:9.

The longer term recovery costs not covered by Budget 2023's $22.9 million 'Resilient Westport Package' will now largely fall to the community, representing a significant financial burden across a small ratepayer base unable to afford this. This approach to flood mitigation and response is no longer tenable.

We have seen similar cases playout elsewhere in the country; most notably in Wairoa, Hawke's Bay. Here, warnings around inaction and the lack of flood protection schemes have been vocalised for decades, dating back to 1988 following Cyclone Bola. Yet, development continued to proceed in high flood risk areas leaving the town exposed to heavy rain events in the decades that followed, including the town flooding during Cyclone Gabrielle and more recently the floods in early November. Whereas the initial costs for flood protection in 1988 were around $22 million[55], there is now between $60-$100 million of work needed to prevent the town flooding again[56].

It is high time we learn our lessons from these disasters that could have been largely mitigated-against. We must take a more proactive approach to building flood resilience. Our communities and our future can no longer afford to wait.

Image: Westport flood rescue
Source: New Zealand Defence Force

The benefits of investing

Case study: Taradale stopbank in Hawke's Bay protecting Napier.

Having explored the costs associated with a lack of timely investment in flood protection, we now turn to two recent examples of where a proactive approach to investment has already demonstrated generated several-fold benefits. These two case studies include the Taradale stopbank and the Awanui River flood scheme; both part of the Crown-funded 'shovel-ready' flood protection tranche of work.

Background to the project

Much of Hawke's Bay has been built on low-lying river flood plains, meaning flooding is the most common natural hazard in the region. The Taradale stopbank runs alongside the Tūtaekurī river, and is part of the 155km Heretaunga Plains Flood Control Scheme (HPFCS) that protect the communities of Hastings, Flaxmere, Havelock North, and most of the urban area in Napier. Combined, the HPFCS covers a total of around 39,000 hectares and protects approximately 82% of the population within the Hawke's Bay region.

With Crown co-investment, the Taradale stopbank was recently upgraded to increase its level of service from a 1% AEP to a 0.2% AEP; that is from a 1:100 year to a 1:500-year level of service. Such stopbank upgrades are essential in improving not only flooding, but also earthquake resilience, and are a vital part of our climate change adaptation response.

The 2.5km stopbank upgrades involved increasing its height by up to one metre, and increasing its slope from 1:2 to 1:4m[57]. This strengthened the stopbank and reinforced its ability to contain floodwater. The upgrades were completed in November 2022; very fortunately before Cyclone Gabrielle hit most of the North Island. Additional works have since been planned to reinstate the berm and plant native species to enhance biodiversity.

Flooding event

As discussed earlier in this document, the impacts of Cyclone Gabrielle across many parts of the North Island were severe and devastating. The Hawke's Bay remains one of the worst-affected regions, and across the HPFCS alone there were 30 sites (representing 5km) of breaches across the stopbank network, during the peak of Gabrielle.

The images at right show the Taradale stopbank, where upgrades had been completed just prior, against where there hadn't been upgrades, resulting in significant damage to infrastructure (see Redclyffe Bridge below). This provides a compelling basis for comparison of impacts.

The benefits yielded

The stopbank upgrade cost $4 million, yet has already generated significant benefit through the immediate resilience provided against a major flooding event. Just under 10,000 properties in the flood zone protected by this stopbank, with an estimated capital value of $7.6 billion, were protected from devastation[58]. This is a significant benefit in terms of costs of averted damage to property alone[59], with the Hawke's Bay Regional Council noting that: "The Taradale stop bank upgrade completed late last year was instrumental in protecting much of Napier from catastrophic flooding, so we know these upgrades are vital."

Wider benefits generated through the construction upgrades include the creation of 32 jobs, and planting of 37,000 native plants across 11.4 hectares.

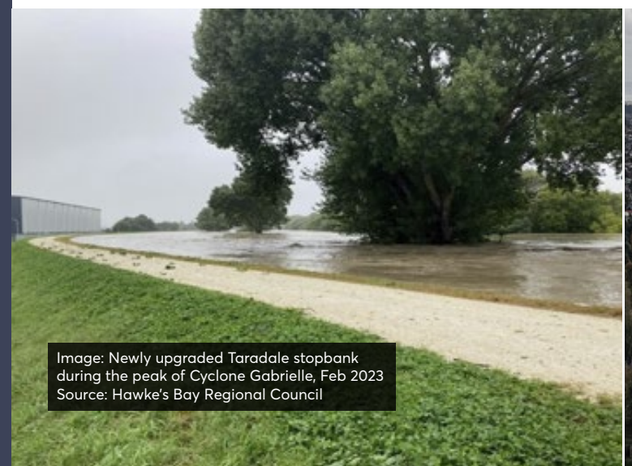


Image: Newly upgraded Taradale stopbank during the peak of Cyclone Gabrielle, Feb 2023
Source: Hawke's Bay Regional Council

Image: Around 10,000 properties in Napier protected by the Taradale stopbank, Feb 2023
Source: Hawke's Bay Regional Council

Case study: Awanui River flood scheme protecting Kaitāia.

We have also previously covered the Awanui catchment works as part of *Before the Deluge*; but it is a case that bears repeating given the significant flood protection and wider benefits it has generated to date.

Background to the project

As with the Hawke's Bay, many towns in Northland – including Kaitāia – are located on floodplains and face a higher risk of flooding. Recognising this risk, Northland Regional Council (NRC) prioritised an upgrade of existing flood protection schemes from a 1:30 year to 1:100 year level of service in the Long Term Plan 2018-2028, with a particular focus on the Awanui River flood scheme.

The $15.5 million project began in 2019 and was expected to be completed in 2027. Works included updating flood risk to capture climate change projections; extensive improvements to stopbanks; building an emergency spillway, and maintenance.

Funding for the programme was split 30:70 between regional and local rates. However, the $8.5 million central government co-investment received has accelerated the Awanui catchment works by five years, and has been completed in 2022, once again proving to be incredibly timely.

These upgrades were designed to help future-proof the scheme – including against predicted climate change impacts – and deliver a considerably higher level of protection for Kaitāia and surrounding areas in the long-term.

Flooding event and the benefits generated

Even before its completion in 2022, the upgrade to this scheme demonstrated significant benefits.

In August 2022, the scheme demonstrated its value in protecting the town against a 1:100 year storm event; Kaitāia's biggest weather event since 1958, when there was widespread flooding with 1m standing waves along the main street of Kaitāia.

Despite heavy rains, power outages, and slips on road networks, no homes required evacuation and the town was spared from widescale damage. This scheme alone has averted an estimated $50 million in avoided losses as well as risk to people's lives.

There were also wider benefits arising from an investment in this scheme, including creating 40 jobs.

Central government investment in the Awanui River flood scheme is an example of the excellent return on investment in accelerating flood protection works, with benefits already being evidenced repeatedly, even whilst the scheme was undergoing upgrades.

This is a testament to the importance of investing in our flood resilience – both in terms of improving the level of service, and in expediting this crucial work in response to growing flood risks.

Image: Kaitāia's new floodway (Awanui catchment works upgrade) working during the August 2022 floods

The revised approach

Our methodology for arriving at the revised project list.

Below, we describe our methodology for deriving the initial list of 92 projects in *Before the Deluge*, as well as our approach to refining and consolidating this list into the final 80 projects being put forward for consideration in this co-investment case.

The purpose of this re-assessment was to identify the final list of projects after excluding projects already funded through the Cyclone recovery funding, and reconfirming the cost of projects, scale of assistance being sought, and staging across councils.

The outcome is our revised list of 80 projects. This list was then externally reviewed by Tonkin + Taylor who have the relevant technical expertise and international experience required to validate the funding, scope, staging, and viability of projects.

An overview of the changes in investment across regional councils is detailed on the next few pages, followed by a breakdown of the investment sought.

Methodology for Before the Deluge

1 Initial assessment

River Managers from all 16 regional councils were engaged to conduct an internal assessment of all in-progress or planned flood protection projects, and to evaluate both the urgency and readiness of the projects for their local communities.

2 Achievability test

The resulting project list was filtered for deliverability, assessing whether each project could proceed within the next three years based on the capability and capacity of the regional construction industry, accelerating climate change, environmental / ecosystem considerations, the internal capability and capacity to provide oversight of project delivery, and the ability of councils to obtain the necessary consents to proceed with the work.

3 Priority test

The regional sector then took a national view of priority and the ability of communities to fund the urgent work, using the Index of Multiple Deprivation (IMD) from the University of Auckland. This provided a ranking of priority projects at the Territorial Authority (TA) level, identifying those where the need is great but the resources are lacking, and using this to apportion cost sharing. Where projects spanned multiple TAs, we used the median.

92 projects identified

Updated methodology for revised project list

1 Exclusion

Removal of those projects for the Hawke's Bay and Tairāwhiti Gisborne that will now be funded directly through the government's regional cyclone recovery provisions.

2 Alignment with PARA

Identify how projects align with and show remonstration of the PARA framework, including at the project-level as well as situated within councils' wider programme of work

3 Cost-adjustment

Adjustment of costs in line with construction price inflation at a rate of 8%

80 projects identified

$329.35 million
(60:40 cost-apportionment between central government and local councils)

Figure 23. Our methodology for reprioritisation and refining of the project list into the final 80 projects.

List of projects – North Island.

North Island
44 projects
$165.55m investment

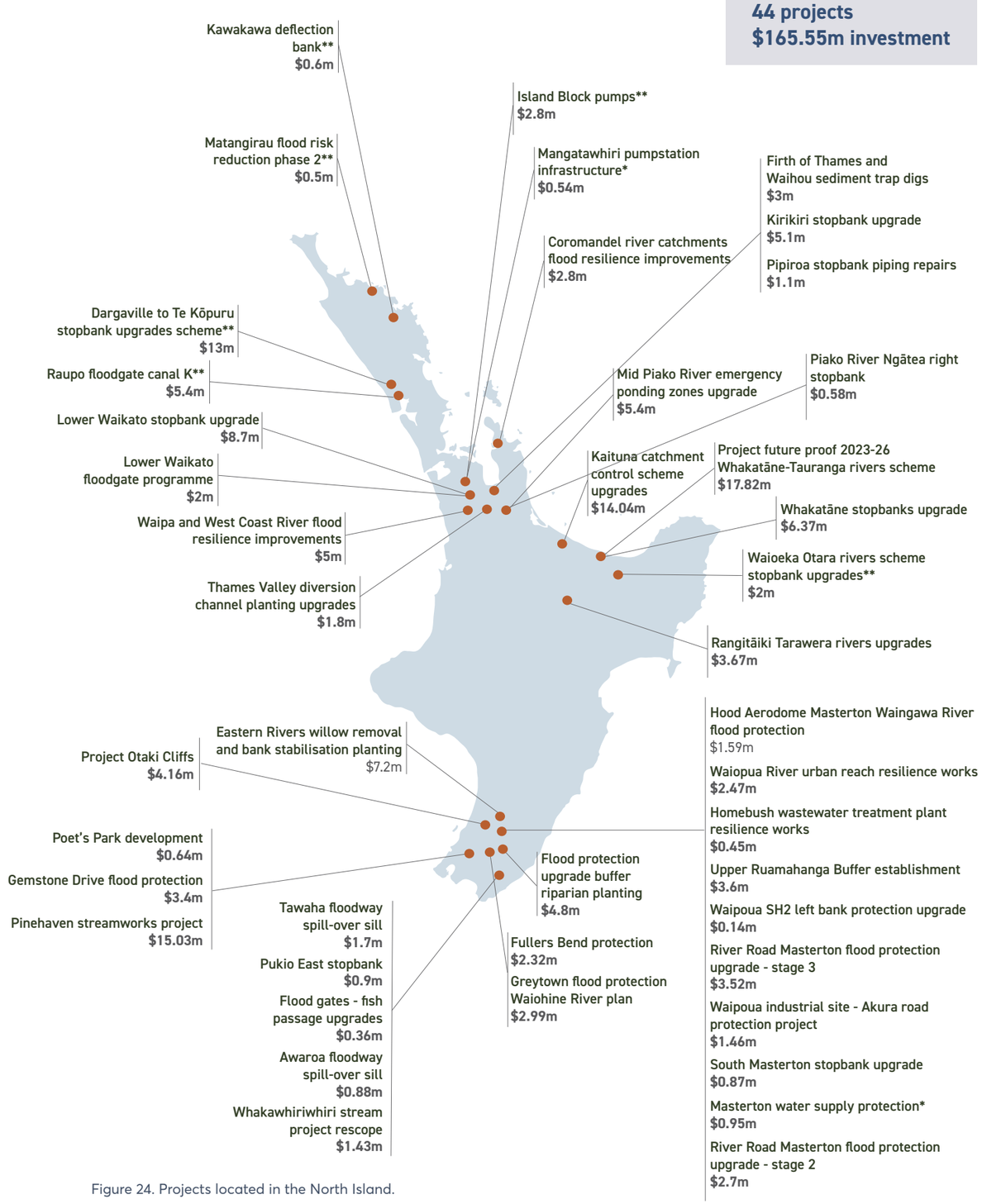


Figure 24. Projects located in the North Island.

The revised approach

List of projects – South Island.

South Island

36 projects
$163.80m investment

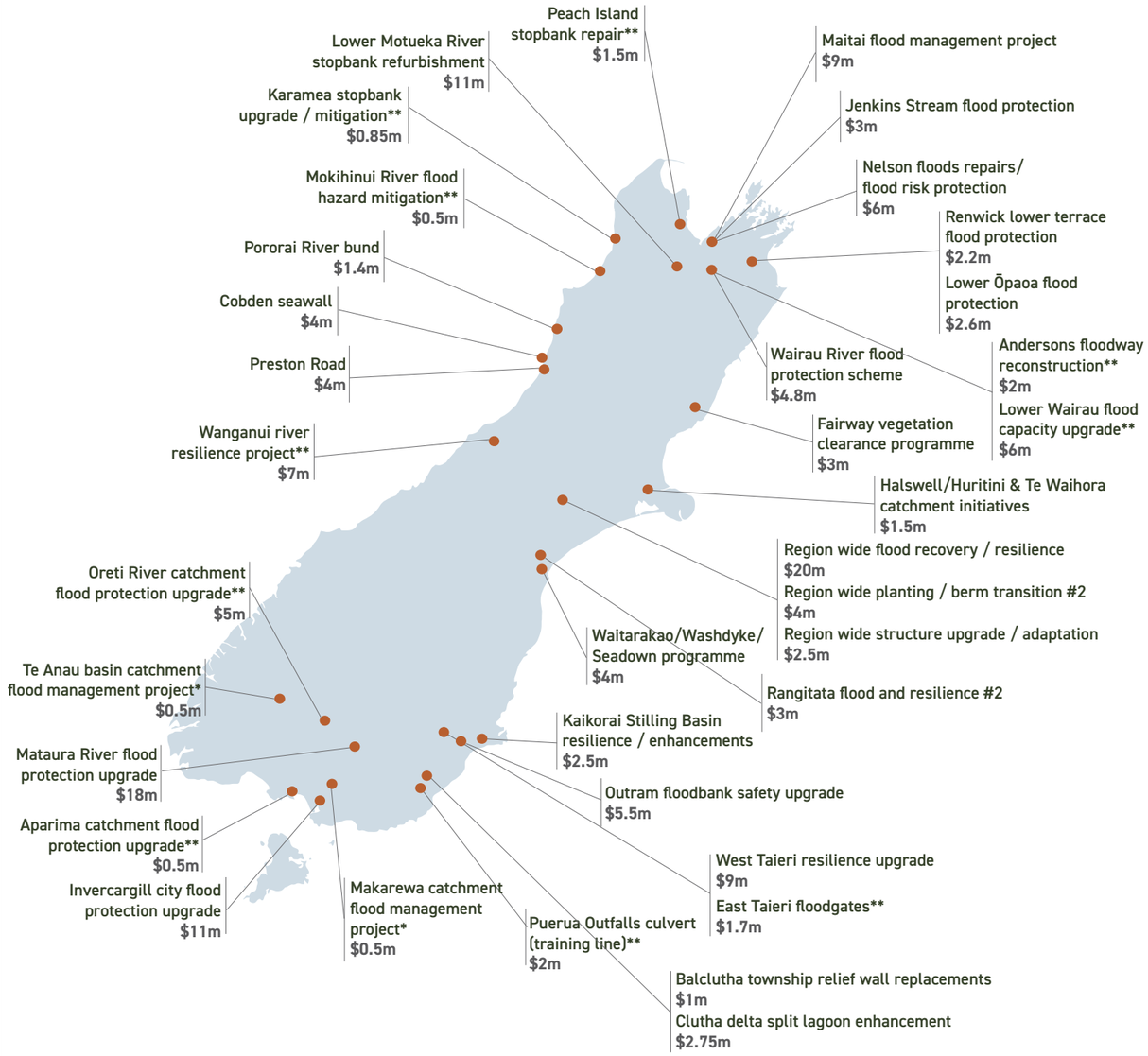


Figure 25. Projects located in the South Island.

Overview of changes across the project list.

Regional council-specific insights on changes in projects listed between 2022 and 2023 are summarised in the table below.

Table 2. Regional Council summary of changes in projects from 2022 to 2023.

Council	Overview of changes in projects listed
Northland Regional	· Same projects with 20% increase in costs, which aligns to 2022 assessment.
Kaipara District	· Same projects with 8% increase in costs.
Auckland	· No projects submitted – no change.
Waikato Regional	· Two projects removed. Have received government Gabrielle Recovery Funding. · Remaining projects the same.
Bay of Plenty Regional	· Increase of 8% on all projects. · Some projects have extended timeframes (duration doubled) to enable improved phasing of discrete components for the delivery of projects. The 8% increase in costs for all the projects is considered to provide sufficient total funding.
Gisborne DIstrict	· All earlier listed projects removed since now being funded by government Gabrielle Recovery Funding.
Taranaki Regional	· No projects submitted – no change.
Horizons Regional	· No projects being claimed in 2023 round, with these deferred while a significant amount of cyclone repairs recovery work is being undertaken. The Council has also secured around $5m in funding through government Gabrielle Recovery Funding.
Hawke's Bay Regional	· The earlier projects have been deferred for a few years due to heavy workload from cyclone repair and additional lower reaches work that already has approved government Gabrielle Recovery funding.
Greater Wellington Regional	· Various changes to projects and associated costs and timeframes - Large decreases (e.g. Greytown Flood Protection with $5.05m reduction [63% reduction], with no visible changes to project scope) due to more design consultation needed, with construction phases moved out to next tranche stage. - Large increases are associated with Rathkeale College Protection (up $1.5m, 71%) and Tawaha Floodway Spill-over Sill (up $1.36m, 400%), due to additional components of work for theise projects. · Some projects broken down from 1 project in 2022 to 2 projects in 2023. · Total costs similar to previous total.
Nelson City	· Delayed start on three projects, three projects deferred while other flood recovery work takes priority. · Two projects with reduced costs and 1 with increased costs which balance, net decrease is a result of the removed projects.
Tasman District	· Same projects with increase in costs of 7-10% across two projects. · Peach Island has increased delivery duration with limited increase in costs.
Marlborough District	· Same projects as previously, with increase in costs on 3 projects, other 2 projects costs remain the same. · Note: one project that was previously missed out in the 2022 list has now been included and given priority by council due to heightened flood risk.
Environment Canterbury	· Same projects (noting one name change). · Two projects with increased costs (totally $2.5m increase), due to increase in required scope including additional upgrade work for 7km of stopbank and some managed retreat.
West Coast Regional	· Total of 6 projects, 4 of which are new, following a review of priority needs. · No increase to original project costs although one (Cobden Floodwall) has extension in timeframes from 1 to 3 years to allow additional time to complete design consultation before a year for construction works.
Otago Regional	· Reduced projects by half (revised project count of 7) to ensure successful delivery within the next 3 years, and accounting for significant flood recovery repair workfrom the 2020 Clutha River flood event and other floods in 2022. · Ranging increases in project costs from 10 – 33%, averaging 10-13% increase. · One project (Balclutha Township Relief Wall replacement) has cost decrease of 60% due to initial stage of work already being underway.
Environment Southland	· Same project list of 6, with 4 remaining same cost. The 2 projects with increased costs total $4.4m are due to significant additional upgrade work that will lift the required Levels of Service from 1 in 50 to 1 in 100 years.

