10.7. Regional Infrastructure Fund Flood Protection Programme Tranche 1

Prepared for:	Council
Report No.	OPS2434
Activity:	Governance Report
Authors:	Brett Paterson, Team Leader Programme Management Felicity Murdoch, Project Delivery Analyst Michael Burrows, Project Manager Michelle Mifflin, Manager Engineering
Endorsed by:	Matt Alley, Acting General Manager Science and Resilience
Date:	28th August 2024

PURPOSE

[1] To seek Council approval to enter into a Regional Infrastructure Fund (RIF) Grant Funding agreement with the Ministry of Business, Innovation and Employment (Ministry) for part-funding across the selected project, being the continuation of the Contour Channel (West Taieri) Resilience Upgrade Project (The Project) and for Council to agree to the co-funding of the ORC's portion of the costs of this project.

EXECUTIVE SUMMARY

[2] The RIF Grant Funding Agreement provides grant funding up to $5,400,000 (60% of total project cost) for the continuation of the Contour Channel (West Taieri) Resilience Upgrade project.

[3] The RIF Grant Funding Agreement also requires the Otago Regional Council (ORC) to provide Co-Funding up to the value of $3,600,000 (40% of total project cost) as its component of total project costs. The expected total project cost is $9,000,000.

[4] In November 2023, Te Uru Kahika submitted a business case for co-investment in flood management infrastructure named *'Before the Deluge 2.0'* (refer Appendix A) in response to the impact of extreme weather events, including Cyclones Gabrielle and Hale. Within this report, 80 projects were identified around New Zealand which were submitted as a request for central government funding to strengthen climate resilience and improve regional infrastructure.

[5] On 30 May 2024, funding was announced as part of the 2024 Government Budget to establish the Regional Infrastructure Fund, being $1.2 billion over three years.

[6] The purpose of this fund is to enable investment in both new and existing infrastructure across regional New Zealand focusing on climate resilience and enabling infrastructure projects. It will be administered by Kānoa [1]– Regional Economic Development and Investment Unit.

[1] Kānoa is the Regional Economic Development & Investment Unit through which MBIE manages and delivers its grant funding for Flood Resilience Programme.

[7] 42 projects from the 80 projects submitted nationwide have been selected by the RIF to receive funding. The continuation of the Contour Channel (West Taieri) Resilience Upgrade project was identified as part of this funding announcement.

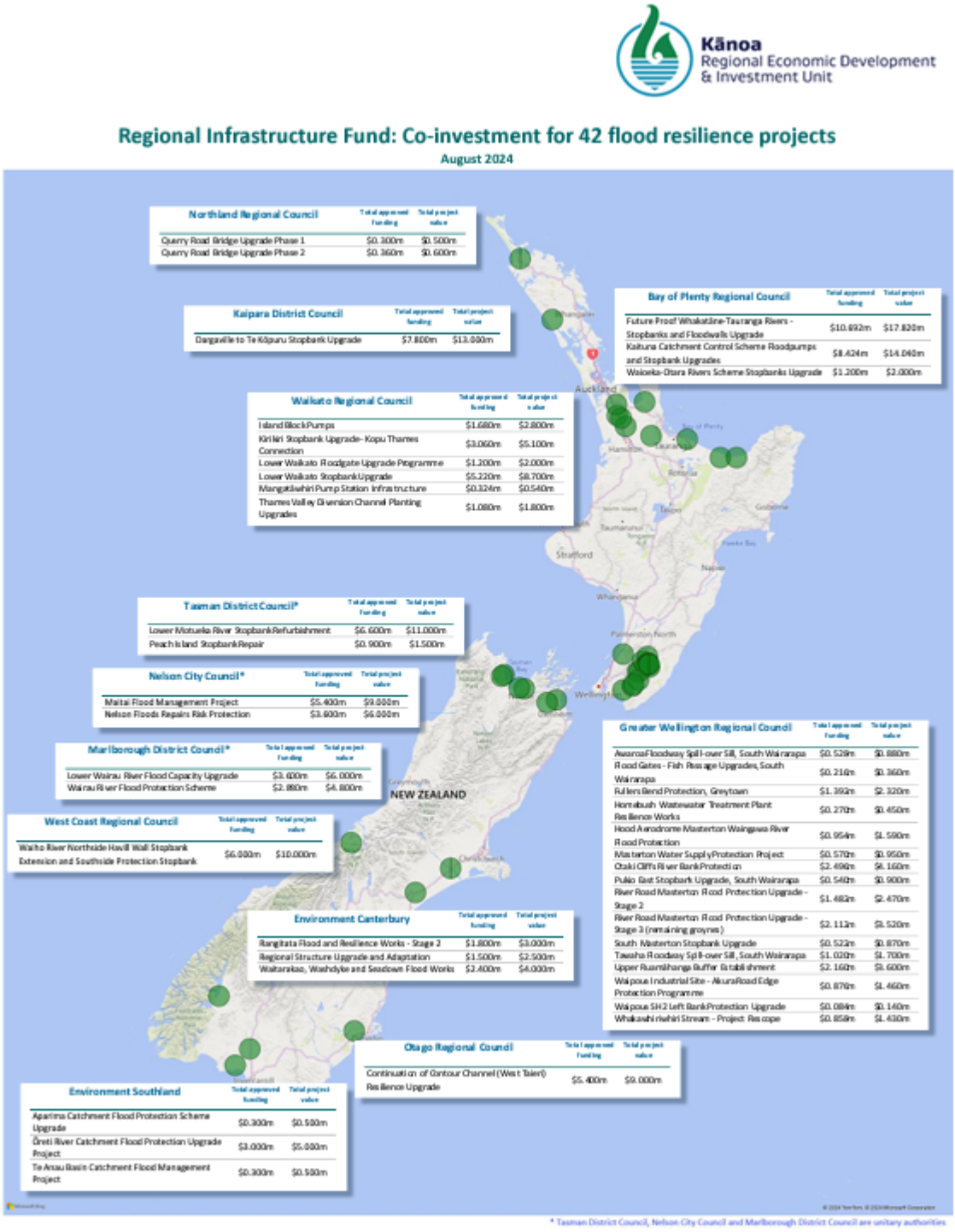


Figure 1: Map showing the 42 projects receiving funding from the Regional Infrastructure Fund, announced in August 2024.

[8] A draft RIF Grant Funding Agreement (refer Appendix B) has been provided to the ORC (on 16 August 2024) to enable the finalisation of the Grant Funding Agreement. The ORC

has been requested to provide information in the agreement for Ministry review and acceptance. This information was sent to the Ministry on the 21st August 2024 for its review.

[9] Following review of the information provided, the Ministry will then accept the information and return the Grant Funding Agreement to Council for acceptance and execution through signing.

[10] The Ministry has communicated an expectation that Councils will be in a position to execute respective Grant Funding Agreements by the 29th of August 2024, or otherwise.

[11] If Council accepts the Grant Funding Agreement, the ORC has two (2) months from date of acceptance in which to fulfil the Conditions Precedent set out in the agreement. These Conditions Precedent are discussed further in this paper.

[12] The value of the construction contracts for some of the works required during the Project will most likely exceed the Chief Executive's current financial delegation of $500,000. Therefore, delegation to the Chief Executive in consultation with the Chairperson is also sought to enable approval to expedite The Project and maintain compliance with the MBIE Funding Agreement.