The revised approach

Overview of changes across the project list.

A high-level overview of project changes from the previous co-investment case (92 projects) to the present one (80 projects) is shown in the box at right.

These projects are included in the draft Long Term Plans for councils, meaning that co-investment from central government will allow this critical flood protection work to be completed at an accelerated pace.

A summary of changes

- Most projects have increased in cost, reflecting changes in the construction cost index. This represents an average cost increase of between 7-8%
- One council has deferred its programme of projects previously put forward while they concentrate on Gabrielle recovery and other projects needing to be completed first
- Some councils have reprioritised the ranking of projects, whereas others have added new and more urgent repairs, remediation, and mitigation works in response to recent weather events and community priorities
- Similarly, some councils have changed the staging of works to reflect re-prioritisation and considerations around sector capacity at the given time
- Overall, we see a reduction in both the total number of projects, and the total cost of projects. Resultantly, our co-investment ask is lower than previously.

Project investment summary.

The table below summarises the funding breakdown across regional councils and central government, at the territorial authority level.

Table 3. The project investment apportionment across Crown and regional councils in $millions

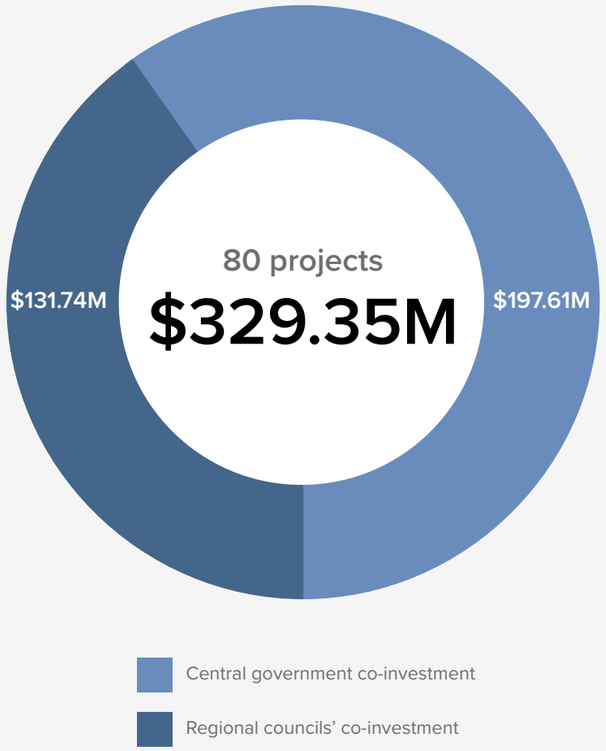
Territorial Authority (TA)	Total Project Cost ($M)	Crown ($M)	Regional ($M)
Buller District (3)	$2.75	$1.65	$1.1
Canterbury-wide (4)	$29.50	$17.7	$11.8
Christchurch City / Selwyn District	$1.50	$0.9	$0.6
Clutha District (3)	$5.75	$3.45	$2.3
Dunedin City (4)	$18.70	$11.22	$7.48
Far North District (2)	$1.10	$0.66	$0.44
Gore District	$18.00	$10.8	$7.2
Grey District (2)	$8.00	$4.8	$3.2
Hauraki District (6)	$16.98	$10.188	$6.792
Invercargill City	$11.00	$6.6	$4.4
Kaipara District (2)	$18.40	$11.04	$7.36
Kāpiti Coast District	$4.16	$2.496	$1.664
Marlborough District (5)	$17.60	$10.56	$7.04
Masterton District (12)	$29.52	$17.712	$11.808
Nelson City (3)	$18.00	$10.8	$7.2
Ōpōtiki District	$2.00	$1.2	$0.8
South Wairarapa District (7)	$10.58	$6.348	$4.232
Southland District (4)	$6.50	$3.9	$2.6
Tasman District (2)	$12.50	$7.5	$5
Taupō District	$3.67	$2.202	$1.468
Thames-Coromandel District	$2.80	$1.68	$1.12
Timaru District (2)	$7.00	$4.2	$2.8
Upper Hutt City (3)	$19.07	$11.442	$7.628
Waikato District (4)	$14.04	$8.424	$5.616
Waitomo District	$5.00	$3	$2
Western Bay of Plenty	$14.04	$8.424	$5.616
Westland District	$7.00	$4.2	$2.8
Whakatane District (2)	$24.19	$14.514	$9.676
TOTAL	**$329.35**	**$197.61**	**$131.74**

Updated investment amount

Breakdown of cost-apportionment.

The final list of 80 projects total $329.35 million, as shown below.

This represents a list of projects with the respective regional and unitary councils' prioritisation already applied – that is, each council has ranked their projects in order of priority. The full project list and description is provided in Appendix 1.



Note: Figures represent capital expenditure only.
Ongoing operational costs to be funded by regional councils.

Figure 26. Figure showing the total cost of the 80 projects in this co-investment case, as well as the suggested cost-apportionment between central government and regional councils.

A note on national prioritisation

In *Before the Deluge* we applied a national prioritisation framework of deprivation, guided by Cabinet guidance at the time that prioritised a vulnerability and deprivation-based approach to co-investment[60]. We used the Index of Multiple Deprivation[61], detailing our full process in the previous business case*. Resultantly, we proposed councils with the highest level of deprivation** receive a greater proportion of central government funding (75% compared to 64% applied to other councils). Overall, this represented a central government co-investment of around 60% across the total of all projects.

Given the change in incoming government and likely policy priorities and direction, we do not wish to pre-empt any decisions around prioritisation of projects. There are a range of cost-apportionment and prioritisation frameworks that may be more or less relevant, including deprivation.

Therefore, we have applied a consistent cost apportionment ratio across all projects of 60:40% across central government and regional councils, respectively. This 60% figure is also historically in-line with central government contributions (between 50-75%) to capital costs of flood protection schemes prior to the early 1990s.

We welcome the opportunity to explore a national-level prioritisation framework and discuss the funding mechanisms further with incoming government, reflecting the partnership approach we wish to take in building and implementing our longer-term flood resilience programme of work.

* See p53 of *Before the Deluge*
** At the time this was only Ōpōtiki District Council

Commercial Case

This section explores the regional sector's capacity and capability to deliver the projects, as well as outlining the timeline for this delivery.

80 » **Sector capacity and capability**

Details the evidence for sector capacity and capability in successful delivery, using select case studies.

89 » **Delivery staging and timeline**

Provides a high-level overview of the staging of projects, with additional council-level staging shown in the appendices.

Sector capacity and capability

The regional sector collective has every confidence in the sector's ability to deliver on-time and to budget.

The progress of the 55 'shovel-ready' flood resilience projects, shown on the pages that follow, is compelling evidence that regional councils have demonstrated capability and capacity in successfully delivering flood protection projects.

While these 55 Crown-funded projects are due for completion by the end of FY 2023/24, learnings about project delivery and governance have informed the proposed mechanisms we put forward in this co-investment case.

We have grown capability and learnt from the current investment in the climate resilience programme, and can harness this to be more effective and efficient in our delivery of the next programme of works.

We remain confident that our revised list of 80 flood management infrastructure projects can be delivered on time and to budget, over the next three years. Our confidence is grounded in the factors outlined below.

Core activity for regional councils
Developing and maintaining flood protection infrastructure is a key statutory function and core activity of regional councils, will skills and capabilities in its design and delivery going back more than 70 years.

Projects being 'shovel ready'
Projects were pre-screened for their 'consent-ability' and deliverability within the next three years in compiling our project list, with most able to commence within the next six months (by June 2024). Moreover, these are modest-scale projects that are not overly complex, meaning they are straightforward to deliver.

Well-prepared budget
Project costings were developed with strong awareness of the regional construction pipeline and construction cost index. Councils have also provided strong assurance of securing their part of the co-investment.

Proven track record
The ability of the sector to deliver flood resilience projects has been evidenced by the success of the 55 'shovel-ready' projects, currently in their last year of delivery, with projects already demonstrating major economic and social benefits.

An established community of practice
Through the River Managers' SIG, the regional council collective adds value to these projects through the sharing of specialist knowledge, capabilities, and learnings across the sector, as well as the ability to deploy resources across different regions where needed. There is strong support to respond quickly if challenges arise.

Proven systems and methodologies
Regional councils will implement robust delivery, risk management, and accountability systems and methodologies that have been refined across the sector. These systems have been certified to be highly effective and compliant.

Harness construction efficiencies
The private sector has extensive experience in the design and construction methods, and regional councils will be able to capitalise on existing construction, engineering, contractor and other works procured and established through the delivery of the first tranche (55 projects) to maximise construction efficiencies.

Projects de-risked with barriers removed
Project risks are minimal, with most barriers already addressed. Where necessary consent, consultation (with community, iwi, and landowners), design, and co-investment mechanisms are already largely in place or could be implemented expeditiously.

Figure 27. Evidence of the sector's capability and capacity to successfully deliver the projects outlined in our business case.

HAPŪ AND COMMUNITY AT HEART OF SPILLWAY MAHI

NORTHLAND REGIONAL COUNCIL

Project: Otiria Moerewa Flood Mitigation Spillway **Location:** Otiria and Moerewa, Northland

The small Northland centres of Otiria and Moerewa have suffered three major flooding events in the last decade.

$5.1m of works to reduce risk by about 75% include a 150m spillway and replacement of an existing bridge, restoring the river's natural flows using both natural and hard infrastructure solutions.

Growing relationships and the environment

Building partnerships / whakawhanaungatanga is at the heart of this mahi. Kaitiakitanga were hired to assist with water quality monitoring and fish surveying alongside council staff.

Part of observing cultural practices, karakia was performed every morning at the site by local kaumatua Davey Ngawati to protect all mahi being done on and around the whenua, showing a massive shift within local government. NRC shaped change on its approach for this kaupapa to see the community roopu benefit, which strengthened their partnership with community and hapu.

Cultural induction allowed staff and contractors to meet and form relationships with hapū - a point difference for the contractors to appreciate the connection and understand the importance of this project. A barbeque was also hosted by NRC for the workers who completed the significant achievement of placing the bridge breams. This recognised their work acknowledged that NRC are not the ones "getting their hands dirty", they are.

Project funding

Kānoa $2.8m | Northland Regional Council $ 2.2m

Total project cost

$5m

Social and Environmental Benefits

$15,000 back into the community for clean-up work

$25,000 environmental monitoring investment and **upskilled 40 kaitiakitanga** alongside council staff

Restoring the natural flow of two rivers' waters with **flood risk reduced by ~75%**

Local hapū planted **10,000 natives**

"Being from the area makes it more rewarding to see the project come to fruition, while also knowing what we are doing is going to make a difference for the community I grew up in."

– Troy Packer
The onsite supervisor for the project, Troy was born in Kawakawa and raised near lake Owhareiti. Troy's local Marae are Tumatauenga and Te Rito, and through his grandmother he has ties to Otiria and Moerewa, Pokapu and Matawaia.


Local rangitahi join hapū and council staff for cultural assessment of taonga species.


Cultural assessment of taonga species connected council staff to hapū of all ages.

Resilient River Communities | Te Uru Kahika Regional and Unitary Councils Aotearoa | Kānoa Regional Economic Development & Investment Unit | Waikato Regional Council Te Kaunihera ā Rohe o Waikato

ENHANCING FLOOD PROTECTION & THE ENVIRONMENT

WAIKATO REGIONAL COUNCIL

Project: Piako River right bank asset rationalisation **Location:** Hauraki Plains, near Piako River mouth

The Piako River scheme includes a range of flood protection assets to protect people and property on the low-lying Hauraki Plains from frequent flooding.

Three floodgates near the mouth of the Piako River and the Firth of Thames, which serviced a drainage catchment of 850 hectares, were nearing the end of their useful life. This project, started in 2020, is about replacing these floodgates with one to reduce operational and maintenance costs. The current level of service will be maintained, along with options for longevity of flood protection in this area.

New shorebird roost and tuna pond arises from enhanced defences

The site was once paddocks that had become inundated by the sea after a king tide busted through a private stopbank. It was being used by shorebirds for foraging and roosting on old farm equipment before being purchased by the council for this project. Mangroves, which can reduce feeding and roosting sites critical to shorebirds, have been removed and appropriate habitat with shorebird roosts will be created where the stopbanks have been set back. The project also includes the creation of a stormwater storage area to support fish life – particularly tuna – year-round, even in times of drought.

Project funding

Kānoa $2.6m

Total project cost

$8.8m

Social and Environmental Benefits

Creation of 10-hectare wetland habitat which connects to green corridor project (native planting along the Piako River)

Raised **roosting areas for shorebirds** and new stopbanks built from sediment from site

Excavated pond will **support fish life year-round** and provide stormwater storage

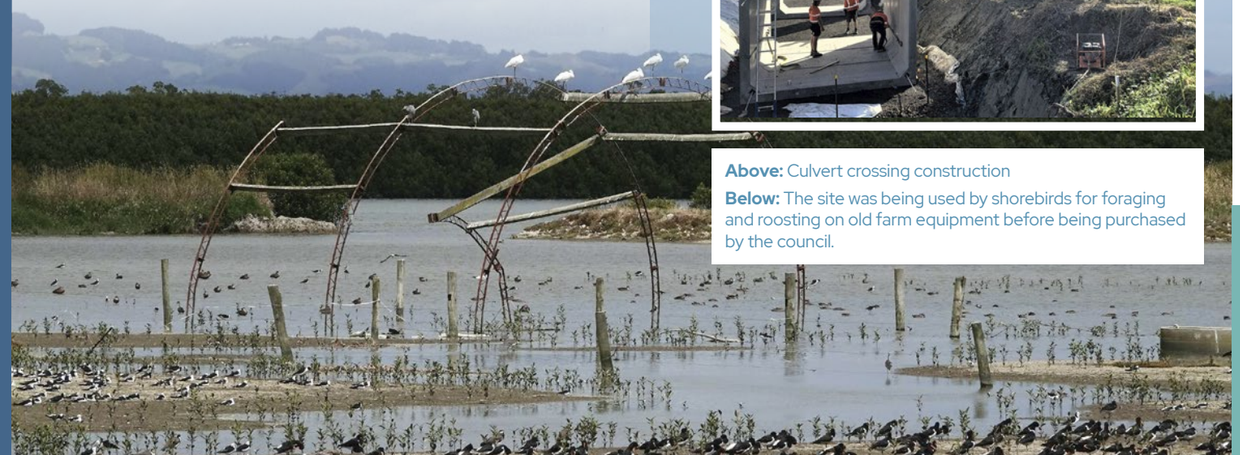
Tidal structure allows fish movement in and out of habitat area and prevents stored water from becoming stagnant.

"We are delighted. The site is by the cycle trail, we're talking about putting in a hide; it will be brilliant."

– Keith Woodley.
Keith Woodley is the Pūkorokoro Miranda Shorebird Centre manager. He is passionate about birds and has been advising the regional council on the creation of the wading bird habitat, which is part of this project

Above: Culvert crossing construction

Below: The site was being used by shorebirds for foraging and roosting on old farm equipment before being purchased by the council.



Resilient River Communities | Te Uru Kahika Regional and Unitary Councils Aotearoa | Kānoa Regional Economic Development & Investment Unit | Hawke's Bay Regional Council Te Kaunihera ā-Rohe o Te Matau-a-Māui

SUPPORTING JOBS & THE LOCAL ECONOMY

HAWKE'S BAY REGIONAL COUNCIL

Projects: 1. Heretaunga Plains – Level of Service 2. Upper Tukituki – Gravel Extraction 3. Upper Tukituki State Highway 50 4. Wairoa River Scheme - Ferry Rd Erosion Control
Location: Hawke's Bay

Over the last three years, the council has been working closely with local businesses, providing them with opportunities for growth and development and boosting positive economic, social, environmental, and cultural outcomes.

The council delivered almost 75% of these projects prior to Cyclone Gabrielle. This meant additional funding was secured so Hawke's Bay Regional Council can continue delivering these important flood protection projects for the community.

Working with our Iwi partners and local businesses to support jobs and the local economy

During 2021 and 2022, the council engaged with local businesses which generated additional jobs and encouraged further contract opportunities in 2023. In the last two years (pre–Cyclone Gabrielle), they have provided workshops for contractors to understand the tendering process, workshops to improve employee wellbeing, boost knowledge, and learn new ways of coping. This has meant further opportunities for these contractors to tender successfully and secure contracts, contributing to our regional economy.

In July 2023, five months on from Cyclone Gabrielle, Hawke's Bay Regional Council undertook stopbank repair works and uncovered an archaeological site – a midden pit. They then had an exciting opportunity to upskill cultural monitors on the archaeological process during the discovery. This highlighted the importance of community and pre-existing relationships.

Project funding

Kānoa $19.2m | HBRC and Partners $10.8m

Total project spend to date

$12m * Projects are continuing with the next round of funding

Social, Environmental & Cultural Benefits

37,000 Native trees planted on 11.4 hectares, creating the largest native alluvial forest in the Heretaunga Plains. With a futher 19,000 at other sites

Employment of targeted workers, supplier diversity & local business. **85% local & Māori, 20% female**

100 staff upskilled or trained

Hawkes Bay Regional Council have formed **lasting partnerships with iwi**, essential to future climate change projects

Planting the largest native alluvial forest in the Heretaunga Plains – Ngatarawa Ngaruroro- River

"HBRC demonstrated its commitment to put the wellbeing of our communities at the forefront of its priorities. Being able to achieve this in the midst of an intense rapid rebuild programme is outstanding"

- Nicolas Caviale-Delzescaux
Nicholas Caviale-Delzescaux is a local contractor and the project manager for the IRG planting programme which continued post-cyclone Gabrielle. Key partners and stakeholders agreed this project would boost morale and support the community after what was a hard time for everyone.

COMMERCIAL CASE

Resilient River Communities | Te Uru Kahika | Regional and Unitary Councils Aotearoa | Kānoa Regional Economic Development & Investment Unit | Greater Wellington Te Pane Matua Taiao

PROMOTING COMMUNITY WELLBEING ALONGSIDE FLOOD RESILIENCE PROJECTS

GREATER WELLINGTON

Project: Climate Resilience Programme – Broader Outcomes initiatives **Location:** Wellington Region

Greater Wellington's Climate Resilience Programme has delivered wider social and cultural outcomes, alongside engineering projects designed to help make the community more resilient to climate change.

This has included working alongside their Māori-owed contractor Mills Albert Ltd (MAL) to provide wellbeing training and career development opportunities for the MAL team. They've also supporting a Ngāti Kahungunu Ki Wairarapa initiative to reintegrate Kahungunu tāne that have been in prison back into the community by reconnecting them with their people, the whenua and the marae. These initiatives were highly commended at the 2023 LGFA Taituarā Excellence Awards.

Delivering social and environmental benefits

Greater Wellington has delivered more than 17 activities that provide social, economic, cultural or environmental benefits for the community through its Climate Resilience Programme. They worked with local Māori-owned civil engineering business, Mills Albert Ltd, to build infrastructure to protect communities from flood and erosion damage at 14 riverside sites. They also collaboratively identified opportunities for the construction team to develop key skills and improve their wellbeing. Additional projects included working alongside Ngāti Toa Rangatira to plant a rongoā (Māori healing system) garden at Poets Park, Upper Hutt, and planting native plants to help restore a Wairarapa wetland.

Project funding $23.6m

funded by Greater Wellington, MBIE (Kānoa), Masterton District Council, Hutt City Council and KiwiRail.

Programme Highlights

- **Wellbeing training** to over 90 people in the construction industry
- Improving the career prospects for **34 people** through targeted training opportunities
- Supporting Ngāti Toa Rangatira to **gain civil construction jobs**
- **Supported a Ngāti Kahungunu Ki Wairarapa idea** and programme to help Kahungunu men who have encountered the justice system to reconnect with their whenua, their people and their marae.

"Focusing on mental health and wellbeing was important to us. We're really proud of the difference it's made for our people."

– Paul Albert, General Manager, Mills Albert.

Repairing erosion damage to the popular Hutt River Trail.

Above: Paul Albert is the General Manager of Mills Albert, a family-owned, Kāpiti-based contracting and forestry business. Paul is from Nga Paerangi in Whanganui.

Resilient River Communities | Te Uru Kahika | Regional and Unitary Councils Aotearoa | Kānoa Regional Economic Development & Investment Unit | tasman district council Te Kaunihera o te tai o Aorere

PROTECTING THE MOTUEKA COMMUNITY FROM FUTURE FLOODS

TASMAN DISTRICT COUNCIL

Project: Motueka River Stopbank Refurbishment Programme **Location:** Tasman District

The Motueka River catchment covers 2,170km² and is one of the largest river systems in the Tasman District.

A series of stopbanks were built in the 1950s to protect homes, businesses, productive land and infrastructure in the Motueka and Riwaka townships. Upgraded stopbanks across ten sites have substantially strengthened security at the most vulnerable locations, which are facing more significant and frequent flooding. While not due for completion until the end of summer 2024, the project has already faced three weather events where the upgraded stopbanks have provided improved flood protection.

Community forms around project

Community engagement raised awareness of the importance of stopbanks. Regularly cut off when the river floods, Peach Island residents now fully understand future flood risks, and have an Emergency Management Plan in place.

A supplier panel for Māori and Pasifika businesses was established, awarding specialist packages within the restoration work. These businesses received procurement training from the council, giving them confidence and tools to bid for flood resilience works, and larger contracts, in future.

Valuable insights were provided by iwi - who own substantial amounts to land adjacent to the stopbanks - assisting the council to address at-risk locations in a culturally sensitive manner. This has led to exploring opportunities for environmental rejuvenation as part of a longer-term holistic approach to maintaining the health of the river.

Project funding

Kānoa $7.5m | Tasman District Council $ 2.5m

Total project cost

$10m

Social and Environmental Benefits

- 4.8km of **stopbank upgraded** to protect communities and assets
- **4 local Māori owned businesses** awarded approximately $650k in contracts
- **Increased flood protection** to businesses and residences vulnerable to flooding in Motueka
- **61** adjacent landowners and occupiers' assets secured by increased protection

"Having experienced widespread damage to our facilities during Cyclone Gita in 2018, we are fully supportive of this work which ensures that the stop bank is robust enough to protect our important research from regular and more extreme flooding events."

– Grant Williams
Regional Facilities & Assets Manager at Plant & Food Research.

Karakia at the initiation of stage two of the project, with local iwi representatives next to the last remaining totara in the vicinity of the project, January 2022.

Resilient River Communities | Te Uru Kahika Regional and Unitary Councils Aotearoa | Kānoa Regional Economic Development & Investment Unit | Otago Regional Council

COMMUNITY ACTIVE IN WETLAND PROJECT SUPPORTING RARE & THREATENED SPECIES

OTAGO REGIONAL COUNCIL

Project: Upgrade of Flow Management Structures **Location:** Robson Lagoon, Lower Clutha

Ageing infrastructure at Robson Lagoon, South Otago, has been replaced with new flood flow systems including a solar powered flow control gate which will encourage the flows of tributaries to the wetlands, and improve land drainage.

This promotes sustainable water flow for the 'Regionally Significant Wetland' which is home to many rare and threatened species and is significant for Kai Tahu for cultural and spiritual beliefs, values and uses.

Community forms around project

The area is used as a popular recreation area by the local community. The area includes a walkway / cycle track which circumnavigates the lagoon. Local landowners, DoC, Fish and Game and Aukaha (a mana whenua-owned consultancy) were actively involved during the project.

This project will realise benefits intergenerationally, with the continued availability of the area for the community and the species within it providing for cultural values into the future. Improved access to the wetland also makes it safer for recreational use for the public. The wetland includes a diverse mosaic of indigenous flora and fauna, many of which are threatened species like the Australasian Bittern, Banded Dotterel, long and shortfin eels, galaxiid (whitebait), swamp nettle and Isolepis basilaris.

Project funding

Kānoa $352,000 | Otago Regional Council $497,000

Total project cost

$849,000

Social and Environmental Benefits

Contractors and consultants that worked on this project were almost exclusively from Otago, providing **direct benefit to the local economy**

Enhancing a **Regionally Significant Wetland**, home to over 50 bird species

Ranked 5th in **New Zealand's Top 10** Wetland Wildlife Habitats

Enhanced protection of natural and ecological values at the 566-hectare lagoon complex.

"The new gate will enhance ecological values in the wetland complex and will ultimately provide the community with long term, lasting benefits."

– Denis Greer
Denis Greer is a local landowner from Milton and a member of the Lake Tuakitoto Catchment Group.

The flow gate and its solar powered actuator valve. Photo: ORC/Tim Ware

The opening of the flow gate was attended by the local community.

COMMERCIAL CASE

Resilient River Communities | Te Uru Kahika Regional and Unitary Councils Aotearoa | Kānoa Regional Economic Development & Investment Unit | environment SOUTHLAND Regional Council Te Taiao Tonga

PUMP STATION "ONCE IN A GENERATION" PROJECT

ENVIRONMENT SOUTHLAND

Project: Stead Street Pump Station Replacement **Location:** Invercargill/Waihōpai, Southland/Murihiku

Environment Southland is installing new energy-efficient, twin Archimedes screw pumps at the Stead Street Pump Station which will provide safe fish passage for valued mahika kai species

This project will bolster climate resilience for Southland's biggest urban centre and help to meet the aspirations of Kāi Tahu ki Murihiku to have the health of the Kōreti estuary restored.

Wider benefits of Pump Station will exceed flood protection

Extensive native plantings undertaken by Iwi owned and operated charitable conservation organisation Te Tapu o Tāne for the ICC project will be further enhanced once the pump station build is complete.

The design, fabrication and construction of the Mahi Toi (art pieces) which will adorn the front exterior of the Pump Station, are a collaborative effort that builds on the recently completed ICC climate resilience project on Stead Street and Airport Avenue. Coordinated by Keri Whaitiri, the current project connects the Waihōpai Rūnaka Narratives Committee, lead artist James York, and the same team of engineers, designers, 3D modellers and fabricators that worked on the ICC project. A specialist fabricator will pre-assemble the artwork, and a local engineering firm will do the final on-site assembly.

Project funding

Kānoa $2.25m | Environment Southland $8.75m

Total project

$11m

Social and Environmental Benefits

Protection for **116 properties** in the immediate area

Lifeline for airport, **supporting 320,000 passengers** plus freight each year

27km of waterways that operate as drainage network opened for **safe fish passage**

Multi-collaborative effort to design and construct Mahi Toi elements

194 people worked on project since inception - more than 132 FTE months of employment.

"Good species passage supports indigenous species, recognising the value of the Kōreti estuary and the aspiration for a return to the once healthy state of these important waters."

– Keri Whaitiri (Kāi Tahu, Kāti Māmoe). As Project Coordinator for the Mahi Toi elements, Keri's role ensures that Kāi Tahu cultural values and history are reflected in the project.

Mahi Toi designs associated with the pump station are integral to the wider Stead Street climate resilience project. The above image shows the design detailing at the end of the new sheet pile wall, conceptually transforming it into a Waka Tiwai.

Resilient River Communities | Te Uru Kahika | Regional and Unitary Councils Aotearoa | Kānoa Regional Economic Development & Investment Unit | Invercargill City Council | environment SOUTHLAND Regional Council Te Taiao Tonga

PROTECTING SOUTHLAND'S LARGEST URBAN CENTRE

INVERCARGILL / WAIHŌPAI

Project: Flood Protection Upgrades **Location:** Invercargill / Waihōpai, Southland

The challenge

Extensive flooding in 1984 closed Southland's only passenger airport in Invercargill / Waihōpai. The primary sources of that floodwater – the Waihōpai River, Waikiwi Stream and Ōreti River – underwent significant flood protection upgrades following the event.

In March 2016, a phenomenon known as storm surge caused the sea to spill onto Stead Street, resulting in road closures and surface flooding of the land surrounding the airport. Stead Street provides the only transport link to the airport and connects the suburb of Ōtātara with Invercargill's CBD and emergency services.

The work

Invercargill City Council:

- Reinforced the old Stead Street stop bank with a heightened sheet pile floodwall, providing a much more robust defence against the sea waters.
- Raised the height of the adjoining Cobbe Road stop bank.

Environment Southland:

- Replacing the Stead Street Pump Station with a new facility, housing two new fish-friendly pumps. The existing Stead Street pump station is now over 70 years old.
- Widening and raising the stop bank on the true left bank of the Waihōpai River.

Together, these projects begin to systematically address the vulnerabilities Invercargill has to climate change and provide much more resilient flood defences for the people of Invercargill and the city's critical infrastructure.

Below: Whakawātea to mark the beginning of the construction of the new Stead St pump station.

Project funding

Stop bank upgrades (ICC)
Kānoa $10.8m | Council $4.7m

Pump station (ES)
Kānoa $2.77m | Council $8.75m

Waihōpai stop bank upgrade (ES)
Kānoa $2.63m | Council $ subject to approval

Key Benefits

- ✓ **Enhanced protection:** for Southland's largest urban centre, properties and critical infrastructure.
- ✓ **Strengthened partnerships:** between councils and with Waihōpai Rūnaka.
- ✓ **Environmental impacts lessened during construction:** using borrow sites for stop bank fill with the least impact on river ecology, fish passage and spawning.
- ✓ **Safe fish passage, energy efficiency and reduced maintenance:** with new Archimedes screw pump technology.
- ✓ **Cultural and archaeological values protected:** with robust cultural and archaeological discovery protocols.
- ✓ **Enhanced recreational access:** with upgraded shared pathways.
- ✓ **Economic and social benefits:** through investment in the region.

The staging of projects

An overview of the delivery timeline and spend by regional council is shown below. Council-specific Gantt charts – showing a breakdown across individual projects – are provided as appendices.

Environment Southland have indicated that one project in particular (Mataura River flood protection upgrade) would benefit from a four year time period to identify and accommodate for alternative nature-based solutions. We suggest this could be managed as a minor variation in scope, as part of finalising the funding agreement with Council.

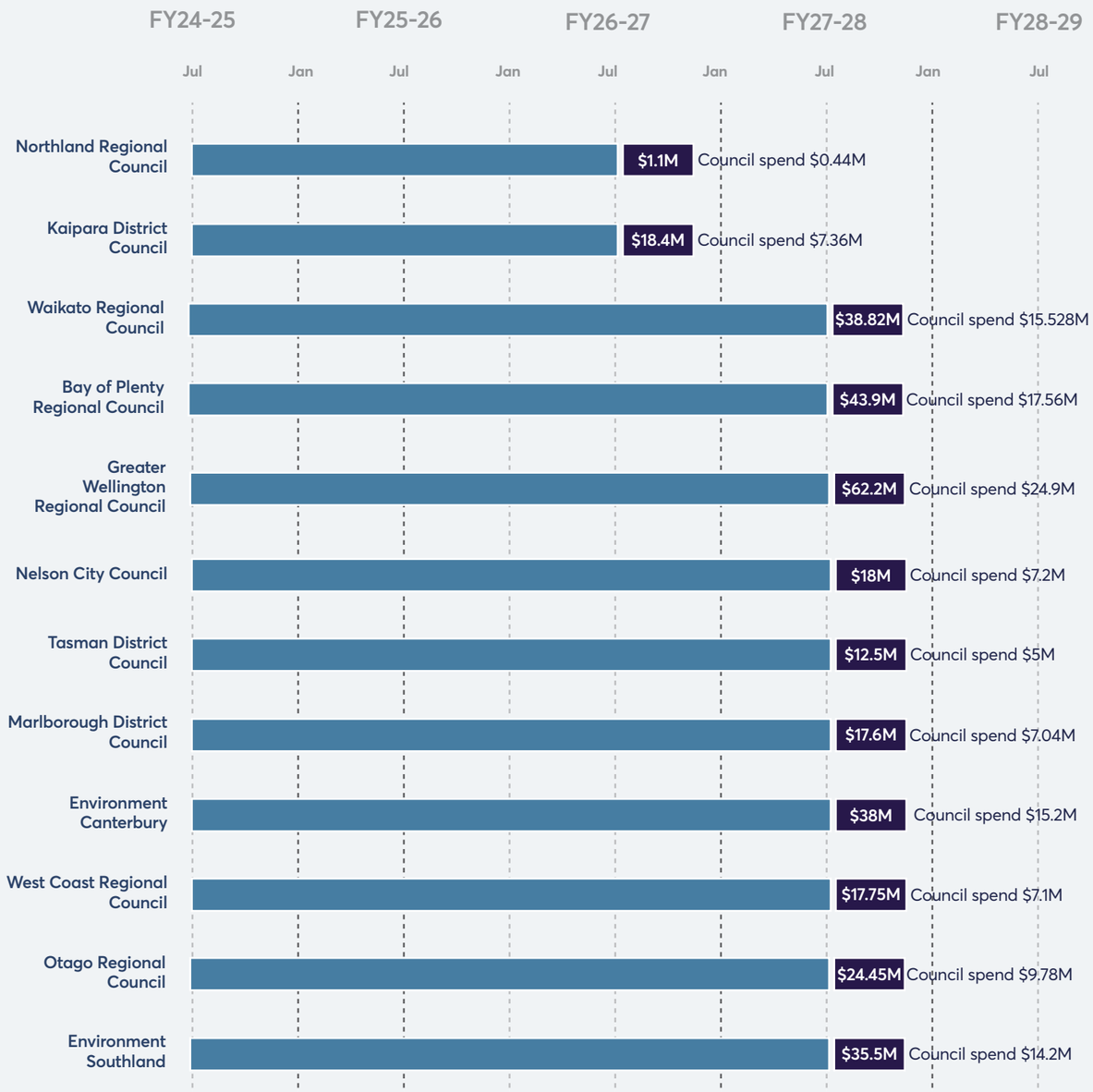


Figure 28. Consolidated Gantt chart showing staging of delivery across regional councils.

Financial Case

This section breaks down the required co-investment and the staging of this investment across three years.

Summary of co-investment

A co-investment partnership between the regional sector and central government is needed, over the short- and long-term.

As outlined in the Economic Case, the total cost of the 80 projects amounts to $329.35 million, with a proposed cost-apportionment of 60:40 between central government and regional councils. This investment summary is shown below, with staging of this investment across the next three financial years provided on the following page.

These 80 projects comprise the regional sector's **three year plan** focusing on prioritised flood management infrastructure projects that deliver an immediate resilience against floods.

However, as shown in the options analysis, this three year plan represents an investment in flood resilience while other adaptation and retreat options are being designed and put in place. These 80 projects alone are insufficient to build the level of national flood we need to protect our people, our infrastructure, and our economy, in the long-term.

We need a longer-term pipeline of work to identify and implement necessary flood resilience measures at other locations across the country. Jointly, the regional and unitary councils' collective and the River Managers' SIG have therefore set out a pragmatic roadmap for a flood resilient New Zealand over the coming decade[62]. This **ten year programme of work** is aimed at ensuring our nation's flood management infrastructure is fit for purpose within a decade.

A ten-year plan enables considerable longer-term efficiencies of scale through for instance, lifting capability and capacity equitably across regions, inter-regional cooperation, and procurement savings. It also enables community involvement, planning, and decision-making to be more strategic, over a longer time horizon.

To be clear, we are not simply seeking additional investment in flood management infrastructure. Rather, decisions would be made jointly with central government around priority locations for investment around the country; the level of resilience (and risk tolerance) at each location; and the relationship between these 'protect' infrastructure and other adaptation measures (e.g., accommodate, retreat, and avoid), including a transition to these resilience-building measures over the longer-term, where needed.

This work will require an investment of around $5 billion over the next decade. The regional sector has already planned for a $2 billion investment toward this ten-year programme of work, equating to a 40% share of the total cost. To this end, the regional sector is committed to building a longer-term partnership with central government and relevant agencies to establish a sustainable partnership and funding model, as we work to improve our 'climate change' flood resilience.

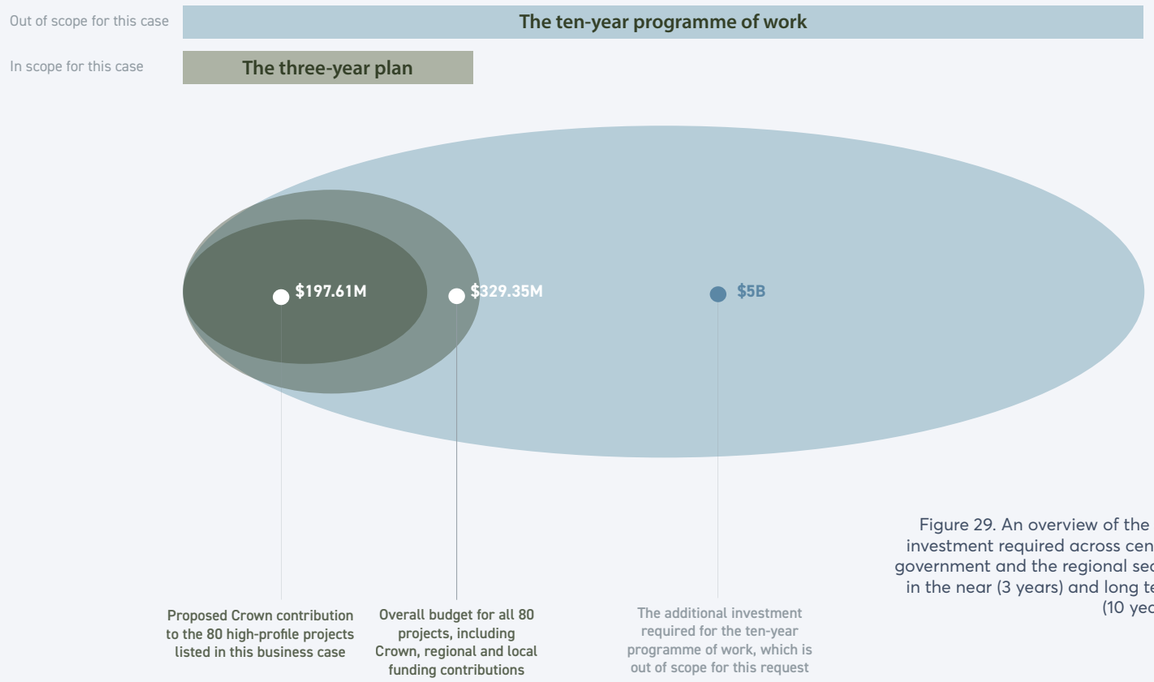


Figure 29. An overview of the co-investment required across central government and the regional sector in the near (3 years) and long term (10 years).

Staging of investment

The capital expenditure investment over the next three financial years.

The infographic below provides the cap-ex co-investment required for the 80 projects over the next three years.

As is evident, the cashflow is heavier in the first two financial years, reflecting the fact that the 80 projects are 'shovel-ready' and can be commenced quickly. The principal constraining factor here is the availability of capital, rather than design or construction capacity.