RECOMMENDATION

That the Council:

1. ***Receives** this report.*

2. ***Notes** the Additional Undertakings (as noted in Part 1 clause 12 of the funding agreement), reporting and other terms and conditions set out in the Grant Funding Agreement provided by the Ministry in (refer Appendix B).*

3. ***Notes** the funding requirements of this project for the future financial years.*

4. ***Notes** that an updated budget to reflect the grant funding will be prepared as part of the 2025/2026 Annual Plan.*

5. ***Delegates** the Chief Executive in consultation with the Chairperson to execute contracts with suppliers for goods and services relating to the Continuation of the Contour Channel project above current financial delegations, in accordance with the RIF Grant Funding Agreement requirements not exceeding the Total Project Cost.*

6. ***Approves** entering into the Grant Funding Agreement with the Ministry for grant funding of up to $5,400,000 (excluding GST) for the Continuation of the Contour Channel Upgrade.*

7. ***Approves** the Chief Executive to sign the Grant Funding Agreement for and on behalf of ORC.*

8. ***Approves** ORC providing Co-Funding of up to $3,600,000 (excluding GST) to fund ORC's portion of the total project cost.*

9. ***Authorises*** *staff (key personnel listed in the Grant Funding Agreement) to procure works and services in a way that achieves the required Additional Undertakings described in the Grant Funding Agreement.*

10. ***Authorises*** *the General Manager Science and Resilience to certify Payment Requests for quarterly reimbursement as described in the Grant Funding Agreement.*

BACKGROUND TO CO-INVESTMENT FUNDING

2020 Shovel Ready Funding

[13] In March 2020 Central Government set up the Infrastructure Industry Reference Group (IRG) that invited industry and local bodies to submit a list of "shovel ready" infrastructure projects for consideration for government funding. This was an initiative to stimulate construction and economic growth as a result of the COVID-19 pandemic event.

[14] Funding[2] eventuated under the Provincial Development Unit (PDU) as part of a combined regional council River Managers' Forum (RMF) Special Interest Group (SIG) package for consideration for funding through the Provincial Growth Fund (PGF).

[15] The ORC was successful with four (4) of the projects, specifically related to flood protection, in receiving an offer of PGF grant funding of approximately $5,440,000. The value of the ORC co-funding component required was $3,060,000. The total project cost across the projects was $8,500,000.

[16] The Contour Channel was one of the four (4) projects that previously received funding from Kānoa, as part of the 'Shovel Ready' 2020 programme of works. This work comprised of 3km floodbank reconstruction and the replacement of two bridges. This work is currently due to be completed by December 2024, six months ahead of the required Ministry agreement deadline.

[17] The remaining three (3) projects; Riverbank Road Flood Protection (Lower Clutha), Robson Lagoon Structure Upgrades (Lower Clutha) and Outram Floodbank Protection have all been successfully completed with all aspects of the grant funding agreement achieved and complied with.

2022 Second Tranche Co-investment Business Case 'Before the Deluge'

[18] ORC, along with other Regional Councils provided input into a co-investment case which was submitted to Government in December 2022 as a *second tranche*[3] of Climate Resilience Programme projects, following the success nationally of the current 'shovel ready' (Climate Resilience) tranche of funding.

[19] The *second tranche* co-investment case was named 'Before the Deluge', and it was an attempt nationally through Regional Councils to secure a permanent budget line with Central Government for funding towards resilience against flood risk/prone areas.

[2] Council was briefed and asked to approve this funding on 30th September 2020 at Council Meeting (public excluded)

[3] Council was updated on this second tranche at the Safety & Resilience Committee on the 10th of August 2023 with a paper on Programme Update; Climate Resilience, Flood repairs and Projects.

[20] The Before the Deluge submission, was led by the River Managers' Special Interest Group (River SIG) which prepared a co-investment business case of 92 projects amounting to $428m.

[21] These projects supported the following key principles generally, which followed the same principles from the 'shovel ready' funding;

a. Being able to be completed in three years;
b. Regional co-investment funding is available;
c. Projects in communities with lower socio-economic status would be favoured for funding.
d. All projects will accelerate adaptation to climate change;
e. All projects will enable communities adjacent to the projects to receive a higher level of flood risk resilience; and
f. The projects reflect the application of Te Mana o Te Wai / environmental principles.

[22] A national overview of the flood protection schemes is represented below in Figure 2, which is an extract from the 'Before the Deluge' proposal for co-investment in river management and flood protection document.

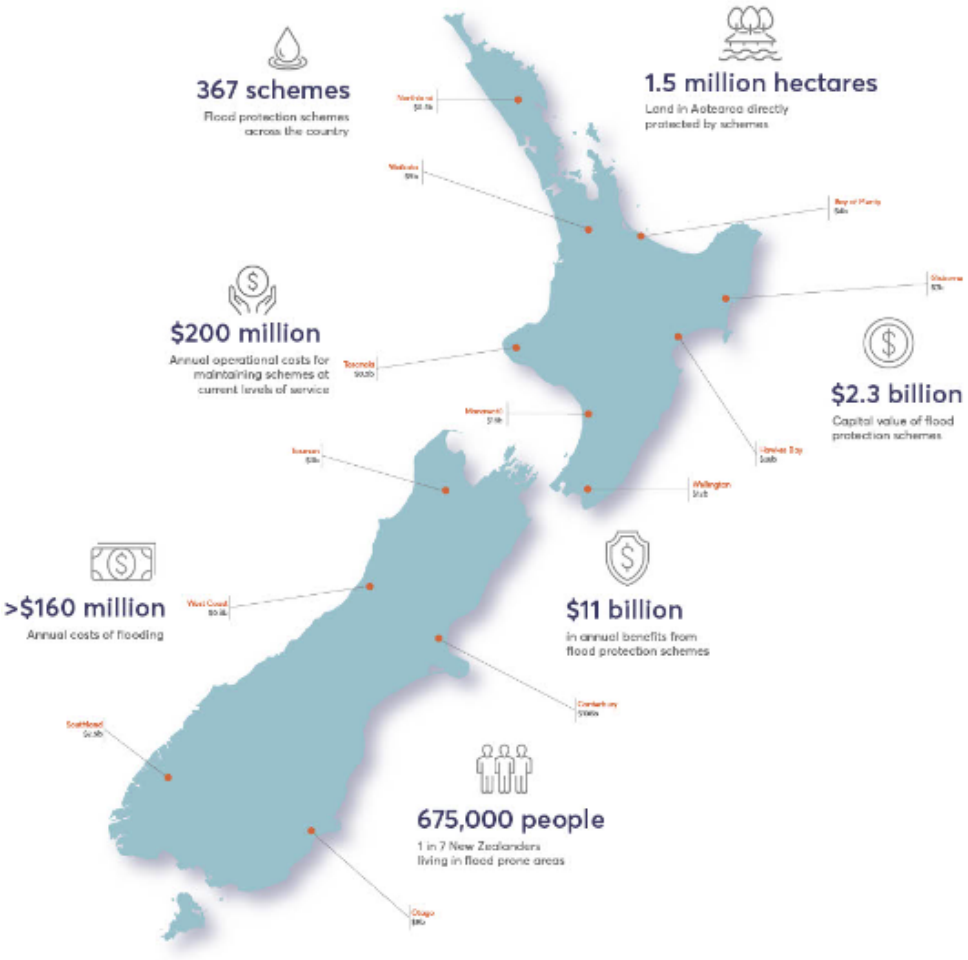


Figure 2: Overview nationally of the flood protection schemes.

[23] The document 'Before the Deluge' that was initially presented to Government is included in Appendix C for context.