The cashflow also reflects the fact that most projects will be finished quickly and the outcome of better flood protection for vulnerable communities achieved within a few years of projects commencing.

Evidence of regional councils' ability to deliver quickly and effectively has already been demonstrated by the successful completion of the 55 projects funded as part of the post-COVID recovery.

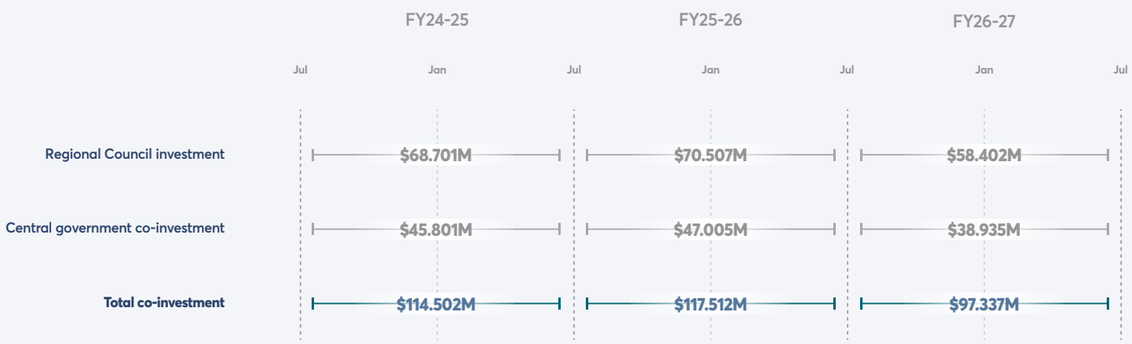


Figure 30. The cap-ex co-investment required for the 80 projects, over the next three years.

Management Case

This section outlines how the programme of work will be delivered and the proposed arrangements for governance, accountability, and probity of the investment.

Project delivery methodology

There is every reason to have trust and confidence in the regional sector's ability to deliver.

As evidenced by the progress reporting on the 55 'shovel-ready' climate resilience projects, regional and unitary councils have demonstrated capability and capacity to successfully deliver flood management infrastructure on time and to budget.

There were several key learnings from this tranche of projects that can inform our proposed programme of work, without requiring a duplication or re-invention of efforts.

These include:

- The value in building and sustaining **specialist teams across the regional government sector**, focused on flood protection. The River Managers' SIG, in particular, is a high-performing, national-level group that has shown effective collaboration by drawing on the group's collective expertise.
- Capitalising on **existing construction, engineering, contractor, and other council works procured** and established through the first tranche of delivery. This goes a long way toward minimising risks and maximising construction efficiencies and timings.
- Having **robust performance, risk management, and accountability systems and methodologies** that have been implemented, refined, and proven as effective across the regional sector over the last few decades.
- Successful delivery is also based on the **robust and certified project delivery methodologies** in use by regional councils for river management and other statutory obligations and works.

Drawing on the established base of expertise and robust methodologies already in use will de-risk the tranche of projects detailed in this proposal.

Approach to risk management

Risk management has been extensively discussed in *Before the Deluge*. It is a core component of standard regional council project management methodologies, with risks routinely assessed at project, programme and governance levels, and appropriate actions taken.

At the project level, it is the delivery risks that must be managed closely. In the current environment, the most significant delivery risks remain:

- Cost escalation pressures which can increase the budget,
- Construction capacity constraints which can drive project delays, and
- Capability shortfalls which can lead to bottlenecks in delivery.

We propose a two-pronged approach in addressing these risks.

First, we draw upon the proven capacity and capability of the sector, as outlined earlier. Based on an extensive track record of delivery – most recently, for the 'shovel-ready' projects – there is every reason to trust regional councils' ability to manage risks effectively for this current programme of work.

Second, we propose implementing proven governance and accountability mechanisms that protect both government and regional council investment. The frameworks for governance, reporting, and review are detailed on the pages that follow.

Governance arrangements

We propose the use of well-established governance and leadership frameworks, that have proven effective in the past.

The successful delivery of the 55 central government-funded 'shovel-ready' flood management projects to date means we are able to draw on proven governance and delivery systems to protect government's co-investment interests in the current programme of work.

The governance structures used previously remain fit-for-purpose in providing oversight for our proposed programme of work. This complements the well-established capability and capacity for the regional sector, and for the construction (and related) sectors in carrying out this work.

Specifically, we propose the following governance and accountability mechanisms and arrangements:

- An advisory (governance) board
- Reporting frameworks
- A post-investment review process

Governance

We propose continuing the **Climate Resilience Advisory Board** (or an iteration of this), established in early 2021 by the Regional Economic Development & Investment Unit, currently known as 'Kānoa'*. This Board will provide oversight of the investment and ensure accountability on behalf of funders, plus strong and competent officials to provide the Board with necessary information and advice.

Members comprise a Chairperson, as well as representatives from the lead agency and other relevant central government agencies, along with advisory representation from the River Managers' SIG.

In this way, Board composition reflects genuine collaboration between central and local government, while ensuring that different central government and regional sector interests are aligned. The Board will also have the necessary authority to make timely and informed decisions, as needed.

The existing Board already has significant expertise, institutional knowledge, and established risk assessments and reporting frameworks. They are well placed to provide oversight of the projects and their benefit realisation, as well as oversee the investment risk on behalf of the government.

The framework for the proposed arrangement is shown in the visual overleaf, with specifics of agencies involved and reporting structures to be confirmed by central government.

* This unit was previously known as the Provincial Development Unit, established in MBIE to manage and provide oversight of the regional Provincial Growth Fund.

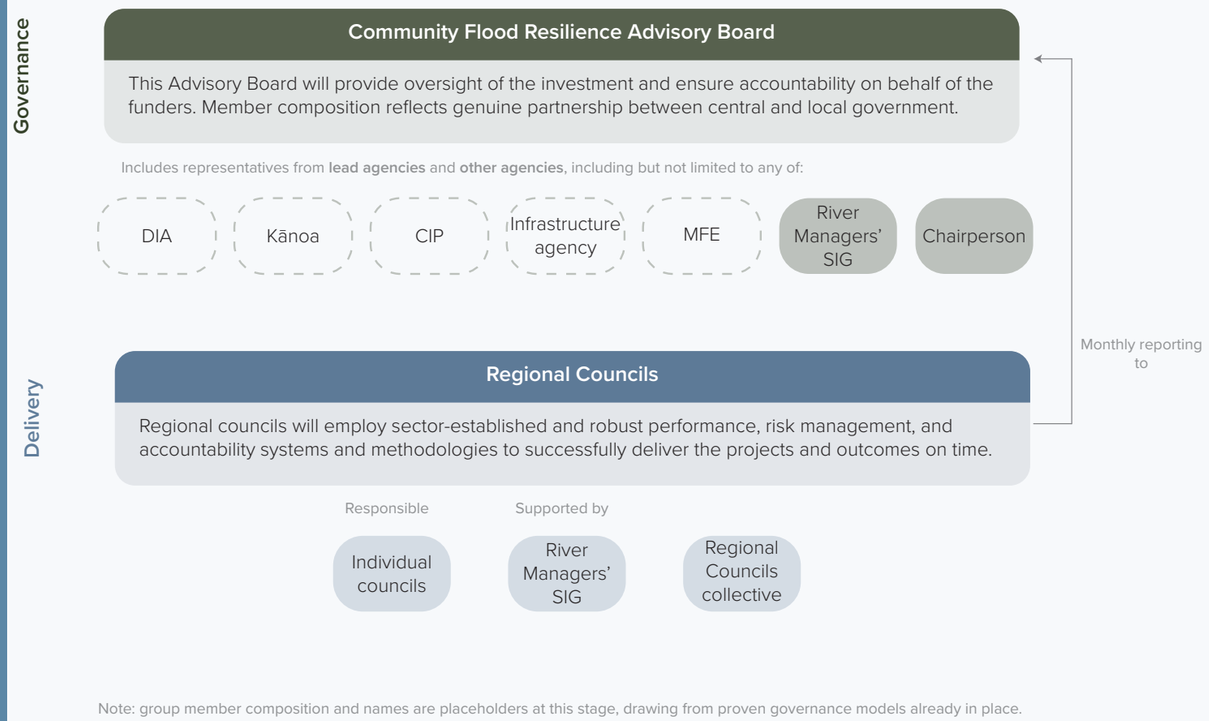
Governance arrangements

An overview of the governance and leadership framework.

The proposed governance and leadership arrangements shown below represent a genuine partnership approach between central government and the regional sector, not just for investment, but also in the delivery of successful flood resilience and wellbeing outcomes, as we build the longer-term programme of work needed to meet the new realities of a climate-changed world.

Agencies and group names listed below are simply placeholders while we work to establish the lead and other agencies involved, and the specifics of reporting, in line with the current government objectives and priorities.

We welcome the opportunity to collaboratively draft up a Terms of Reference on what good governance would look like for this project.



Note: group member composition and names are placeholders at this stage, drawing from proven governance models already in place.

Figure 31. Our proposed governance, leadership, and delivery framework for the current projects.

Accountability framework

Regular reporting and post-investment review as key accountability mechanisms.

Reporting

Regular reporting will maintain transparency and clear visibility over the progress of projects, over the course of the three years.

We propose **monthly reporting** by regional councils to the Advisory Board, using a modified version of pre-existing uniform reporting templates being used as part of the 55 climate resilience flood projects. This template includes details around project status and milestones; the percentage of work complete; as well as financial information reporting against the programme budget. Risks to delivery are also captured here.

These regular reports will provide assurance to the Advisory Board that the investment is being spent as expected, and of timely delivery of the projects and their anticipated benefits. They will be complemented by **quarterly narrative status reports** that describe project progression and highlights.

We reiterate here that regional councils have considerable experience with reporting, as part of their statutory obligations and more recently, with the reporting required as part of the climate resilience co-investment. This means that there exists in place a variety of external and internal council reporting channels and mechanisms that can be tapped into, as needed. An example of these channels is provided in the box below.

Post-investment review

As with the Climate Resilience Flood Protection Programme, we propose establishing a **review process at the halfway mark and on completion**.

Key points of focus for this review at the broader **programme level** (i.e., across all projects) will include:

- Progress on projects at a programme level, including key milestones;
- Spending and distribution of funds;
- High-level programme achievements described in 'benefits' terms (e.g., hectares protected; jobs created; business contract value generated);
- Tracking of broader procurement outcomes; and
- Risks and barriers to delivery, as well as mitigating measures deployed.

At the **regional council level**, the main focus of the reviews will be on:

- Progress / status of individual projects in the context of project duration;
- Key benefits, quantified to the extent possible;
- Incorporation of environmental and ecosystem perspectives;
- Iwi partnerships;
- Consultation with local communities;
- Collaboration across different groups / agencies;
- Future work needed; and
- Co-funding details (reflecting the cost apportionment and funds spent to date).

Learnings from this post-investment review will then feed into the structure and arrangements we propose for the ten-year programme of work.

Example of existing reporting mechanisms for regional councils

External:

- Infrastructure Reference Group that reports to Crown Infrastructure Partners
- MBIE-Kānoa quarterly report
- Narrative status update and photos
- Progress updates to River Rating District Committee members
- Progress reporting and learnings with River Managers' SIG 2-monthly Champions Group, 6-monthly Forum Lead Connection Meetings, and Specialist Workshops
- Resilient River Communities (www.resilientrivers.nz), quarterly newsletter, and specific projects progress news releases
- Proposed CIP reporting requirements for the Category 2 Risk Mitigation Projects (funded as part of the North Island Weather Events 2023 recovery programme), as set out in the funding agreements.

Internal

- Monthly progress report
- Fortnightly email highlights
- Audit, Finance, and Risk Committee status updates

Recommendations for central government

We recommend government proceed with co-investment as a matter of national interest, and commit to a long-term partnership with the regional sector in improving our flood resilience.

Our co-investment case builds on calls for urgent co-funding of essential flood protection infrastructure across the country, with proposals dating as far back as 2019. Here, we refresh the details and the project lists in our most recently submitted co-investment case *Before the Deluge*.

This refreshed case emphasises how pressures such as climate change, affordability, regulatory gaps, and public sentiment have intensified within the span of a year, as a result a number of adverse weather events. A step-change in flood protection has never been more urgent, and is in fact, long overdue.

Flood protection is a matter of national interest; yet, Crown funding continues to be directed at post-disaster relief and recovery. Not only is this inequitable and cost-inefficient, but it is unsustainable in the face of our future climate change flood risks.

The regional sector has the demonstrated maturity, track record, capability, and capacity to deliver the 80 projects put forward in this co-investment case. There is every reason to have confidence in the sector's ability to deliver successfully on these projects and their wider co-benefits, and little reason to continue pursuing inaction.

Flood management infrastructure remains a critical first-step in our adaptation to 'climate change' flood risk.

We therefore recommend that central government:

1. **Approve** the $197.61 million request for co-investment in a three-year delivery programme for 80 flood protection projects, and
2. **Sustain** the existing governance arrangements (Advisory Board or similar) that will inform and protect the investment proposition and assure delivery within the agreed timeline. This can be revised as necessary to meet the government's oversight and accountability requirements for this programme of work.

While a continuation of co-investment in 'shovel-ready' flood protection projects is urgently needed, we seek a more sustainable partnership model with central government; one that allows us to jointly and strategically deliver the required long-term level of 'climate change' flood resilience for our country.

To this end, we recommend central government:

3. **Commit** to working with the regional sector collective to develop and invest in a decade-long programme of flood resilience work, that complements our other adaptation strategies.

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Refreshed co-investment case

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Appendices

Below we provide a list of relevant appended materials.

1 » **Project listings**

Detailed table of project listings by councils, including descriptions, costs, and duration.

2 » **Delivery timelines**

Timelines showing delivery across projects, by regional council. This also shows the fall of capital across the three years, as well as cost-apportionment breakdown.

3 » **Letters of support**

Evidence of support from the regional sector of local government, in the form of Mayoral letters.

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Appendix 1. Detailed project listings

Council	Territorial Authority (TA)	Priority	Project Name	Project Description	Project Total Cost $m	Project Start	Duration (years)
Northland Regional Council	Far North District	1	Kawakawa Deflection Bank	Deflection Bank and raising bridge deck on the northern side of Kawakawa township to divert floodwaters from Waiomio Stream to spill water onto the rural flood plain area away from the CBD area that currently is regularly flooded. Will include provision of flood protection to the famous Hunderwaaser artist facilities including the Te Hononga Hunderwaaser Museum, Kawakawa Public Library and the new tourist centre.	$0.60	2024	2
	Far North District	2	Matangirau Flood Risk Reduction Phase 2	Restoring the flow of the Towai Stream that has been blocked by Wainui Road Causeway. This will significantly reduce the currently significant flood risk to upstream marae and houses. Northland Regional Council is actively working with local marae and other communities to develop longer term flood resilience solutions.	$0.50	2024	2
Kaipara District Council	Kaipara District	1	Dargaville to Te Kopuru Stopbank Upgrade	Reconstructing the existing 11km of stopbank between Dargaville and Te Kopuru to protect against a 1 in 100 year flood event. The full length of the stopbank is part of the Kaipara District Council total flood management programme to protect both Dargaville township and the residential and farming properties on the northern Pouto Peninsula, including Oturei Marae, the settlement of Aratapu and the only sealed road on and off the peninsular. Design and consenting completed to achieve an acceptable design height of 3.5m including accounting to adapt for a 1.5m of sea level rise.	$13.00	2024	2
	Kaipara District	2	Raupo Floodgate Canal K	Installation of a new floodgate structure at the mouth of K canal, supporting the G canal floodgate project funded in the current tranche of the climate resilience programme. This flood gate will optimise the operation of canal K in its role to provide flood protection for residential and farming properties on the eastern side of the Waiora River, including the township of Ruawai. Design and consenting is leveraging the work already done on Canal G with a similar design. Fish passage is included in the design. The new flood gate will reduce the need for machine cleaning of the canals thus reducing carbon footprint and reduce disturbance to the ecology within the canal. The area being protected includes most of NZ's kumara production, and the Kānoa funded Kaipara Kai Project.	$5.40	2024	2
Auckland Council			No projects put forward				
Waikato Regional Council	Waikato District	1	Lower Waikato Stopbank Upgrade	Work involves stopbank raising to accomodate cliamte change, through increasing crest level height to new design standard across Lower Waikato zone. Working closely with Waikato District Council to align District Plan with flood protection strategies and tools to avoid flood risk. Stopbanks incorporate scheme review outcomes (including modelling determining future climate requirements).	$8.70	2024	3
	Hauraki District	2	Mid Piako River Emergency Flood Ponding Zones Upgrade Hauraki Plains	Upgrade of 16km stopbanks as part of a multi-year overall package to provide security from flooding for communities such as Ngatea and infrastructure such as State Highway 2. Provides for accommodation and storage of flood waters on designated farmland upstream of Ngatea township. Includes earthworks construction of stopbanks back to design height to ensure stopbank lifecycle maintenance.	$5.40	2024	3
	Waikato District	3	Island Block pumps	Upgrade of flood protection pump station (including pumps) to maintain level of service including for climate change and to meet national guidelines for fish passage, within a priority catchment for tuna. This is a continuation of the next stage of the MBIE Kānoa funded Climate Resilience Fish Passage Project.	$2.80	2024	2

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Waikato Regional Council	Hauraki District	4	Pipiroa Stopbank Piping Failures Repairs	Prevention of catastrophic failure of existing flood protection infrastructure and maintaining current level of flood mitigation service on an at risk/compromised asset experiencing piping. Ngatea, Patetonga and Kerepehi townships protected and connecting infrastructure including SH27 protected.	$1.10	2024	3
	Hauraki District	5	Kirikiri Stopbank Upgrade - Kopu Thames Connection	Upgrade of stopbanks to maintain level of service due to subsidence. Multi-agency project involving input from NZTA to upgrade the SH26 bridge to the Scheme flood risk level, and protection of iwi owned land and archaelogical sites including to protect the communities around Kirikiri stream just south of Kopu and SH26 near Thames. Material for stopbank upgrade is sourced from sediment build up (caused by tidal back flow from the Waihou River) removed from Kirikiri Stream. Removal of sediment from the stream maintains the hydraulic capacity and availability of ecological habitat.	$5.10	2024	3
	Hauraki District	6	Thames Valley Diversion Channel Planting upgrades	Channel planting to achieve sustainable asset management and diversion channel management practices that accommodate and provide for flood mitigation. Programme includes fencing, drain shaping, and planting of smaller drainage channels to reduce maintenance requirements and enhance instream and riparian ecological values. The benefits are wide in terms of environmental outcomes and downstream support for flood mitigation. Supports sustainable low maintenance drain management adding reslience including reduced future costs into the network future.	$1.80	2024	3
	Hauraki District	7	Piako River Ngatea right stopbank	Improving the capacity of the highest risk stopbank in the Piako River Scheme and reducing the need for future stopbank upgrades. This will be achieved by providing greater room for the river and decreased pressure on remaining assets. This project ties in to support Hauraki District Council's Pathways Plan for Climate Change development and may become the first stage of retreat for future long term management and sustainability of the Scheme.	$0.58	2024	3
	Thames-Coromandel District	8	Coromandel River Catchments - Flood Resilience Improvements	Removing obstructions and reducing sediment loss from eroding banks to minimise the flood risk to properties and infrastucture including SH's and bridges. Proactively enable waterways to 'move' and educating landowners and wider community on benefits of accommodating rivers. Note that this project work is additional, with no overlap to a Waikato Regional Council Local Government Flood Resilience "Coromandel Flood Resilience – storm damaged tree removal" project.	$2.80	2024	3
	Waikato District	9	Mangatawhiri Pump Station Infrastructure	Replacing dual inlet at the pump station and the construction of an isolation gate enabling access to the pump for maintenance. Provides improved resilence to increased frequency and severity climatic event and safety requirements for operational maintance activities. Working closely with Waikato District Council in aligning the District Plan with flood protection strategies ensure new development avoids flood risk.	$0.54	2024	1
	Waitomo District	10	Waipa and West Coast River Flood Resilience Improvements	Removing obstructions and reducing sediment loss from eroding banks to minimise the flood risk to properties and infrastructure including roads and bridges. Proactively enable waterways to 'move' and educating landowners and wider community on benefits of accommodating rivers. Value to iwi and communities - including Te Kuiti, Huntly, Taupiri and Tokoroa communities. Many in high deprivation areas. Local infrastructure and land protected. Note that this planned 3 year programme of project upgrade work is additional to the cyclone damage recovery work of a Waikato Regional Council Local Government Flood Resilience "Improving resilience of rivers in vulnerable areas of the Waikato, Waipā and West Coast catchments project" that is within the wider project regional area.	$5.00	2024	3
	Waikato District	11	Lower Waikato Floodgate Upgrade Programme	Initial flood mitigation projects will be for assets to the east of Huntly in the Mangawara catchment, providing critical upgrade to ongoing flood protection. Working closely with Waikato District Council in aligning the District Plan with flood protection strategies and tools to avoid flood risk. Emergency response preparedness and response is incorporated in the Lower Waikato Flood Protection Response Plan.	$2.00	2024	3

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Waikato Regional Council	Hauraki District	12	Firth of Thames and Waihou Sediment Trap Digs - Sediment Removal	Sourcing material from in channel sediment traps in preparation for critical future stopbank upgrades (material requires 3 years of drying before it is useable for construction). Removes substantive sediment going into the Hauraki Gulf. Supports protection afforded by the Waihou Valley Scheme. Cost effective and culturally acceptable means of material sourcing and continuing to support flood protection systems that protect vulnerable communities and national infrastructure (state highways) from tidal and river flooding.	$3.00	2024	3
Bay of Plenty Regional Council	Ōpōtiki District	1	Waioeka Otara Rivers Scheme Stopbank Upgrades	Upgrade existing stopbanks to meet 1 in 100 year event levels of service and provide for climate change. This work is linked to the River Scheme Sustainability Strategy work being undertaken for the Waioeka-Otara Rivers Scheme which looks at long term sustainable flood management practices for the scheme. Room for the River philosophies will inform this work, objectives and operations are being developed and delivered in collaboration with our communities and landowners. Upstream adaptation, room for the river techniques and other options in some upper river catchments will support downstream Opotiki flood protection works. From a whole of catchment approach the River Scheme Sustainability Project (RSSP) will continue to be Council's key strategic project that explores implementation of Room for the Rivers as part of our adaptation to climate change. This stopbank upgrade work informs the work BOPRC is currently doing with Opotiki District Council and Bay of Plenty Emergency Management to develop evacuation triggers and protocols for the Township, along with scenario planning.	$2.00	2024	2
	Whakatāne District	2	Project Future Proof 2023-26 Whakatane-Tauranga Rivers Stopbanks and Floodwalls Upgrade	Upgrade 1.4km of existing stopbanks and floodwalls to meet 1 in 100 year levels of service and provide for climate change. Protects Whakatāne urban township and CBD. This work is linked to the River Scheme Sustainability Strategy work being undertaken for the Whakatāne-Tauranga Rivers Scheme which looks at long term sustainable flood management practices for the scheme. Upstream adaptation, room for the river techniques and other options in some upper river catchments will support downstream Whakatāne flood protection works." BOPRC has developed evacuation triggers and protocols for the Whakatāne in conjunction with Whakatāne District Council and Bay of Plenty Emergency Management. Ongoing flood management and monitoring support local response planning and actions.	$17.82	2024	3
	Whakatāne District	3	Whakatane Canals Stopbank & Trident Stopbank Upgrade	Upgrades of Whakatāne Canals and 1km of Trident stopbanks to maintain levels of service allowing for climate change. Part of this project involves retreating land use of public land. The removal of encroachments, repairing stopbanks and restricting future use (Safeguarding our Stopbanks). Significant communications and engagement with the community to be implemented to raise awareness of flood protection assets and bylaws and avoid future issues. Room for the River philosophies will inform this work, objectives and operations are being developed and delivered in collaboration with our communities and landowners. Upstream adaptation, room for the river techniques and other options in some upper river catchments will support downstream Whakatāne flood protection works. BOPRC has developed evacuation triggers and protocols for the Whakatāne in conjunction with Whakatāne District Council and Bay of Plenty Emergency Management. Ongoing flood management and monitoring support local response planning and actions.	$6.37	2024	3

Bay of Plenty Regional Council	Taupō District	4	Rangitaikī Tarawera Rivers Scheme Stopbank Upgrades	Tarawera River, Rangitāiki River and Rangitāiki Drainage Schemes Stopbank Upgrades. Supports the investment of existing flood protection measures. Room for the River philosophies will inform this work, objectives and operations are being developed and delivered in collaboration with our communities and landowners. Upstream adaptation, room for the river techniques and other options are being investigated to support these flood protection works.	$3.67	2024	3
	Western Bay of Plenty	5	Kaituna Catchment Control Scheme Floodpumps and Stopbank Upgrades	Upgrade flood protection for Te Puke Township and wider Kaituna catchment with upgrades and installation of permanent pump stations as well as stopbank upgrades. New Ford Road pump station accounts for climate change effects and fixes safety concerns of the existing pump station. Te Puke Stormwater Pump Stations formalise an existing trial pump arrangement that has proven benefits. Room for the River philosophies will inform this work, objectives and operations are being developed and delivered in collaboration with our communities and landowners. Upstream adaptation, room for the river techniques and other options in some upper river catchments will support downstream Kaituna flood protection works. From a whole of catchment approach the River Scheme Sustainability Project (RSSP) will continue to be Council's key strategic project that explores implementation of Room for the Rivers as part of our adaptation to climate change.	$14.04	2024	3
Gisborne District Council	No projects put forward in this funding round as they re focused on completing Gbrielle Recovery programme of works.						
Taranaki Regional Council	No projects put forward.						
Horizons Regional Council	No projects put forward in this funding round as they re focused on completing Gabrielle Recovery programme of works.						
Hawke's Bay Regional Council	No projects put forward in this funding round as they re focused on completing Gabrielle Recovery programme of works.						
Greater Wellington Regional Council	Masterton District	1	River Rd Masterton Flood Protection Upgrade - Stage 2	Project Description: River Road is on the eastern side of Masterton township. Stage 2 of the project is a 150-metre rock revetment (wall) alongside the Ruamahanga River to protect a number of residential properties. PARA Framework: Protecting the riverbank to provide houses resilience from erosion. Deliver & Outcomes: The Project Team will deliver successfully in the Q4 2024. Boarder Outcomes: Correction Relationship: Connecting people and ideas surrounding mana whenua, plants, inmates, and identity	$2.47	2024	3
	Masterton District	2	River Rd Masterton Flood Protection - Stage 3 remaining groynes	Project Description: Completion of the stage 3 of the Project, which involves the construction of 11 river protection groynes along the Ruamahanga River Para Framework: Protect Masterton's landfill is on the edge of the river, the defence is to ensure toxic material doesn't wash into the river Deliver & Outcomes: The Project Team expects to deliver successfully in the Q4 2024 which will complete the protection of the Masterton landfill. Boarder Outcomes: Development of iwi business' via planting	$3.52	2024	3

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Greater Wellington Regional Council	Masterton District	3	Waipoua SH2 Left Bank Protection Upgrade	Project Description: Flood protection construction of a new rock revetment on the left bank of the Waipoua River to protect SH2 bridge abutment as well as the walking/cycle trail. PARA Framework: Protecting the riverbank to provide resilience form erosion to the abutment and walking/cycling trail Deliver & Outcomes: The Project Team will complete this project in 2024 and will safeguard the SH2 bridge from flooding damage and allow access for the public. Boarder Outcomes: Supporting the Mental Health of our Contractors	$0.14	2024	3
	Masterton District	4	Waipoua Industrial Site - Akura Road Edge Protection Project	Project Description: Edge protection as a result of significant erosion of river-bank into industrial property, protecting Masterton's mains water supply pipe PARA Framework: Protecting the industrial area from erosion and improving resilience of Masterton's water supply. Deliver & Outcomes: To protect the local business and the city's water supply Boarder Outcomes: Contractor's employees resiliency workshops	$1.46	2024	3
	Masterton District	5	Buffer Riparian Planting, South Wairarapa	Project Description: Planting of approx 60ha of the buffers/riparian as per the Te Kauru Floodplain Management Plan PARA Framework: Providing buffer planting to the river banks to allow room for the river and accommodate river processes. Deliver & Outcomes: Protection of the livelihood of the local farmers Boarder Outcomes: Incorporating native plants (>35,000) into site designs	$4.80	2024	3
	Masterton District	6	Eastern Rivers Crack Willow Removal and Bank Stabilisation Planting	Project Description: Reduce flood event damage by improving river flow through the removal of crack willow and planting, fencing and pest control to stabilise banks and reduce sediment on the Kopuaranga, Taueru and Whangaehu Rivers. Planting will also reduce run-off from farmland, improving water quality. PARA Framework: Removing willows blocking the river channel to accommodate floodwaters and provide community resilience. Deliver & Outcomes: Protection of the livelihood of the local farmers	$7.20	2024	3
	South Wairarapa District	7	Greytown Flood Protection Waiohine River Plan	Project Description: Design of two stopbanks both 800m long alongside the Waiohine River to improve flood protection for Greytown: one on North Street and one on Kuratawhiti Street, helping the river stay in alignment and improving community resilience. PARA Framework: Protecting the town from flooding, improving community resilience. Deliver & Outcomes: Protection of the people and business' within Greytown Boarder Outcomes: Hiring new workers within targeted demographics	$2.99	2024	3
	South Wairarapa District	8	Fullers Bend Protection, Greytown	Project Description: Upgrading the current flood erosion protection with the construction of a new rock revetment on the Waiohine River PARA Framework: Protecting the riverbank from erosion, helping the river stay in alignment and improving community resilience. Boarder Outcomes: Creating a Rongoā garden incorporated as part of one site's planting program	$2.32	2024	3
	South Wairarapa District	9	Awaroa Floodway Spill-over Sill, South Wairarapa	Project Description: Upgrade spill-over sill into Awaroa floodway through rock protection and realignment of sills on the Waiohine River. Also includes vegetation removal, survey, and levelling. PARA Framework: Improving the floodway rock sill to accommodate floodwater and improve floodway operation assisting community resilience. Boarder Outcomes: Goodyarn wellbeing training for Contractors	$0.88	2024	3
	South Wairarapa District	10	Tawaha Floodway Spill-over Sill, South Wairarapa	Project Description: Upgrade spill-over sill into Tawaha floodway through rock protection and realignment of sills on the Waiohine River. Also includes vegetation removal, survey, and levelling. PARA Framework: Improving the floodway rock sill to accommodate floodwater and improve floodway operation assisting community resilience. Boarder Outcomes: Contractor's managers wellbeing modules	$1.70	2024	3

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Greater Wellington Regional Council	South Wairarapa District	11	Pukio East Stopbank Upgrade, South Wairarapa	Project Description: Pukio East Stopbank is located south of the Martinborough township along the Ruamāhanga River. The berm material requires to be disposed and the establishing the grass cover PARA Framework: Final stage of work for the stopbank protecting the community from flooding. Boarder Outcomes: Ongoing wellbeing Support (EAP+) for contractors	$0.90	2024	3
	Masterton District	12	Waiopua River - Masterton Urban Reach Resilence Works	Project Description: The Waipoua River is at the northern end of the Masterton township. The works will involve stopbanks within the urban stretch of the Waipoua River. At present the Waipoua project group (made up of community members and GWRC) are working on an options assessment to determine the best course of action. Once this is completed pre-construction works will begin. Nature-based solutions are a core part of Greater Wellington comitment to Nature Based solutions and give effect to the expressions of both Ngāti Kahungunu ki Wairarapa and Rangitāne PARA Framework: Protecting the community from flooding and improving community resilience. Boarder Outcomes: Prostate health assessment	$2.47	2024	3
	South Wairarapa District	13	Flood Gates - Fish Passage Upgrades, South Wairarapa	Project Description: Upgrades to existing river infrastructure at approximately 15 floodgates and 5 pump stations to include improved fish passage. PARA Framework: Accommodating fish within the flood management system which protects the community from flooding. Providing environmental and community resilience	$0.36	2024	3
	Masterton District	14	Masterton Water Supply Protection Project	Project Description: Flood protection work to protect Masterton District Council's main water supply pipeline on the Waingawa River by constructing three rock groynes. PARA Framework: Protecting Masterton's water supply from erosion, improving community resilience. Boarder Outcomes: Working with iwi, a Maori and MSD to create a training framework for civil works.	$0.95	2024	1
	Kapiti Coast District	15	Otaki Cliffs River Bank Protection	Project Description: Implementation of room for the river in a 300 m length of the Otaki River by construction of 21 groynes to protect a 50m river bank vertical bank, and provide permanent works to prevent the need for on-going bulldozer channel works. PARA Framework: Protecting the cliffs to provide resilience from erosion.	$4.16	2024	3
	Upper Hutt City	16	Gemstone Drive Flood Protection, Upper Hutt	Project Description: Three section of erosion protection works to protect urban area of upper hutt from erosion.	$3.40	2024	3
	Upper Hutt City	17	Poet's Park Development, Upper Hutt	Project Description: Final stage of works required for a two-stage project that was started in 2020 with the first tranche of Climate Resilience Flood Protection funding PARA Framework: Accommodating flooding and environmental considerations while managing flood risk to the community and improving recreational and community health.	$0.64	2024	3
	Upper Hutt City	18	Pinehaven Streamworks Project, Upper Hutt	Project Description: Improving the level of flood protection for the Pinehaven community by increasing the capacity of the Pinehaven Stream to prevent flooding up to a 1 in 25-year return period event. Project includes two elements, Phase 1: replacement culverts in Sunbrae Drive and Pinehaven Road and Phase 2: increasing the stream capacity. PARA Framework: Protecting the community from flooding by carrying out stream works to change the stream capacity, managing the flood risk and improving community resilience. Boarder Outcomes: Certifications for individual workers	$15.03	2024	3

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Greater Wellington Regional Council	Masterton District	19	Hood Aerodrome Masterton Waingawa River Flood Protection	Project Description: The Hood Aerodrome is in Masterton along the Waingawa River. The work will involve: Installation of a 140m rock line, running along the true left bank of the Waingawa River. PARA Framework: Protecting Masterton's airport runway from erosion, improving community resilience. Boarder Outcomes: Fulltime machine & vehicle trainer and mentor	$1.59	2024	3
	Masterton District	20	South Masterton Stopbank Upgrade	Project Description: On the Waingawa River the works require a retreat of the existing stopbank away from the river edge. The stopbank will be approximately 230m in length. The land beside the river historically being used as a timber treatment mill and will require a land contamination investigation and the effect on the water quality. PARA Framework: Protecting the community from floodwater, improving their resilience Boarder Outcomes: working with iwi for Nature Based solution	$0.87	2024	3
	Masterton District	21	Homebush Wastewater Treatment Plant Resilience Works	Project Description: In a significant flood the stopbank may overtop. Therefore, there needs to be an increase in resilience to ensure the treatment plant headworks are kept operational. The works will involve raising the generator and electrical devices above flood levels. PARA Framework: Protecting the Wastewater Treatment plant from flooding, improving community resilience and preventing environmental pollution.	$0.45	2024	3
	Masterton District	22	Upper Ruamahanga Buffer establishment	Project Description: Implementing room for the river through edgeworks widening of the Ruamahanga River channel and retreating stopbanks to establish a buffer area to protect assets upriver of Masterton. PARA Framework: Room for the River concept.	$3.60	2024	3
	South Wairarapa District	23	Whakawhiriwhiri stream - project rescope	Project Description: The Whakawhiriwhiri Stream flows through an overland floodway in South Wairarapa and takes some of the remaining ponded water from in the Tawaha floodway. The stream has been identified as under capacity to convey the ponded water causing flooding of affected landowners. PARA Framework: Accommodating flooding and environmental considerations while managing flood risk to the community. Boarder Outcomes: Iwi collaboration on planting, signage, art, etc.	$1.43	2024	3
Nelson City Council	Nelson City	1	Nelson Floods Repairs Risk Protection	Work includes channel capacity improvements, culvert upgrades, floodways and localised stream re-alignments, improved debris and gravel management, scour protection for river and stream banks, grade control structures, and fish passage. NCC is doing adaptive planning for expected climate change impacts. NCC has recently notified Plan Change 29 that includes update provisions on Natural Hazards including flood risk.	$6.00	2024	3
	Nelson City	2	Maitai Flood Management Project	Work includes scour protection for urban river banks, stopbank improvements, raising river banks (floodwalls / roads), drainage improvements and backflow prevention, channel and bridge capacity improvements. Will provide substantial flood risk reduction to the Matai suburb, The Wood and other residential areas. Planning to set developments back from the river and establish a riparian corridor/floodway alongside the river channel. Property purchase will be considered for the Hanby Park Clouston Terrace area to allow for managed retreat as well as protect initiatives such as stopbank topping up and re-alignment to increase floodway capacity.	$9.00	2024	3
	Nelson City	3	Jenkins Stream Flood Protection	Work includes stopbank along Jenkins Creek (adjacent Trent Drive), stopbank improvements downstream of Pascoe Street, and channel capacity reinstatement, to provide 1 in 100 year protection for houses, airport buildings and services, with design including climate change impact changes.	$3.00	2024	3

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Tasman District Council	Tasman District	1	Lower Motueka River Stopbank Refurbishment	Upgrade refurbishment of 6.7km to complete upgrading all the Lower Motueka River and Brooklyn Stream Stopbanks, building on an initial stage of 4.8km of Kānoa co-funded project work. Relocation or retreat are not considered options in the short to medium term. TDC has recently invested in drinking water and waste water assets for these communities and committed $2.5m through the first stage of stopbank enhancements. Initial work associated with this project included an improved assessment of flood effects and evacuation planning. This work and other flood modelling is also assisting in setting of floor levels and hazard assessment for new development. Over the longer term, TDC and the community will need to consider additional protection measures or retreat options for Motueka given its vulernability to climate change. TDC has recently commenced work on a two-year project to assess nature-based solutions in the Motueka catchment (funded by a grant from the Ministry for the Environment). The results of this work will feed into assessment of longer term options.	$11.00	2024	3
	Tasman District	2	Peach Island Stopbank Repair	Stopbanks around Peach Island to be brought up to a climate resilient condition and to protect them from further damage. Relocation or retreat have not been discussed by Council but the existing dwellings are vunerable as the land is low lying and surrounded by flood channels. This work is seen as an interim measure to protect vunerable dwellings. Community engagement in Stage 1 of this project raised awareness of the importance of stopbanks, and Peach Island residents now fully understand future flood risks, and have an Emergency Management Plan in place. TDC has commenced work on a two-year project to assess nature-based solutions in the Motueka catchment (funded by a grant from the Ministry for the Environment). Council will be considering flood vulnerability through the development of its second generation resource management plan and in light of the Climate Adaptation Act.	$1.50	2024	2
Marlborough District Council	Marlborough District	1	Lower Wairau River Flood Capacity Upgrade	Reconstruction, stabilisation and realignment of stopbanks over a 2km length including the retreat of existing stopbank alignment to allow more room for the river to flow through the narrowest section of the Wairau River. The Lower Wairau is home to historic Pā site and Māori land, particuarly Māori housing and businesses who are disproprtionately affected by flooding in this area. Mana whenua (Ngāti Rārua, Ngāti Toa Rangatira, Rangitāne) have for decades requested the 1 in 100 year flood protection provided elsewhere along the river. Upgrades provide enhanced protection for Spring Creek township, SH1, the Picton to Chch main rail line and Spring Creek rail yard currently being upgraded by the KiwiRail IREX Project. Includes enhanced rock armour protection, upgraded Spring Creek stormwater outfall, land purchase for stopbank set back, relocation of overhead services and roadway, removal of deposited sediment within the floodway, and permanent remediation of previously-repaired breach in existing stopbank.	$6.00	2025	2