[24] The River SIG was advised on 18 May 2023, through the Government's Wellbeing Budget 2023 (Support for today, Building for tomorrow) announcement, that the *second tranche* of Climate Resilience funding as presented through the co-investment case of "Before the Deluge" was not successful as a permanent budget line item.

[25] Funding would instead to be directed to Westport ($22.9M) and the North Island extreme weather recovery ($100M) efforts.

[26] The River SIG continued to engage with Central Government to consider opportunities for funding towards the co-investment case that was put forward in December 2022.

2023 Second[4] Tranche Co-investment Business Case 'Before the Deluge 2.0'

[27] In November 2023, Te Uru Kahika submitted an updated business case for co-investment in flood management and river management infrastructure named 'Before the Deluge 2.0' (refer Appendix A) in response to the impact of extreme weather events, including Cyclones Gabrielle and Hale. Within this report, 80 projects amounting to $428M were identified across New Zealand which were identified as requiring Central Government support through funding to strengthen climate resilience and improve regional infrastructure.

[28] Councils were asked to apply the principles for all projects submitted in the revised co-investment business case based on the following:

a. Providing maximum value to the community and improving rate payer affordability
b. Protecting and improving resilience of regionally strategic infrastructure
c. Council's ability to co-fund and deliver the programme of works, and
d. The project's status in terms of advancing to the construction phase.

[29] ORC submitted a refined list of seven (7) projects (refer Appendix D) reduced from the original fourteen (14) for consideration in the revised co-investment business case (refer Appendix E). These projects were selected based on an assessment of how 'ready' the projects were to progress into a construction phase.

[30] During May 2024, a further request for information was received from Central Government requiring specific information relating to the consent status of each project and the ability to start construction works within the 2024/2025 construction season.

[31] For ORC it was realised that the continuation of the Contour Channel was the only ORC project that was currently consented and enabled to commence construction in the 2024/2025 season. Within this project, it includes a bridge replacement which was fully consented, procured and planned to commence construction in October 2024 under the current Long Term Plan 2024 – 2034.

[4] MBIE have referred to the "second tranche" as Flood Protection Work Tranche 1 moving forward to reflect to renewed approach with the provision of grant funding for resilience work under current Central Government.

[32] On the 14th of May 2024, Minister Patterson (Associate Minister for Regional Development) visited the Taieri, including a site visit to the Contour Channel project. The visit was attended by ORC Chair Gretchen Robertson, ORC Deputy Chair Lloyd McCall and ORC staff. The project was discussed during the visit including the benefits to the community and the ability for the project to commence within the coming 2024/2025 construction season.

[33] In June 2024, ORC was requested by Kānoa to submit a funding application (Appendix F) specifically for the continuation of the Contour Channel project only. The application was completed and provided to Kānoa on 18 June 2024.

[34] Te Uru Kahika [5]announced on the 12th of August 2024 that Central Government funding, first signalled in Budget 2024, was confirmed by Minister for Regional Development Hon. Shane Jones to enable 42 projects across Regional and Unitary Councils to have access to grant funding of $101.1M in addition to their own funded programme of works for projects relating to the resilience of flood-prone communities and essential infrastructure across New Zealand.

[35] ORC was successful with the project selected by Ministry being the continuation of the Contour Channel (West Taieri) Resilience Upgrade.

[36] The ORC through the co-investment opportunity will continue to maintain a collaborative approach with the Regional Council River Managers' Forum (RMF) SIG to ensure as a sector, we are consistent in programme delivery. This is required by Ministry as co-investment project funding has been based on the delivery approach of the previous "Shovel ready" 2020 Climate Resilience programme.

DISCUSSION

[37] ORC's flood protection schemes provide flood protection to reduce flood risk or approximately 27,300ha of land. This includes approximately 18,000ha on the Taieri and 9,300ha in the Lower Clutha. In the recent floods and weather events, the schemes have performed to expected levels of service however some assets require repair and/or renewal through asset management risk assessment or as a result of flooding and weather events.

[38] The Contour Channel was originally built in the 1900s to intercept runoff from the Maungatua Range and uses gravity to the Waipori River. It protects 7,300ha of farmland and the Dunedin Airport. The project scope is similar to the previous stages with the reconstruction of higher and wider floodbanks and associated asset renewals.

[39] The existing floodbank has an undulating profile which promotes concentration of overtopping in an uncontrolled manner during flood events exposing parts of the floodbank to relatively rapid failure. The floodbank was constructed using horse and cart techniques utilising often variable material from the channel excavation. The floodbank is not considered to be constructed to an acceptable modern standard.

[40] The Contour Channel traverses multiple land parcels. To ensure landowners retain access, bridges were built across the waterway, allowing them to reach their properties even though the Channel's original construction might have otherwise obstructed their

[5] Media release by Te Uru Kahika on 12th August 2024. ORC media release on 12th August 2024

access. These bridges are ORC owned assets, many are in poor condition and require repair or replacement as set out in ORC's Asset Management Plan for Flood Protection, Land Drainage and River Management infrastructure.

[41] The continuation of the Contour Channel (West Taieri) Resilience Upgrade Project includes the reconstruction of floodbank from Miller Road to Woodside Road, which is approximately 6.5 kilometres, including the replacement of up to three bridges. Refer to Appendix G for the location of the Contour Channel on the Taieri and the section of Project works.

[42] The Project will include procurement of multiple packages of work including design, consenting and physical works. Bridge 14 has already received resource consent and is scheduled to commence in October 2024. Procurement for design services for earthworks will take place within the next two months.

LONG TERM PLAN AND FINANCIAL IMPACT

[43] A summary of the Total Project cost including grant funding and co-funding is summarised in Table 1:

Table 1: Summary of Total Project Cost

Project Description	Total Project Cost (,000)	RIF Grant Funding (,000) 60%	ORC Co-funding required (,000) 40%
Contour Channel (West Taieri) Resilience Upgrade Project	$9,000	$5,400	$3,600

**refer to Appendix H for Investment Programme from Infrastructure Strategy*

[44] The RIF grant funding provides ORC with grants *up to* $5,400,000 for the Project. It also requires the ORC to provide co-funding *up to* $3,600,000.

[45] The continuation of the Contour Channel (West Taieri) Resilience Upgrade project and West Taieri Drainage Scheme Bridge renewals are currently included as capital items with the value of $10,841,000 within the 2024-2034 Long Term Plan, refer to Appendix H.

[46] The LTP budget has already been confirmed through the recent LTP consultation and Council adoption of LTP processes.

[47] As noted within the LTP Financial strategy, ORC funding for infrastructure capital projects is repaid over a 30 year period.

[48] The funding for the Contour Channel (West Taieri) Resilience Upgrade project sits across both the Lower Taieri Flood Protection Scheme (for the floodbank works) and the West Taieri Drainage Scheme (for the bridge works) LTP investment programmes. This is summarised by the below table 2:

Table 2: Long Term Plan budget allocation

LTP Investment Programme	LTP 2024-2034 budget allowance Years 1 (24/2025) to 9 (32/2033) (,000)	Co-Funding Required in Years 1 (24/2025) to Year 3 (27/2028) (,000)	Grant funding (,000)	Total Project cost (,000)
Lower Taieri Flood Protection Scheme	8,810*	3,000	4,500	7,500
West Taieri Drainage Scheme	2,031**	600	900	1,500
Totals	**10,841**	**3,600**	**5,400**	**9,000**

**The LTP budget was structured to allow for the total Project Cost which includes Grant Funding and Co-Funding. The value of $8,810 includes contingency and inflation to account for assumptions over the 9-year LTP programme.*
*** This budget includes $500,000 for other bridge work which is not a part of this project.*

[49] The grant funding provided by the Ministry will accelerate the Project to be delivered within three (3) years. There is sufficient funding allocated within Years 1 to 4 of the LTP budget to meet ORC's co-funding requirements as shown by Tables 1 and 2.