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Refreshed co-investment case

Marlborough District Council	Marlborough District	2	Wairau River Flood Protection Scheme	Construction of 5 intermediate groynes, extension of rock armour on 5 primary groynes, and new riparian planting to complete the upgrade project started under the previous Kanoa round of funding. Scheme decreases pressure on the primary Wairau stopbank in the critical area protecting the entrance to a historic secondary flow path which leads to the community of Renwick and ultimately the regional centre of Blenheim. Increases protection of the Southern Valleys Irrigation Scheme intake. Greater flood resilience for particularly lower socio-economic status housing and jobs, disproportionately affected by any failure in the primary stopbank.	$4.80	2024	3
	Marlborough District	3	Renwick Lower Terrace Flood Protection	Construction of new flood relief culvert and replacement of existing culvert and bridge structures impeding channel flow in Ruakanakana Creek. Improved flood resilience for Renwick township and transport infrastructure of State Highway 6 (a critical inter-regional and intra-regional transport lifeline route). Accommodate future flood events by developing capacity for attentuation and controlled release of floodwaters, and by increasing channel capacity through the removal of infrastructure obstructions.	$2.20	2024	3
	Marlborough District	4	Lower Opaoa Flood Protection Upgrades	Reconstruction, stabilisation and realignment of legacy stopbanks, upgraded to 1 in 100 year standard. This will complete the upgrade of the Lower Opaoa Stopbank Network which protects the Riverlands industrial Estate and Blenheim Sewage Treatment Plant as well as vineyards and lifestyle residences.	$2.60	2024	3
	Marlborough District	5	Andersons Floodway Reconstruction	Reconstruction and upgrade of an un-maintained 2.5km-long flood diversion channel including reconstruction of grade-controlling drop structures. Maintains flood protection of Wairau Valley township and surrounding area by diverting a portion of flood flow in Walkers Stream directly to the Wairau River 5km upstream from the village. Greatly reduces the volume of flood flow through the village and the frequency of inundation of adjacent properties.	$2.00	2024	2

APPENDIX

Refreshed co-investment case

APPENDIX

Environment Canterbury	All (Canterbury)	1	Region wide Flood Recovery & Resilience Programme	Increases level of protection to large number of vulnerable communities on at least ten key catchments. Work examples include but are not limited to accelerated Orari River stopbank upgrades which protect Geraldine and Temuka, stopbank retreat in Ashburton/Hakatere which improves flood capacity and enables gravel extraction and structure replacements on the Waimakariri River which protects Kaiapoi. Overall work diversity includes stopbank rebuild/retreat, various river works, gravel removal, rock, planting including nursery development, investigations and land purchase. Works will be integrated to ensure environmental and ecological health. Embraces full PARA framework.	$20.00	2024	3
	Timaru District	2	Waitarakao/Washdyke/ Seadown	Climate adaptation and coastal retreat of a stopbank and drainage network. Protects Timaru township waste water treatment plant. Work includes investigations, consenting, drain relocation/retreat, stopbank rebuild, wetland creation/enhancement, planting. Works will be in partnership with Arowhenua Rūnanga. Embraces the retreat and protect elements of the PARA framework.	$4.00	2024	3
	All (Canterbury)	3	Region wide Planting and Berm Transition #2	Increase resilience of flood protection/river berms by removal of invasive species increasing native biota by providing competition and a seed source for the future. Work includes planting, weed control, wetland enhancement. Expansion and continuation of existing highly successful programme of work. Works are supported by a number of Rūnanga across the region. Embraces the protect and accommodate elements of the PARA framework.	$4.00	2024	3
	Timaru District	4	Rangitata Flood & Resilience #2	Expansion and continuation of existing highly successful programme of work. In flood events the river can paralyze critical infrastructure and both State Highways cutting access/egress down the east coast of the South Island. This break of road and rail lifelines impacts hospital transfers, schools and transfer of goods. Work includes investigations, land purchase, stopbank build, rock, diversions and river works, planting, wetlands. Embraces the full PARA framework.	$3.00	2024	3
	All (Canterbury)	5	Structure Upgrade/Adaptation Programme	Adaptation of critical flood protection infrastructure including culverts, weirs etc – some of which need fish passage enhancement. Work includes investigations, monitoring, capital upgrades, fish passage enhancements. Embraces protect and accommodate elements of the PARA framework.	$2.50	2024	3
	All (Canterbury)	6	Fairway Vegetation Clearance Programme	Increases resilience of several rivers by removing weed infestations which are currently affecting flood capacity and causing bank erosion. Work includes vegetation spraying and mechanical removal (primarily alder, willow, gorse, broom) in the fairway. Embraces the protect and accommodate element of the PARA framework.	$3.00	2024	3
	Christchurch City & Selwyn District	7	Halswell/Huritini & Te Waihora Catchment Initiatives	Improvements to large area of drainage network and lowland waterways. Works include planting and shading of drains – leads to less mechanical maintenance, less weed growth and less chemical use during spraying. Land investigation and possible purchase for wetland storage and/sediment traps. Supports environmental ecological health primarily by allowing restoration of natural character and reduction of pest species. Embraces the protect and accommodate element of the PARA framework.	$1.50	2024	3

Refreshed co-investment case

APPENDIX

West Coast Regional Council	Westland District	1	Wanganui River Resilience Project	Construction of new riverwall at location of existing breach to prevent additional scouring and eventual progression of erosion towards the nearby State Highway No. 6 including adjacent power and communication services. Identification of at risk riverbanks to the southern reaches and installation of new riverbanks including modification of existing floodwalls and drainage paths to mitigate impacts from riverine flooding while working alongside river and coastal processes.	$7.00	2024	2
	Buller District Council	2	Mokihinui River Flood Hazard Mitigation	Setup of a hydrological model to enable the production of flood hazard maps for two towns, Seddonville and Mokihinui. Development of a Dynamic Adaptive Plan (DAP) to plan and set triggers and timescales for future managed retreat from higher risk areas.	$0.50	2024	2
	Grey District	3	Cobden Floodwall	Construction of new Cobden Floodwall and Flood Pump that will mitigate significant Range Creek flooding and coastal storm surge inundation risk to many houses. Protection of the lower Cobden residential area, gateway to Port Elizabeth and North Beach. Removal of existing wall that is creating downdrift erosion.	$4.00	2024	3
	Grey District	4	Preston Road	Provision of improved floodgate capacity and safe emergency access from Greymouth CBD and Blaketown by raising the existing road bridge and construction of floodgates to separate Sawyers Creek outflow from Grey River during flood events, to provide for flood resilience for events greater than 3 or 4 year ARI. Current evacuation very limited.	$4.00	2024	3
	Buller District Council	5	Pororari River Bund	Construction of low bund to protect the Punakaiki Village from the combined river flood and coastal storm surge impacts. Low lying areas are vulnerable to inundation. Plus native vegetation planting. Punakaiki is a key national and regional tourist drawcard.	$1.40	2024	3
	Buller District Council	6	Karamea Stopbank Upgrade & Flood Hazard Mitigation	Raising and strengthening of stopbanks to protect Karamea, which becomes isolated cut off like an island in storm events. There is also the provision of flood hazard maps and a flood evacuation plan.	$0.85	2024	2
Otago Regional Council	Dunedin City	1	Continuation of Contour Channel (West Taieri) Resilience Upgrade	The Contour Channel was originally built in the 1900s to intercept runoff from the Maungatua Range and uses gravity to the Waipori River. The existing bank has an undulating profile which makes controlled overtopping impossible. The Contour Channel floodbank is a key asset within the Lower Taieri Flood Protection scheme which provides flood protection to the people and property of West Taieri including the township of Outram, approximately 7,300 hectares of highly productive agricultural land, Dunedin International Airport, which is 50% Crown owned, and State Highway 87. The existing floodbank has an undulating longitudinal profile that promotes concentration of overtopping during flood events, potentially exposing parts of the floodbank to relatively rapid failure. This failure of the floodbank would potentially inundate the area and place the surrounding communities at risk. The proposed upgrades are a continuation of the current work programme and are necessary to bring the existing floodbank up to a standard that can be relied upon as a flood defence and provide protection to the Lower Taieri area.	$9.00	2024	3

Refreshed co-investment case

Otago Regional Council	Dunedin City	2	Outram Floodbank Safety Upgrade	The township of Outram (population approx. 700) lies immediately west of the Taieri river, protected by a 6 metre high flood bank. Work is underway to establish the structural integrity of the floodbank. Recent flooding events and investigation into seepage risk for the northern section of floodbank has identified concerns about the composition of materials used to construct the floodbank. The Outram Flood Bank provides critical infrastructure, to providing flood protection to people and the property of West Taieri (including the township of Outram), approximately 4,000 hectares of highly productive agricultural land, Dunedin International Airport, (which is 50% Crown owned), and State Highway 87. The frequency of flood events has placed a priority since 2017, on remediating this floodbank to ensure resilience from the Taieri River flood waters to limit the the risk to public safety, economic loss to property, and the township of Outram if the bank fails or overtops. The floodbank is listed on ORC's Risk Register which identifies that interim measures (which may include evacuation of people and/or livestock) of monitoring and decisions during a flood event to manage the infrastructure and impacts during flooding. Investigation and hydraulic modelling work about to be commissioned.	$5.50	2024	3
	Clutha District	3	Balclutha Township Relief Wall Replacements	The Balclutha floodbank forms a part of the Lower Clutha Flood Protection Scheme which protects and drains an area of approximately 9,300 ha. Most of the area covered by the flood scheme is productive farmland, but also includes the towns of Balclutha and Kaitangata. The Balclutha pressure relief wells are critical to ensuring ongoing protection for the Balclutha township by limiting seepage pressures along the floodbank during a flood event. This reduces the risk of failure of the floodbank maintaining public safety, protecting key community assets and maintaining social and economic wellbeing for Balclutha. This project aims to replace relief wells which were damaged during the February 2020 event, ensuring that the integrity of the floodbank is maintained for future events.	$1.00	2024	3
	Dunedin City	4	East Taieri Lower Pond Gravity Floodgates	Backflow of water from the Taieri River into the Lower Pond has been observed during instances of high river flows (e.g. 2017, 2021). It is understood that this is occurring due to a combination of deteriorating culverts and gate condition, as well as poor headwall configuration. Work is required to replace the gabion headwalls , culvert and gravity gates to ensure ongoing structural integrity. The East Taieri Lower Pond Gravity Floodgates are a key asset within the Lower Taieri Flood Protection scheme which provides flood protection to the people and property of West Taieri including the township of Outram, approximately 7,300 hectares of highly productive agricultural land, Dunedin International Airport and State Highway 87.	$1.70	2024	2
	Dunedin City	5	Kaikorai Stilling Basin Resilience and Environmental Enhancement	Replacement of stilling basin on the Kaikorai Stream that was significantly damaged in the 2017 flood. The stilling basin was constructed in the 1960's as part of other channel works to enable the construction of the neighbouring motorway (SH1). This stilling basin is necessary to help dissipate energy and subsequently minimise erosion of the riverbanks in this section of the stream, in close proximity to homes and businesses. The stilling basin is built out of concrete panels that have suffered damage that has compounded from successive high flows. Completion of this work would better enable room for river and increased environmental and ecological benefits by modifying the channel (shape and meander where possible) and replacing concrete sections with nature based solutions. This would fit into the 'accommodate' category of the PARA framework where changes are made to infrastructure to improve resilience, but also provide multiple benefits in the environmental space.	$2.50	2024	3

APPENDIX

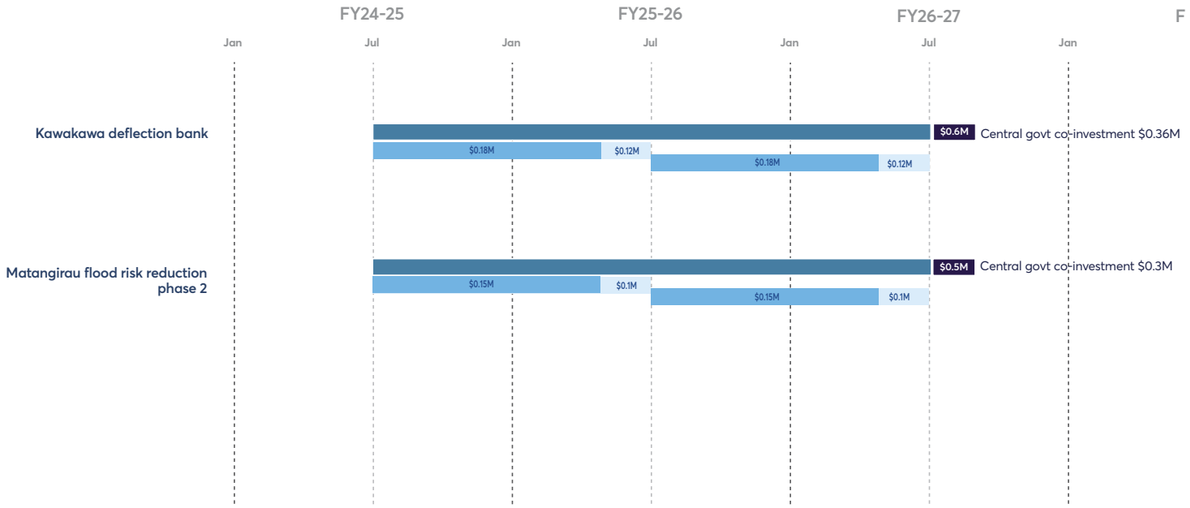
Refreshed co-investment case

APPENDIX

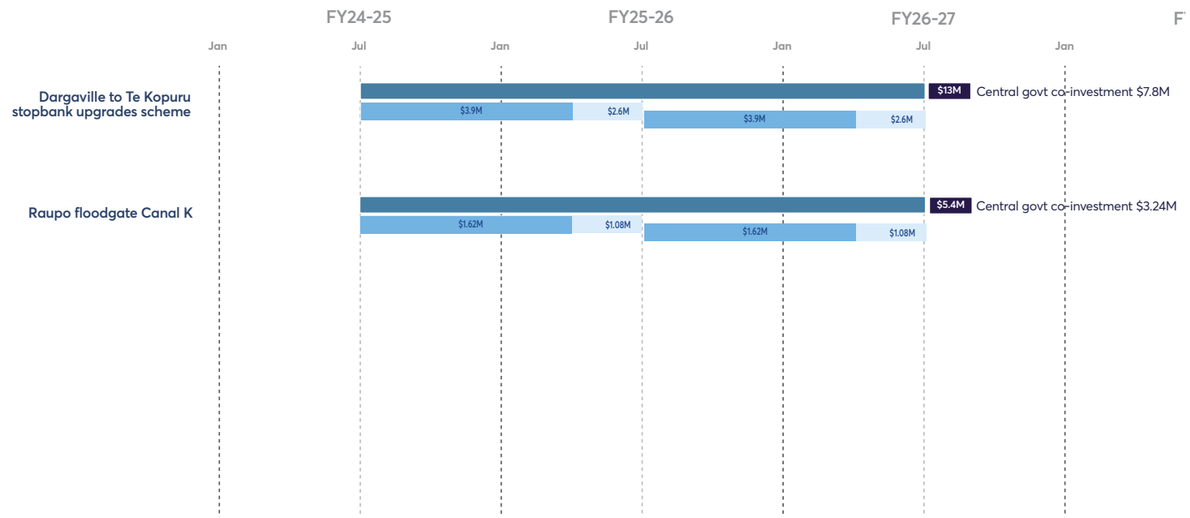
Otago Regional Council	Clutha District	6	Clutha Delta Split Lagoon Environment Enhancement	Split Lagoon forms a part of the Lower Clutha Flood Protection Scheme which protects and drains an area of approximately 9,300 ha. Most of the area covered by the flood scheme is productive farmland, but also includes the towns of Balclutha and Kaitangata. The function and operation of flood protection assets around the lagoon are to be considered alongside ORC's Clutha Delta Natural hazard adaptation programme investigating the future of the delta faced with the treats of sea level rise and coastal erosion. This would fit into the 'retreat' category of the PARA framework where changes are made to infrastructure to adapt to the forecast coastal erosion, but also provide opportunity in the environmental space for various methods of built and nature based solutions. The opportunity to transition an adaptive retreat whilst incorporating environmental outcomes is being proposed.	$2.75	2024	3
	Clutha District	7	Puerua Outfalls Culvert (Training Line)	Puerua Outfall forms a part of the Lower Clutha Flood Protection Scheme which protects and drains an area of approximately 9,300 ha. Most of the area covered by the flood scheme is productive farmland, but also includes the towns of Balclutha and Kaitangata. The function and operation of flood protection assets associated with training line are to be considered alongside ORC's Clutha Delta Natural hazard adaptation programme investigating the future of the delta faced with the threats of sea level rise and coastal erosion.	$2.00	2024	2
Environment Southland	Gore District	1	Mataura River Flood Protection Upgrade Project	Increasing resilience across the Flood Protection Scheme (FPS) for Southland's 2nd largest population area. The exisitng flood protection network needs to be reviewed and upgraded to accomadate the predicted effects of climate change to maintain the level of protection for the current communities. Identifying future solutions and incorporating alternate nature based flood protection solutions to FPS will be be part of this project.	$18.00	2024	3
	Invercargill City	2	Invercargill City Flood Protection Scheme Upgrade	Raises and strengthing stopbanks and increasing capacity in the river channel, property purchase of 62 Ha for ponding and detention dam to compliment the Stead Street pump station upgrade. The exisitng flood protection network needs to be reviewed and upgraded to accommadate the predicted effects of climate change to maintain the level of protection for the current communities. Identifying future solutions and incorporating alternate nature based flood protection solutions to FPS will be be part of this project.	$11.00	2024	3
	Southland District	3	Oreti River Catchment Flood Protection Upgrade Project	Oreti FPS upgrade Stage One, Winton and Lumsden. The existing flood protection network needs to be reviewed and upgraded to accomadate the predicted effects of climate change to maintain the level of protection for the current communities. Identifying future solutions and incorporating alternate nature based flood protection solutions to FPS will be be part of this project.	$5.00	2025	2
	Southland District	4	Aparima Catchment Flood Protection Scheme Upgrade	Improving the Aparima Catchment floodplain capacity and hydraulic efficiency of the river by upgrading floodbanks to accommodate offset the effects of climate change including bioengineering controls.	$0.50	2024	2
	Southland District	5	Te Anau Basin Catchment Flood Management Project	Improving the Te Anau Catchment floodplain capacity by upgrading floodbanks to offset and accomadate the effects of climate change including bioengineering controls.	$0.50	2024	1
	Southland District	6	Makarewa Catchment Flood Management Project	Improving flood plain capacity and the hydaulic efficiency of the river by removing aging pest trees, pest weed build ups to offset and accomodate the predicted effects of climate change.	$0.50	2024	1