[50] The total Project cost is inclusive of all expenditure related to Consultants and Contractors required to support the delivery of the programme, this was also the case with the previous co-investment programme.

[51] The acceptance of the RIF Grant Funding Agreement will require ORC to provide sufficient cash flow facility to progress the project milestone amounts (Appendix B; RIF Funding Agreement, Appendix Two) which will be reimbursed by quarterly Payment Requests to the Ministry with the Grant Funding amount.

[52] A review of the RIF Grant Funding Agreement provided to ORC (and other regional councils) has highlighted terms and conditions that the ORC will need to accept with very little ability to influence or amend the standard terms and conditions.

[53] Legal and Engineering have reviewed the RIF Grant Funding Agreement, and consider it to be acceptable to ORC, which has precedent with ORC already complying with a similar funding agreement with the 2020 shovel ready co-investment programme.

[54] Key elements of the RIF Grant Funding Agreement to be noted are:

a. Conditions Precedent (Part 1 clause 5)

No Funding is payable under this Agreement until the Ministry has confirmed to the Recipient in writing that it has received, and found, in its sole discretion, to be satisfactory to it in form and substance, the following documents and evidence:

Co-funding: a copy of a letter from the Recipient confirming any co-funding commitments and evidence of any co-funding commitments;

Financial information: a final, updated, budget setting out the funding and application of funds in relation to the Project(s) and the financing thereof, including all fees, costs and expenses (including taxes) in connection with the same;

Consents: a copy of the resource consent(s) and building consent(s) to enable physical work to commence and progress without delay in construction season 2024/2025;

Construction Insurance certificates: if required by the Ministry, evidence, by way of letter, that the Recipient has (or its broker on its behalf has) addressed all required insurance requirements; and

Confirmation of physical works commencement: written confirmation that the Project(s) will commence physical works in construction season 2024/2025.

These conditions precedent must be satisfied within a two-month period from the date of signing this Agreement, unless agreed otherwise in writing with the Ministry. In the event that they are not satisfied within that time, the Ministry may notify the Recipient that this Agreement has not come into effect and is null and void.

b. Additional Undertakings

The Recipient undertakes to deliver broader procurement outcomes (where appropriate) through this project, and is required to demonstrate, through its procurement processes, employment and upskilling opportunities, including for:

- participation of Māori businesses and local firms to deliver goods, services and capital works to support improved supplier diversity and local opportunity;
- supporting local people into local job opportunities and improved conditions for workers to improve wellbeing in regions;
- environmental and broader community benefits; and
- supporting the transition to a net zero emissions economy and reduction in waste to support meeting the Government's goals.

c. Payment Request

Payments under the Grant Funding Agreement will occur quarterly and be based on Eligible Costs that have been incurred for that Quarter. Eligible Costs means the actual costs reasonably incurred by the ORC (Recipient of Grant Funding). This is very similar to how the funding arrangement works with NEMA for flood recovery/repair claims.

[55] With regard to para [54] (c) the previous co-investment funding agreement facilitated forecasted expenditure and actual costs incurred. This is a key difference in this RIF

Grant Funding Agreement, that the milestone payments and quarterly Payment Request are based on actual costs incurred.

PROJECT MANGERMENT RESOURCES

[56] The key personnel who will provide project governance and authority listed in the RIF Grant Funding Agreement are:

Key Personnel	Respective Roles	Project requirement	% FTE for duration of Project
Richard Saunders	Chief Executive Officer	As required through authority and approvals	<5%
Nick Donnelly	Chief Financial Officer	As required through authority and approvals	<5%
Tom Dyer	General Manager Science and Resilience	As required through authority and approvals	<5%
Michelle Mifflin	Manager Engineering (Recipient contact person under agreement)	As required through approvals and communications with River SIG and MBIE	<5%
Brett Paterson	Programme Delivery Team Leader	As required through detailed project oversite including project planning, implementation, delivery, and reporting	25%
Michael Burrows	Project Manager	Day to day management of the project including project planning, implementation, delivery, and reporting. Key contact for suppliers and stakeholders	75%
Felicity Murdoch	Project Analyst	As required through project planning, implementation, delivery and reporting. Key contact for Ministry reporting and engagement	25%

[57] The project management staff for delivery of this Project will include current staff listed in para [56]. The LTP 2024 – 2034 provides for a new 1 x FTE for a Project Engineer/Junior Project Manager to be recruited in Annual Plan 26/2027 (Year 3).

[58] As mentioned earlier in this paper, the ORC Engineering Programme Delivery staff have successfully delivered four (4) projects with Central Government funding since 2020. During this time we have been able to develop a high standard of capability and experience that has enabled the success of our project delivery. This includes meeting the level of reporting and requirements expected with the Ministry agreements.

OPTIONS

[59] Council has two options to choose from, as follows.

[60] Option 1: Status Quo. Do not accept Ministry's offer and do not enter into a funding agreement.

a. Advantages

i. Maintain business as usual only, as set out in the Long Term Plan 2024 - 2034 and Infrastructure Strategy 2024 - 2054 including essential flood repairs (no acceleration of work programme).

b. Disadvantages

i. The loss of a funding grant which avoids targeted rates of approximately $5,400,000 over the next 9 years.

ii. The repair and acceleration of work programmes for the contour channel assets will remain the subject of long-term planning and funding through rates.

iii. The exposure to flood events and health and safety risks for some of these flood protection assets remains.

iv. It would potentially dissuade government from making further offers of funding in the future.

v. Reputational risk to the ORC with Central Government that it was unable to meet funding requirements despite participating in the business case presented to government.

[61] Option 2: Accept the offer. Enter into the RIF Grant Funding Agreement with the Ministry (Appendix B)

a. Advantages:

i. Reduced direct cost to ratepayers through the provision of a central government grant

ii. Fast tracking of work programmes from 9 years to 3 years

iii. Improved flood protection resilience on the Lower Taieri, in particular West Taieri

iv. Improved levels of service for the community.

v. Improved environmental outcomes such as reduced overland flows and reduced erosional effects.

vi. Increased community resilience through positive engagement at Regional Council and Central Government levels.

vii. Proven and demonstrated ability to deliver and comply with Ministry Agreements

b. Disadvantages:

i. ORC has very little ability to amend the government's standard terms and conditions.

ii. Commits ORC to completing the project with any possible overrun costs to be met by ORC.

iii. There are additional reporting and other administrative requirements over the duration of the agreement that would not be required if ORC was the sole funder.

CONSIDERATIONS

Strategic Framework and Policy Considerations

[62] The Ministry's requirements around "Additional Undertakings" need to be adhered to and incorporated into project contracts where possible.

Financial Considerations

[63] The Continuation of the Contour Channel (West Taieri) project has received full funding through ORC's Long Term Plan 2024-2034, however this funding is currently projected over a nine (9) year period. The funding from Central Government allows the work programme to be brought forward and be delivered over a period of three (3) years which includes significant asset renewal and upgrade.

Significance and Engagement Considerations

[64] The proposal does not trigger ORC's Significance and Engagement Policy, as the continuation of the Contour Channel project has been consulted on through the Long Term Plan 2024 – 2034 process, which has resulted in the Project and expenditure adopted into the Long Term Plan 2024 – 2034.

Legislative and Risk Considerations

[65] ORC is operating under the provisions of the Soil Conservation and Rivers Control Act 1941.

[66] The risk of exceeding funding estimate is carried by ORC and treated through long term planning rating processes and scheme reserves.

[67] The works require resource consent, some of which have been obtained already however further consenting is required to meet the project obligations. This may present a risk to timely delivery of the works.

[68] Contractual obligations included in the RIF Grant Funding Agreement extends liability to ORC through termination provisions and providing Ministry with powers to intervene at any time.

[69] Community opportunity for essential asset upgrade, renewal and improvement through funding which allows targeted rating to provide funding towards key areas of climate resilience and continuous improvement of scheme management and accelerates work programs by years.

[70] The risk of exceeding the funding estimate is carried by ORC and treated through long term planning rating processes and scheme reserves.

[71] There will be two (2) months to achieve the Conditions Precedent to ensure that the Ministry is satisfied that ORC will meet its obligations under the RIF Grant Funding Agreement to receive funding.

[72] The funding cash flow for the Milestones and quarterly Payment Request depends on the acceptance of the RIF Grant Funding Agreement by Council.

Climate Change Considerations

[73] The Project aligns with ORC's Climate Change strategies, primarily being adaptation through building community resilience and protecting key infrastructure.

Communications Considerations

[74] There are no communications considerations with receiving this report.

[75] Schedule 2 of the Grant Funding Agreement outlines communication and reporting requirements to Kānoa, including monthly and quarterly reporting. Reporting requirements include the following:

i. Schedule updates
ii. Actual spend versus budgeted spend
iii. Forecast cost to completion
iv. Planned spend for next three months
v. Amount paid to contractors and suppliers
vi. Emerging risks

[76] This is similar to previous communication and reporting requirements within the current 'Shovel Ready' programme of works.

[77] Communications with Kānoa will primarily be undertaken by the Project Delivery Team in conjunction with the ORC Communications team. All communications and media releases are required to be approved by Kānoa as set out in the Grant Funding Agreement.

[78] On the 15th August 2024, the funding announcement was reported in the Otago Daily Times through the ORC Communications team, following the Te Uru Kahika media release on the 12th August 2024.

NEXT STEPS

[79] Accept and execute the Funding Agreement by the Chief Executive.

[80] Engage with affected landowners and secure necessary access arrangements and finalise agreements.

[81] Commence procurement of required suppliers and contractors for the Project. Procurement will occur in accordance with ORC Procurement and Contract Management Policy and the programme timing.

[82] Establish the Programme Delivery team focussed on the Project for the duration of the RIF Funding Agreement, which includes recruitment of the allowed 1 x FTE Project resource into the Programme Delivery team.

ATTACHMENTS

1. Appendix A - Before the Deluge 2.0 [**10.7.1** - 77 pages]
2. Appendix B RIF Template Grant Funding Agreement Flood Resilience 160824 [**10.7.2** - 28 pages]
3. Appendix C - Before the Deluge [**10.7.3** - 105 pages]
4. Appendix D Projects Submitted to Kanoa by ORC for Before the Deluge 2 0 [**10.7.4** - 2 pages]
5. Appendix E Projects submitted by ORC as part of Before the Deluge v 1 [**10.7.5** - 1 page]
6. Appendix F RIF Application Form for Before the Deluge 2 0 Contour Channel [**10.7.6** - 9 pages]
7. Appendix G Map of Contour Channel [**10.7.7** - 2 pages]
8. Appendix H Extract from IS Investment Programme [**10.7.8** - 2 pages]

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

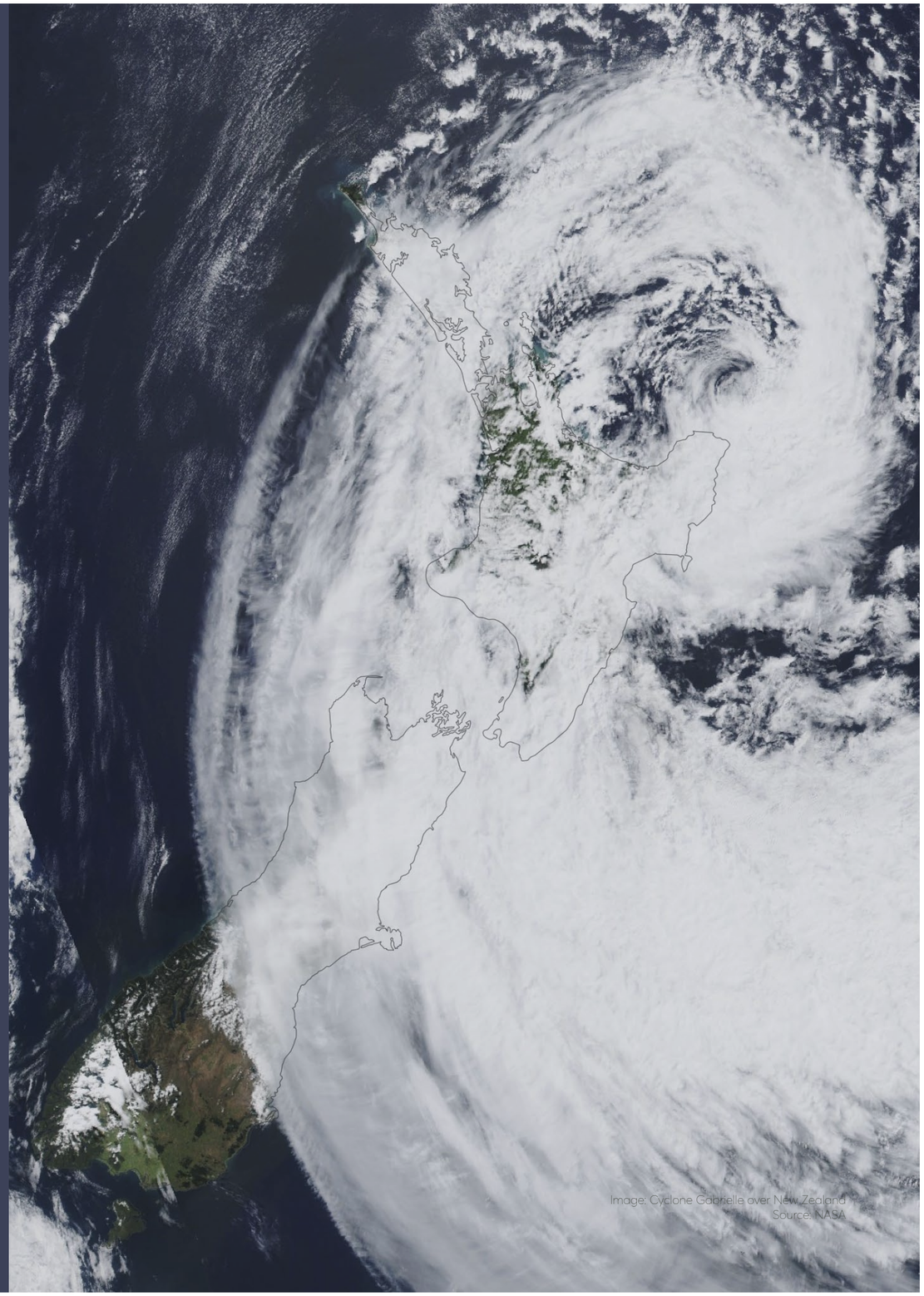


Image: Cyclone Gabrielle over New Zealand
Source: NASA

Navigating this document

Executive Summary 5

Provides an overview of our refreshed case for central government co-investment in flood management infrastructure, within the context of New Zealand's growing flood risk and the challenges ahead in building our nation's 'climate change-induced' flood resilience.