Appendix 2. Delivery timeline by council

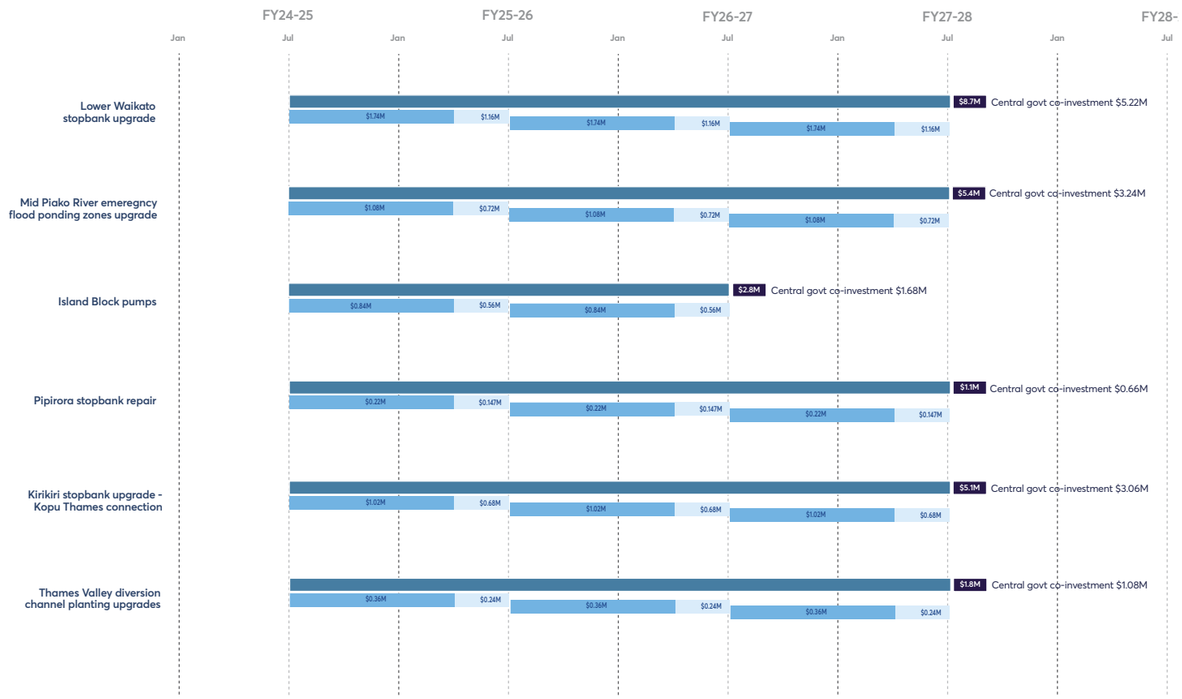
Northland Regional Council project list



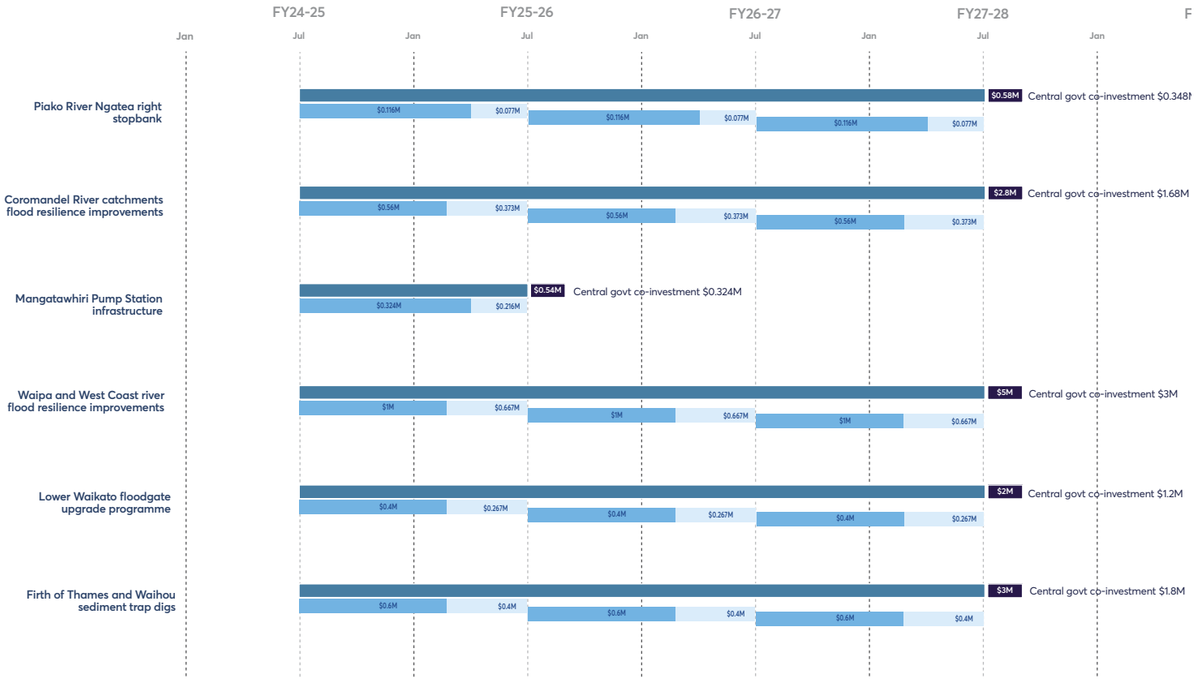
Kaipara District Council project list



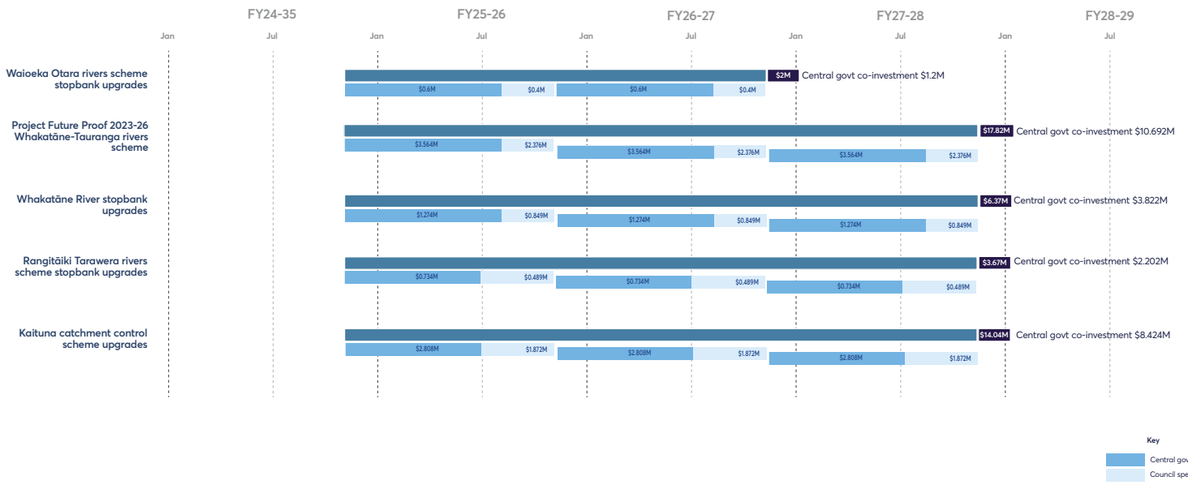
Waikato Regional Council project list (1 of 2)



Waikato Regional Council project list (2 of 2)

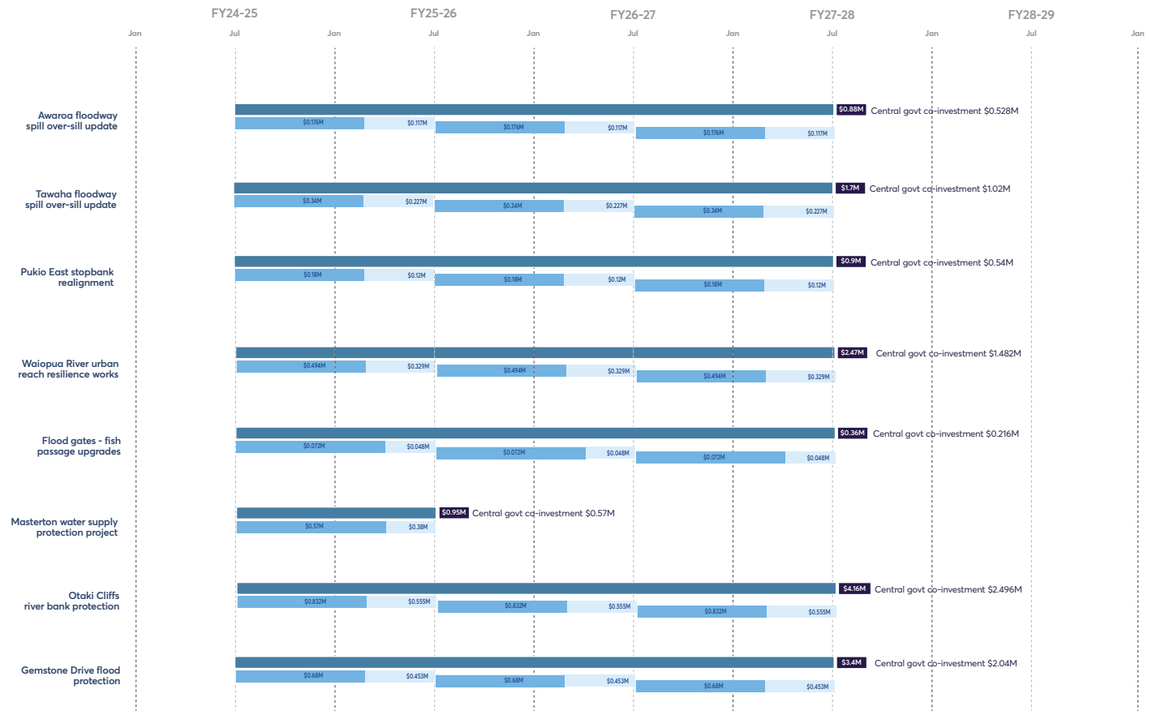


Bay of Plenty Regional Council project list



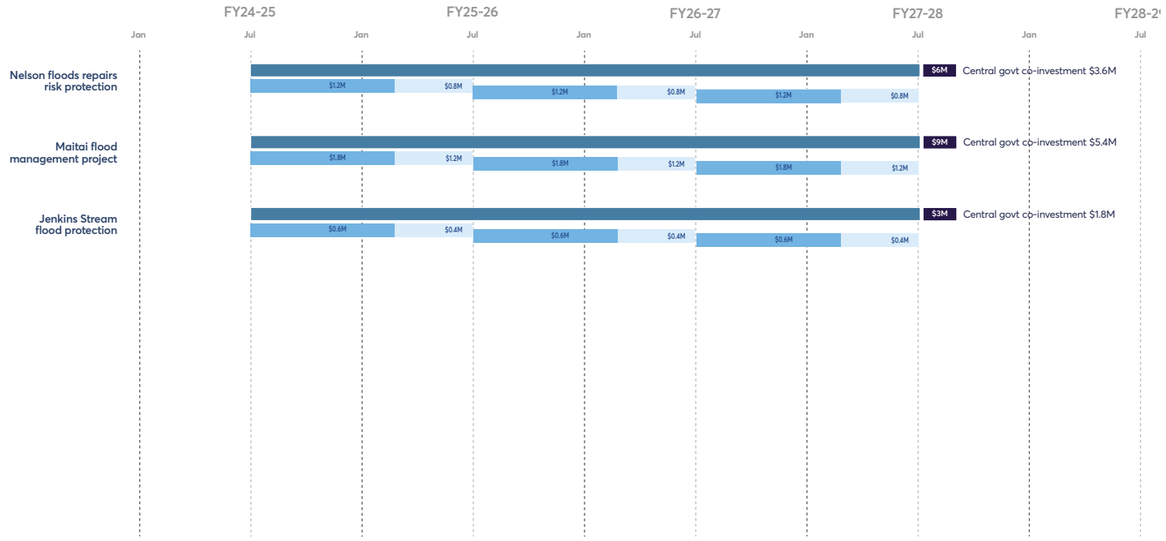
Greater Wellington Regional Council project list (1 of 3)

Greater Wellington Regional Council project list (2 of 3)

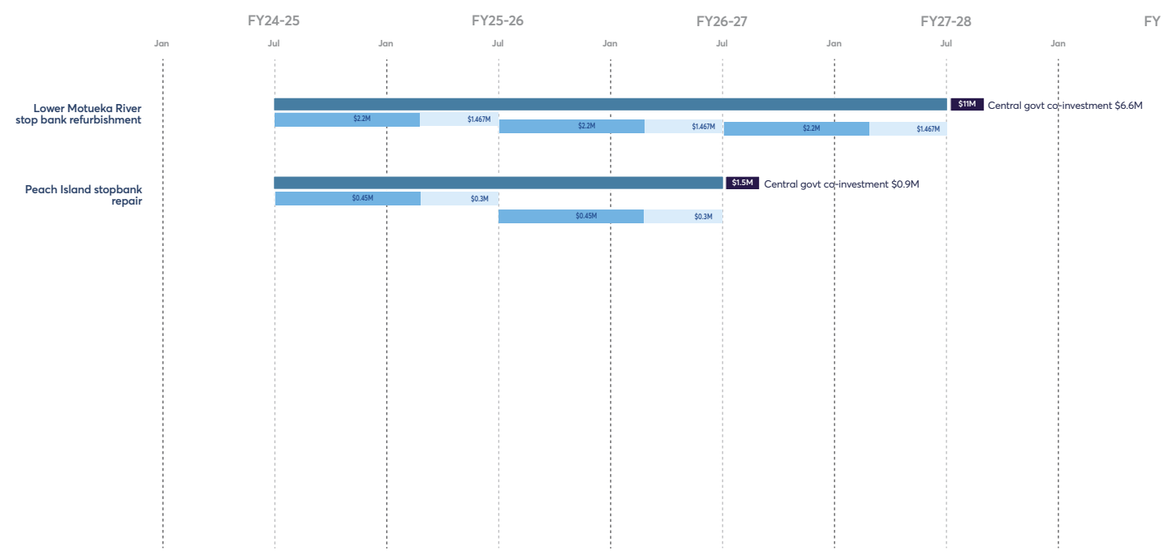


Greater Wellington Regional Council project list (3 of 3)

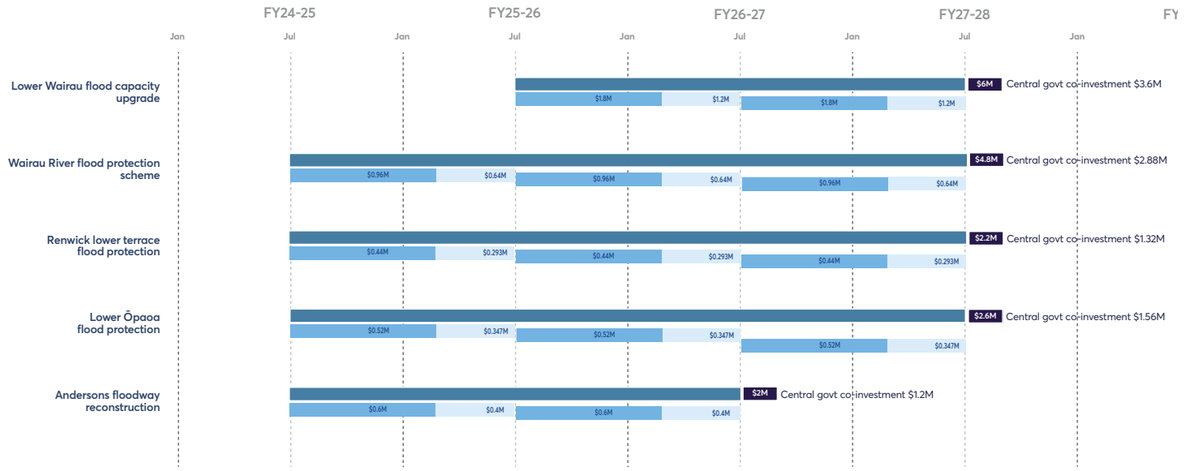
Nelson City Council project list



Tasman District Council project list

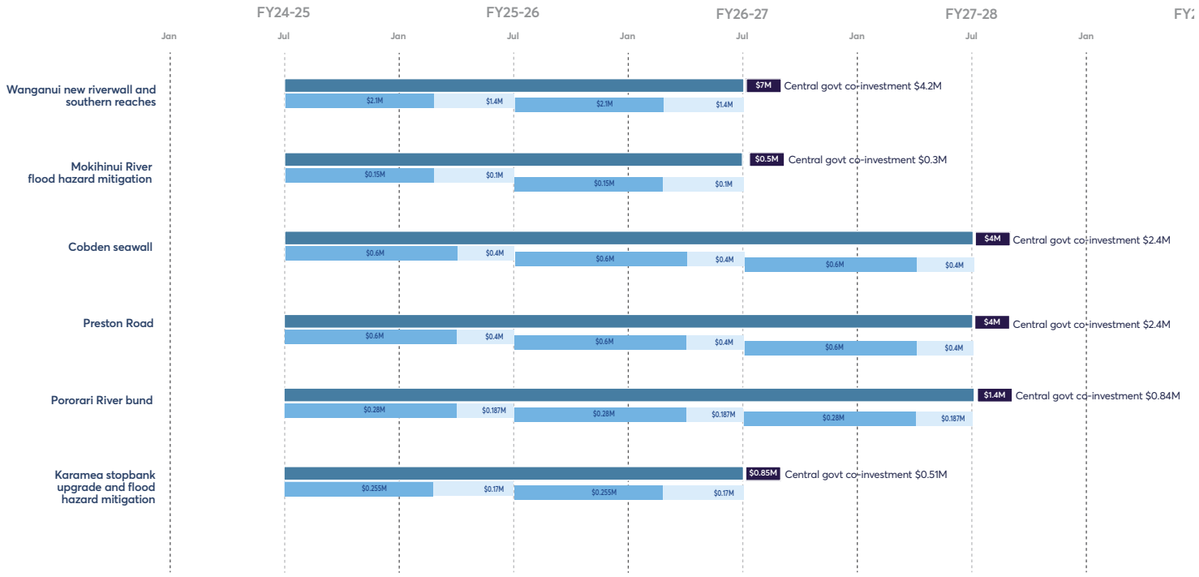


Marlborough District Council project list

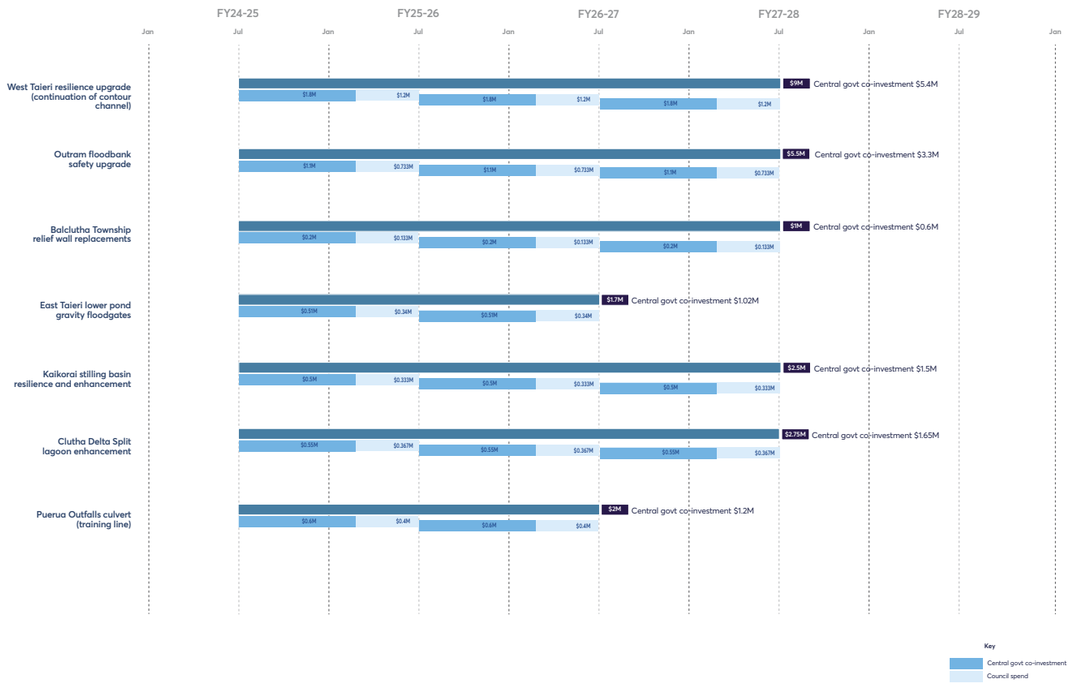


Environment Canterbury project list

West Coast Regional Council project list

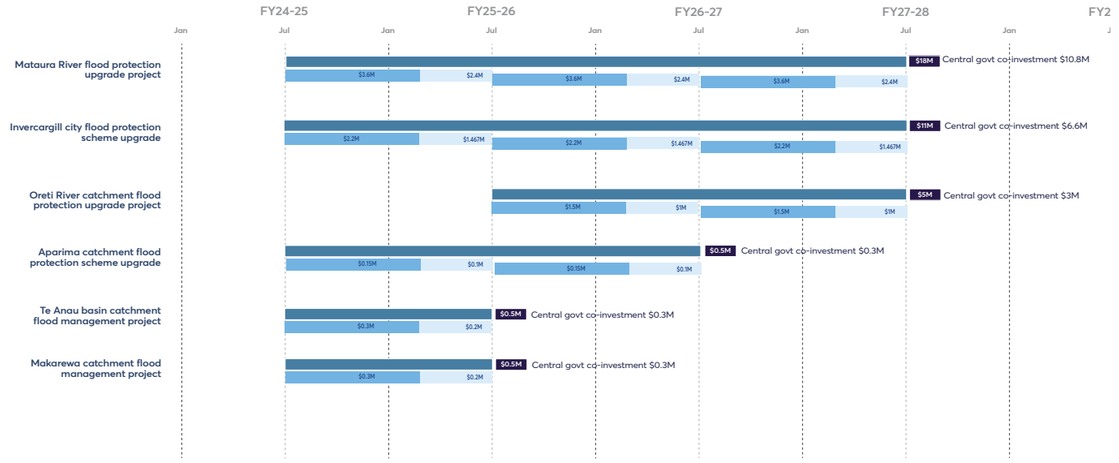


Otago Regional Council project list



Refreshed co-investment case

Environment Southland project list



Appendix 3. Letters of support

The following pages contain evidence (letters) of regional sector support from Mayors across New Zealand, including:

- Greater Wellington Regional Council
- Canterbury Mayoral Forum
- West Coast Regional Council
- Te Taitokerau Councils (Northland, Far North, and Kaipara)
- Bay of Plenty Mayoral forum
- Marlborough District Council.