Strategic Case 20

Sets out the path to building resilience using a multi-tool Protect, Avoid, Retreat, Accommodate (PARA) approach, within the context of changes since our last proposal. We showcase proposed projects' alignment with PARA, and indicate strategic alignment with government priorities.

Economic Case 58

Assesses our options against critical success factors to identify the preferred path forward in the immediate future (i.e., this business case) and over the longer-term (i.e., our decade-long pipeline of work). We explore the cost-benefits of investment here, showcased through select case studies.

Commercial Case 79

Details the regional sector's high-level of capacity and capability in delivering the proposed 80 projects on-time and to budget, and outlines how the investment and projects will be staged over the next three years.

Financial Case 90

Breaks down the summary of co-investment between central government and regional councils, and indicates the fall of capital over the next three years.

Management Case 93

Outlines our approach to the project delivery and management of risks, within a proven and well-established framework for governance. We incorporate accountability structures (i.e., reporting and post-investment review) into this framework to ensure confidence in this investment.

Recommendations 98

Provides a summary of our case for change, and outlines the recommendation for Cabinet, which is to approve the co-investment of $197.61 million in cap-ex for 80 'shovel-ready' flood management infrastructure projects to be completed by 2026/27.

Appendices 103

Includes the following appended materials: project lists, staging by councils, and, letters of support from the regional sector for this programme of work.

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

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

Cyclone Hale
10-12 Jan

- 1 (Tairāwhiti)
- 1 death (slash)
- Damage to homes
- Debris slides
  Damage to SHs, roads, bridges cut off communities
- Widespread comms and utilities outages

Cyclone Gabrielle
11-17 Feb

- 6
- 11 deaths
  1,720 ACC injury claims (accepted)
- >300 homes red-stickered
  Over 10,000 people displaced
- 30 sections of SH closed;
  $5B to $7B damage to Crown and local govt infrastructure
- 332,000 households without power
- $11.5M for community response
  $889M repair works and business support
  $556M recovery cost-sharing package (5 councils)

$9B - $14.5B
Treasury estimate of total damage from Auckland floods and Cyclone Gabrielle

Torrential rains and flooding
9-10 May

- 1 (Auckland)
- 1 death (Northland)
- Damage to homes
  School closures
- Several road closures
  Transport disruptions

Heavy rain and flooding
22-24 Jun

- 1 (Tairāwhiti)
- Over 130 residents evacuated
- SH closures
  91 local roads damaged or closed, restricting access to region
- Grid emergency in Hawke's Bay / Gisborne
- $200M recovery package

Ex-tropical Cyclone Lola
30 Oct

- School closures
- SH closures
  Roads damaged and closed
  Transport disruptions
- Power outages due to damage

We are here

Dec 2022

'Before the Deluge' co-investment case submitted by the Regional Government sector

Auckland Anniversary Weekend floods
27 - 31 Jan

- 3
- 4 deaths
  3 injuries
  126 rescues
- >$1.8B insurance claims (homes, vehicles)
- Closure of SH, roads, and rail networks
  Wastewater spillage into harbour
- Over 26,500 homes without power
- $1.1M Mayoral Relief Fund (Auckland)
  $700,000 to other areas of North Island

Jun 2023

Budget 2023

- **$804M** for infrastructure in affected regions
- **$100M** for flood protection
- **$130M** for business and community support, targeted support for Māori and rural communities

Heavy rain and flooding
21-23 Sep

- 2 (Queenstown, Southland)
- 100 homes evacuated
- SH closures
  Damage to school and water treatment plant
- Widespread electrical outages

Dec 2023

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**

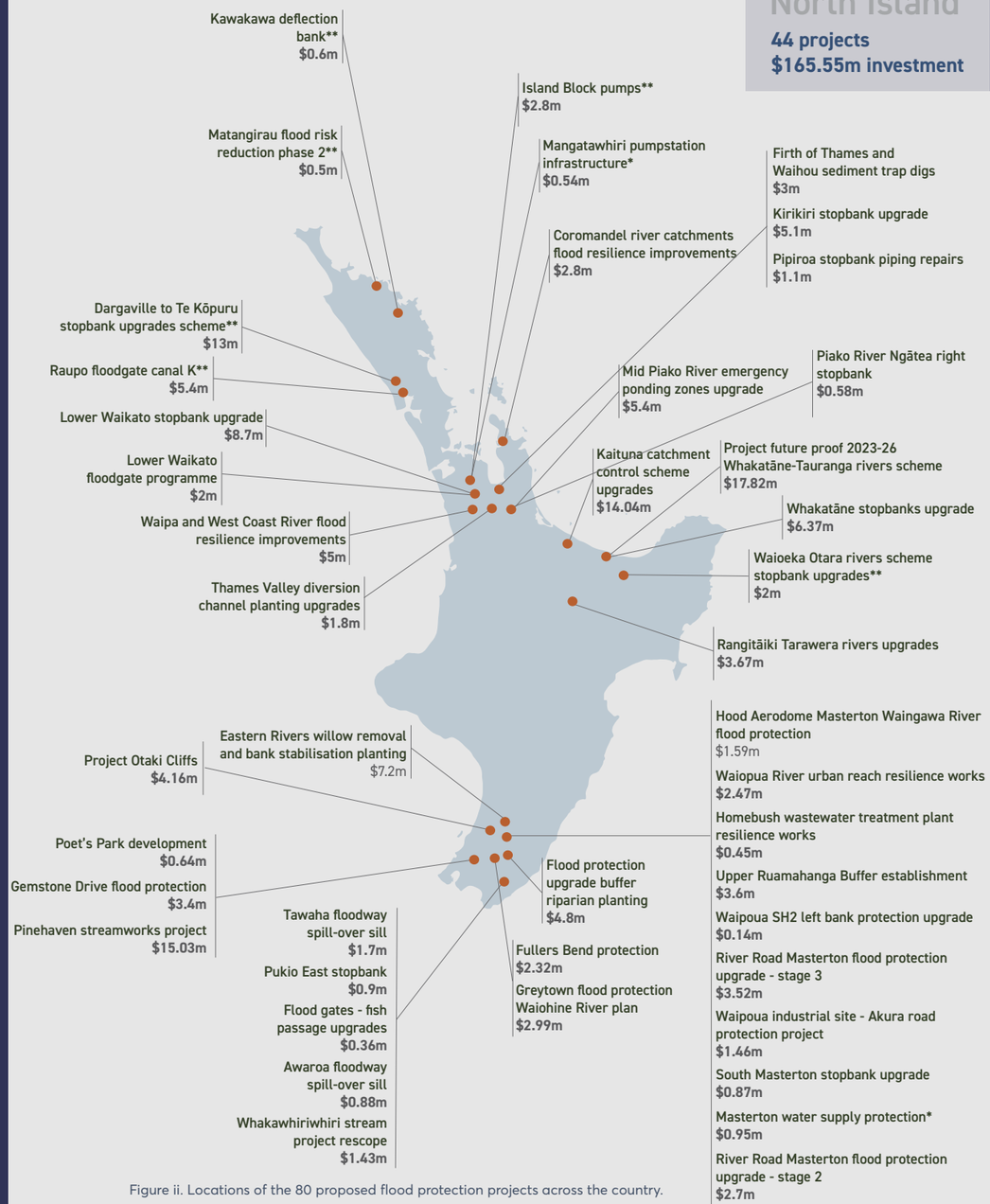
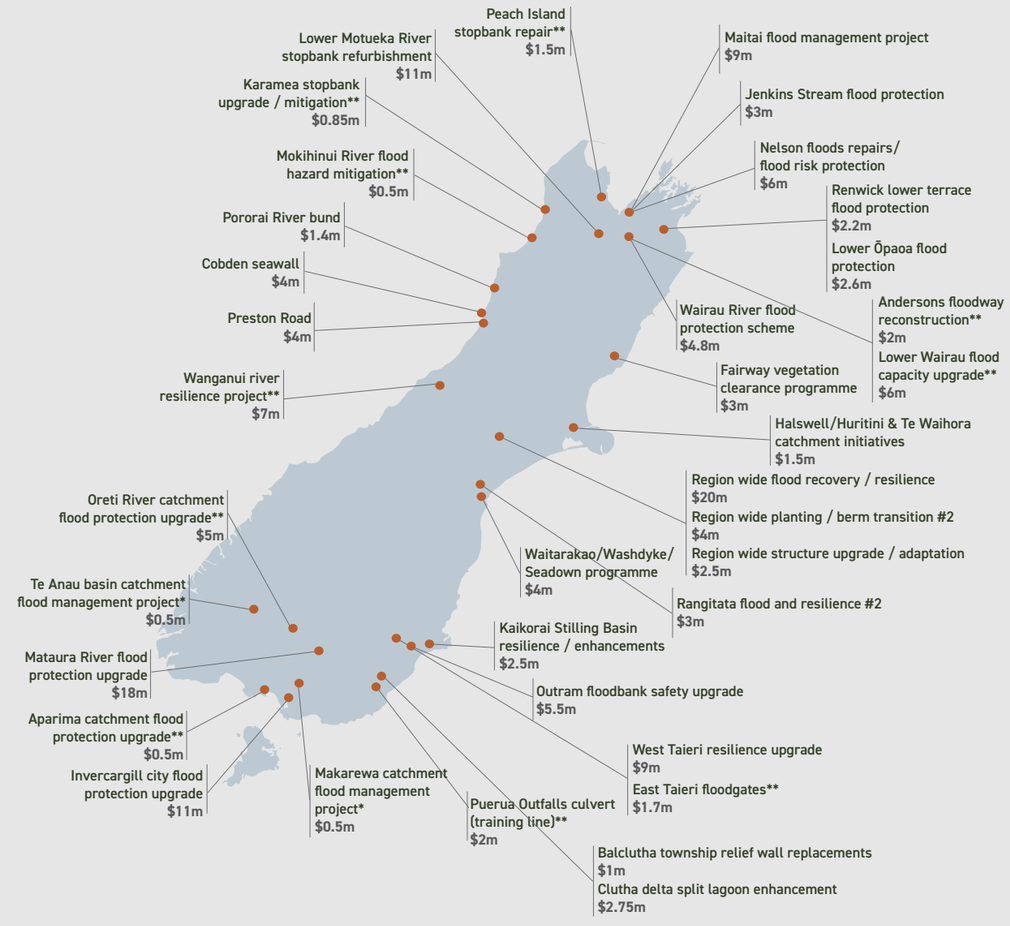


Figure ii. Locations of the 80 proposed flood protection projects across the country.

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.



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.

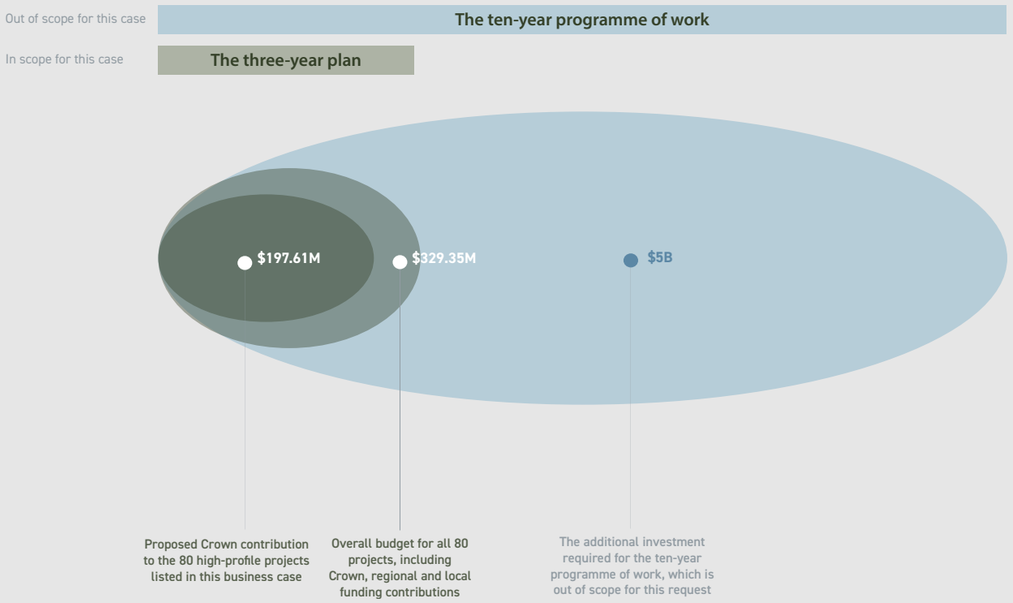


Figure iii. An overview of the coinvestment required across central government and the regional sector in the near (3 years) and long term (10 years).

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.

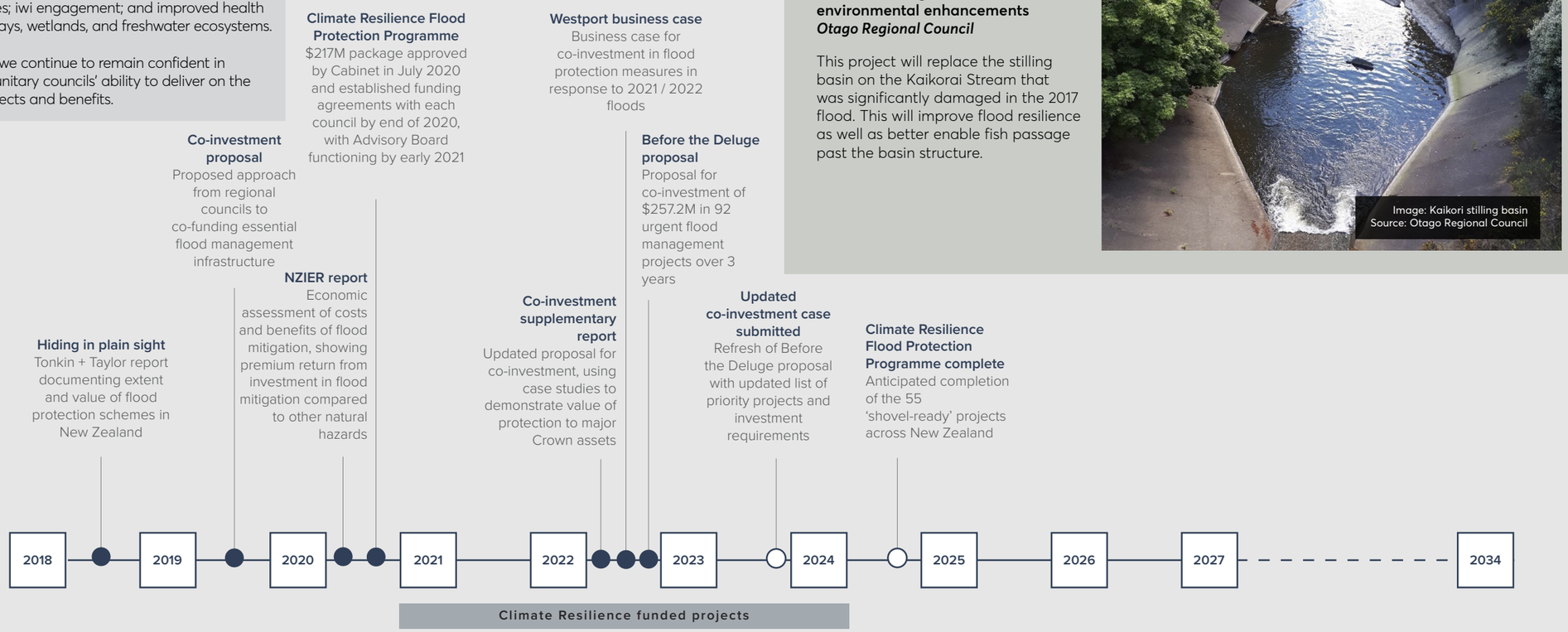


Figure v. Timeline showing the regional sector's long-term flood resilience programme of work in New Zealand.