Greater Wellington
Te Pane Matua Taiao

25 August 2023

EXTREL-893300156-5639

Hon Kieran McAnulty
Minister of Internal Affairs
Parliament Buildings
Wellington

BY EMAIL

Tēna koe Minister

Co-investment in flood resilience – expression of Mayoral support

Many thanks for meeting me and Chair Peter Scott on 19 July, as we lead out the proposal for Government co-investment described in the Te Uru Kahika's *Before the Deluge* (December 2022).

At this meeting you sought assurance that the request for co investment had the support of New Zealand's entire local government sector.

As a first step in securing this assurance, Greater Wellington presented *Before the Deluge* to the Wellington regional Mayoral Forum on Friday 18 August. At the meeting all the mayors within the Wellington region wholeheartedly expressed their support for the co-investment proposal. As confirmation of this support, they have since signed this letter to you.

Appendix 1 lists the Wellington region projects included in Before the Deluge, and commencement dates without government co-investment. Should co-investment be agreed, these projects can start immediately and be completed within three years.

Before the Deluge has also been presented to the Rural and Provincial committee of LGNZ, the Canterbury Mayoral Forum and the Bay of Plenty Mayoral Forum. At these meetings too, we received full support for our proposal to seek Government co-investment to make our communities more resilient to increasingly intensive flood events.

You will shortly receive similar letters of support from all other regions participating in *Before the Deluge*, excluding Tairāwhiti where the government has just announced a support package post Cyclone Gabrielle.

Ngā mihi

Daran Ponter
Chair

Wellington office
PO Box 11646
Manners St, Wellington 6142

Upper Hutt
PO Box 40847
1056 Fergusson Drive

Masterton office
PO Box 41
Masterton 5840

0800 496 734
www.gw.govt.nz
info@gw.govt.nz

Greater Wellington
Te Pane Matua Taiao

Wayne Guppy
Mayor
Upper Hutt City Council

Tui Lewis
Acting Mayor
Hutt City Council

Tory Whanau
Mayor
Wellington City Council

Gary Caffell
Mayor
Masterton District Council

Ron Mark
Mayor
Carterton District Council

Martin Connelly
Mayor
South Wairarapa District Council

Anita Baker
Mayor
Porirua City Council

Janet Holborow
Mayor
Kapiti Coast District Council

CC: Chairs/Mayor, Regional Councils and Unitary Authorities

Greater Wellington
Te Pane Matua Taiao

Appendix 1

Wellington region projects in *Before the Deluge*			
Territorial Authority	**Project name**	**Total cost ($m)**	**Start date without co-investment**
Masterton District	River Road Masterton Flood Protection Upgrade	4.30	2028
Masterton District	Masterton Water Supply Protection Project	0.54	2025
Masterton District	Waipoua River SH2 Left Bank Protection Upgrade	0.11	2025
Masterton District	Waipoua Industrial Site - Akura Road Edge Protection Project	2.21	2028
Masterton District	Rathkeale College Protection	2.01	Post-2032
Masterton District	Eastern Rivers Flood Protection Upgrade, South Wairarapa	4.02	Post-2032
Carterton District	Flood Protection Upgrade Buffer Riparian Planting, te Kauru FMP	2.68	2028
South Wairarapa District	Greytown Flood Protection Waiohine River Plan	8.04	2028
South Wairarapa District	Fullers Bend Protection - Greytown	2.95	2028
South Wairarapa District	Tawaha and Awaroa Floodway Spill-over-sill Update	0.34	2024
South Wairarapa District	Pukio East Stopbank Realignment	0.47	2024
South Wairarapa District	Floodgates and Pump Station Upgrades	0.80	2028
Upper Hutt City	Pinehaven Streamworks Project	14.30	2032
Upper Hutt City	Gemstone Drive Flood Protection	4.69	2032
Upper Hutt City	Poet's Park Development	0.67	2032
Kāpiti District	Otaki Cliffs River Bank Protection	14.70	Post-2032

Environment Canterbury Regional Council
Kaunihera Taiao ki Waitaha

Customer Services
P. 03 353 9007 or 0800 324 636
200 Tuam Street
PO Box 345
Christchurch 8140
www.ecan.govt.nz/contact

28 August 2023

Hon Kieran McAnulty
Minister of Internal Affairs
Parliament Buildings
Wellington

BY EMAIL k.mcanulty@ministers.govt.nz

Tēnā koe Minister

Co-investment in flood resilience – expression of Mayoral support

Many thanks for meeting Chair Daran Ponter and I on 19 July, as we lead out the proposal for Government co-investment described in the Te Uru Kahika's *Before the Deluge* (December 2022).

At this meeting you sought assurance that the request for co investment had the support of New Zealand's entire local government sector.

As a first step in securing this assurance, Environment Canterbury presented *Before the Deluge* to the Canterbury Mayoral Forum on Thursday 24 August. At the meeting all the mayors within the Canterbury region wholeheartedly expressed their support for the co-investment proposal. As confirmation of this support, they have since signed this letter to you.

Appendix 1 lists the Canterbury region projects included in Before the Deluge, and commencement dates without government co-investment. Should co-investment be agreed, these projects can start immediately and be completed within three years.

Before the Deluge has also been presented to the Rural and Provincial committee of LGNZ, the Wellington Mayoral Forum and the Bay of Plenty Mayoral Forum. At these meetings too, we received full support for our proposal to seek Government co-investment to make our communities more resilient to increasingly intensive flood events.

You will shortly receive similar letters of support from all other regions, excluding Tairawhiti and the Hawke's Bay, where the government has already announced support packages post Cyclone Gabrielle.

Ngā mihi

Peter Scott
Chair

Neil Brown
Mayor
Ashburton District Council

Phil Mauger
Mayor
Christchurch City Council

Marie Black
Mayor
Hurunui District Council

Craig Mackle
Mayor
Kaikoura District Council

Anne Munro
Mayor
Mackenzie District Council

Sam Broughton
Mayor
Selwyn District Council

Nigel Bowen
Mayor
Timaru District Council

Dan Gordon
Mayor
Waimakariri District Council

Craig Rowley
Mayor
Waimate District Council

Gary Kircher
Mayor
Waitaki District Council

CC: Chairs/Mayor, Regional Councils and Unitary Authorities

Appendix 1

Canterbury region projects in *Before the Deluge*			
Territorial Authority	**Project name**	**Total cost ($m)**	**Start date without co-investment**
Region wide	Flood recovery and resilience programme	20	2028
Region wide	Fairway vegetation clearance programme	2.5	2032
Region wide	Planting and berm transition programme	4	2028
Region wide	Culvert, weir, structure upgrade programme incl fish passage	2.5	2030
Timaru and Ashburton	Rangitata River resilience	3	2028
Timaru	Waitarakao / Seadown	2	2025
Selwyn	Halswell/Huritini catchment initiatives	1.5	2032

7 September 2023

Hon Kieran McAnulty
Minister of Internal Affairs
Parliament Buildings
Wellington

By email: Kieran.mcanulty@parliament.govt.nz

Dear Minister McAnulty,

Tēnā koe Minister

CO-INVESTMENT IN FLOOD RESILENCE – EXPRESSION OF MAYORAL SUPPORT

The West Coast Regional Council and the Mayors of the Westland, Grey and Buller Districts support the co-investment and flood resilience proposal as described in Te Uru Kahika's *Before the Deluge* (December 2022).

We endorse all other local government sectors to support this co-investment and flood resilience programme.

The Regional Sector continues to view co-investment in the 92 flood protection projects listed in *Before the Deluge* as the most immediate, practical, affordable, and visibly beneficial intervention to enhance community flood risk resilience across Aotearoa.

The rivers on the West Coast identified within the 92 listed projects include the Hokitika, Wanganui and Waiho Rivers. These three projects are all considered urgent for our region. The initial phases of the Hokitika and Waiho River works have commenced. The Wanganui works are yet to commence but is recognised by Council and the community as critical. The Cobden Seawall has also been identified for inclusion.

If co-investment is unavailable to fund these and future projects, the ongoing risk and consequence to our communities and supporting infrastructure is significant. The cost-benefit of these investments was described in the *Before the Deluge* document.

We look forward to your support of this pragmatic proposal to address the flood risk vulnerabilities of communities throughout New Zealand.

Yours faithfully,

Jamie Cleine
Mayor – Buller District

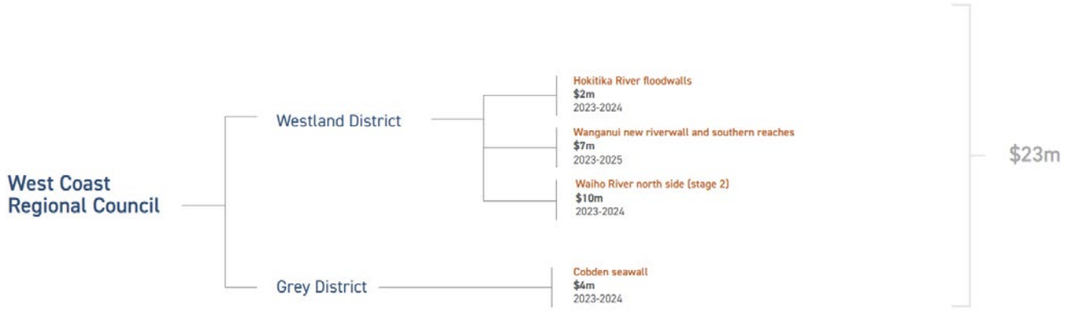
Tania Gibson
Mayor – Grey District

Helen Lash
Mayor – Westland District

Peter Haddock
Chair – West Coast Regional Council

C/- P O Box 66
Greymouth 7840
sam.scott@wcrc.govt.nz

Before the Deluge Project Listings - West Coast Regional Council



Appendix 1 Examples of the 92 Projects

Location	Works planned
Dargaville	Stopbank Upgrade – critical flood protection to protect against a 1 in 100 year flood event;
Kawakawa	Deflection Bank – direct benefits for central Kawakawa;
Lower Waikato and Hauraki District	Extensive stopbanks renewal flood protection upgrades, including fish passage pumps and prevention of catastrophic failure from existing infrastructure
Bay of Plenty – Whakatane, Opotiki, other areas	Flood protection upgrades of stopbanks, floodwalls and other infrastructure
Foxton, Palmerston North, Lower Manawatu	Flood protection upgrades
Hawke's Bay	Critical level of service upgrades to Heretaunga Plains and Upper Tukituki Flood Control Schemes. These dovetail with the Government's recently announced lower reaches Land Categorisation related Projects package
Masterton	Flood protection upgrades including protection for the Masterton water supply pipeline
Nelson	Flood protection works for the Matai River and several stream catchments
Tasman	Lower Motueka River stopbank upgrade flood protection for Motueka
Renwick	Wairau River flood protection upgrades
Canterbury	Region wide flood recovery & resilience work, including for the Rangitata River
Hokitika, South Westland	Hokitika River floodwalls; Wanganui and Waiho River North Side upgrades
Otago	Region wide flood protection works including for the Taieri and Lindsay Creek (Dunedin)
Invercargill, Mataura	Flood protection upgrades.

Northland REGIONAL COUNCIL
Te Kaunihera ā rohe o Te Taitokerau

15 September 2023

Hon Kieran McAnulty
Minister of Internal Affairs
Private Bag 18 888
Parliament Buildings
Wellington 6160

By Email: Kieran.Mcanulty@parliament.govt.nz

Tēna koe, Minister

Co-investment in Flood Resilience - Expression of Chair and Mayoral support

The Chair and Mayors of Te Taitokerau councils, (Northland Regional Council, Far North District Council and Kaipara District Council) are writing to give you assurance that they are in full support of the Before the Deluge co-investment scheme.

Appendix 1 lists the Te Taitokerau region projects included in Before the Deluge, and commencement dates without government co-investment. Should co-investment be agreed, these projects can start immediately and be completed within three years.

We acknowledge the support that has previously been provided through this funding process. This has allowed a number of significant projects in Te Taitokerau to be fast tracked which has provided successful protection against flooding to some of our most vulnerable communities during the recent extreme weather events.

We look forward to your support in this important mahi.

Ngā mihi

Tui Shortland
Kahurangi | Chair Northland Regional Council

0800 002 004 www.nrc.govt.nz info@nrc.govt.nz
Private Bag 9021, Whangārei 0148

Northland REGIONAL COUNCIL
Te Kaunihera ā rohe o Te Taitokerau

Moko Tepania
Mayor Far North District Council

Vince Cocurullo
Mayor Whangarei District Council

Craig Jepson
Mayor Kaipara District Council

Northland REGIONAL COUNCIL
Te Kaunihera ā rohe o Te Taitokerau

APPENDIX 1

Appendix 1 Te Taitokerau region projects in *Before the Deluge*			
Territorial Authority	**Project name**	**Total cost ($m)**	**Start date without co-investment**
Far North District	Kawakawa Deflection Bank	0.55	2025
Far North District	Matangirau Flood Risk Reduction Phase 2	0.36	2025
Kaipara District	Dargaville to Te Kopuru Stopbank Upgrade	12.00	2025
Kaipara District	Raupo Floodgate Canal K	5.00	2025

0800 002 004 www.nrc.govt.nz info@nrc.govt.nz
Private Bag 9021, Whangārei 0148

THE OFFICE OF THE MAYOR

25 August 2023

Hon Kieran McAnulty
Minister of Internal Affairs
Parliament Buildings
Wellington

Email: k.mcanulty@ministers.govt.nz

Please quote
Doc No. 19951387

Tēnā koe Minister McAnulty

Building New Zealand's flood risk resilience through co-investment

I wanted to write to let you know of our recent Mayoral Forum meeting and the presentation we received on the '*Before the Deluge'* report. The Bay of Plenty has suffered from several flood impacts in recent years - we have responded to Ngongotaha flooding in April 2018 and Edgecumbe the previous April of 2017.

The Bay of Plenty Mayors/Chair were supportive of the investments needed, as specified in the *Before the Deluge* report, in order to future proof Aotearoa's communities against the future impacts of climate change on our communities' flood protection infrastructure.

Can I therefore add the support of the Bay of Plenty Mayoral forum to that of our colleagues in the Wellington and Canterbury mayoral forums, LGNZ rural and provincial and our colleagues in the regional sector.

Should co-investment be agreed, these projects can start immediately, and I understand could be completed within three years. This would be strongly supported in the Bay of Plenty.

Ngā mihi nui

Mayor Tania Tapsell
Rotorua Lakes Council
Chair, Bay of Plenty Mayoral Forum

ROTORUA LAKES COUNCIL
Te Kaunihera o ngā Roto o Rotorua
Civic Centre, 1061 Haupapa Street, Private Bag 3029, Rotorua 3046, New Zealand
+64 7 348 4199 | info@rotorualc.nz | rotorualakescouncil.nz

MARLBOROUGH DISTRICT COUNCIL
OFFICE OF THE MAYOR
SEYMOUR SQUARE
PO BOX 443
BLENHEIM 7240
NEW ZEALAND
TELEPHONE (0064) 3 520 7400
FACSIMILE (0064) 3 520 7494
EMAIL mayor@marlborough.govt.nz
WEB www.marlborough.govt.nz

13 September 2023

Record No: 23192102
File Ref: R700-001-01
Ask For: Mayor Taylor

Hon. Kieren McAnulty
Minister of Local Government
Parliament Buildings
Wellington
By email k.mcanulty@ministers.govt.nz

Tēnā koe Minister

Co-investment in flood resilience - Mayoral Support

I believe you have been briefed on the proposal for Government and Regional Council co-investment in flood resilience described in Te Uru Kahika's "Before the Deluge" report of December 2022. Understandably you sought assurance that the request for co-investment had the support of the New Zealand local government sector.

The Marlborough District Council strongly supports the co-investment proposed. Climate resilience is a key concern for us. As you are aware Marlborough has been significantly impacted by storm events in 2021 and 2022 and still awaits confirmation of funding for severe damage to Marlborough Sounds roads.

These events also demonstrated the extremely high importance of the district's flood protections systems, which prevented huge potential losses, particularly in the highly productive Wairau flood plain.
The Appendix attached lists the important flood protection projects Marlborough has included in the proposal.

I commend the co-investment to you.

Nāku noa nā

NADINE TAYLOR
MAYOR

Encl

Copy to: Mark Wheeler, CE, MDC

Appendix

Council	Territorial Authority TA)	Project Name	Project Description	Project Total Cost ($m)	Project State Date	Project duration	Total
Marlborough District Council	**Marlborough District**	Renwick Lower Terrace Flood Protection	Construction of new flood relief culvert and replacement structures impeding channel flow	2.00	2023	3 years	$13.80 million
		Lower Wairau River Flood Capacity Upgrade	Construction of upgraded stopbank (1 in 100 yr) and new rock armouring, enabling future managed retreat and stopbank upgrade	4.70	2024	2 years	
		Wairau River Flood Protection Scheme	Construction of new intermediate groynes, new riparian planting, and extension of rock armouring	4.50	2023	3 years	
		Lower Ōpaoa Flood Protection	Construction of upgraded stopbank (1 in 100 yr)	2.60	2023	3 years