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.

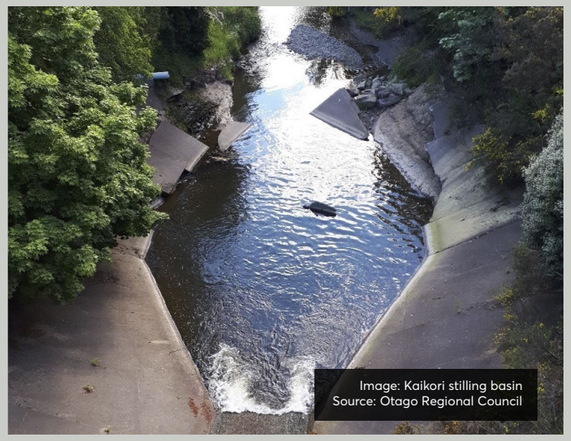


Image: Kaikori stilling basin
Source: Otago Regional Council

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.

Refreshed co-investment case

Te Uru Kahika Regional and Unitary Councils Aotearoa

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.

EXECUTIVE SUMMARY

	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.

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.

21 » **Flood risk in New Zealand**

The scale of the challenge we're dealing with, along with the scope and objectives of our co-investment proposal.

23 » **Building our flood resilience**

Outlining the need for a multi-tool PARA approach and integration of ecosystem perspectives; with case examples of councils applying these frameworks.

34 » **Our work to date**

Overview of the regional sector collective and the River Managers' Special Interest Group (SIG) programme of work to date, including our current co-investment case.

40 » **Context for the refreshed case**

A timeline of events since *Before the Deluge* was submitted in 2022, and a discussion of what's changed since, along with implications for our proposal.

52 » **The path forward**

Where do we go from the current state and what does the path forward (i.e., partnership) look like.

54 » **Strategic alignment**

How our investment proposal aligns with incoming government priorities and existing strategic objectives.

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].

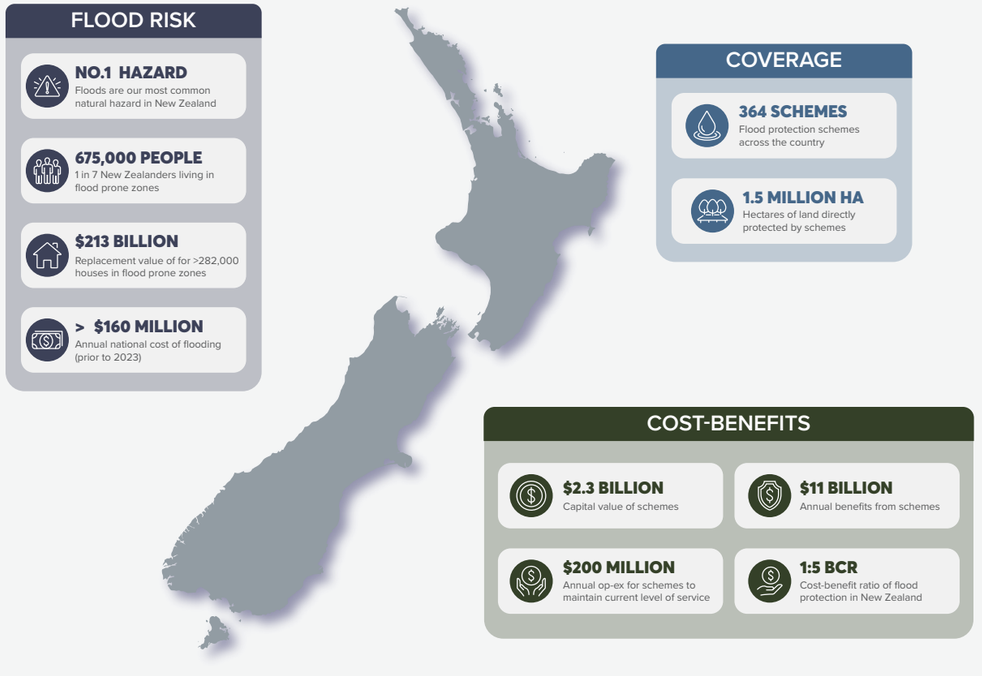
While there are fluvial (riverine), pluvial (extreme rainfall), or coastal floods, it is riverine flooding that poses the biggest risks to life in New Zealand. Fluvial flooding is also the main focus of our co-investment case, although pluvial and coastal flooding may also occur in tandem as a result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

THE CURRENT STATE OF FLOOD PROTECTION IN NEW ZEALAND



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.

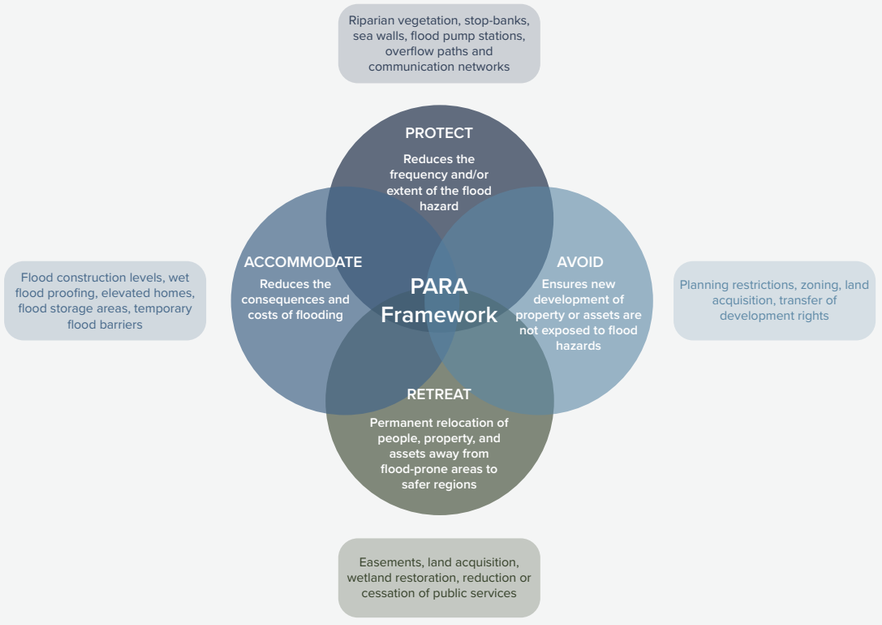
We've had first-hand and recent examples of how much extreme weather events can cost us. As these events become more common, adaptation to protect lives and livelihoods become more important.

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.

Image source: Environmental Protection Agency

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.

Refreshed co-investment case

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.

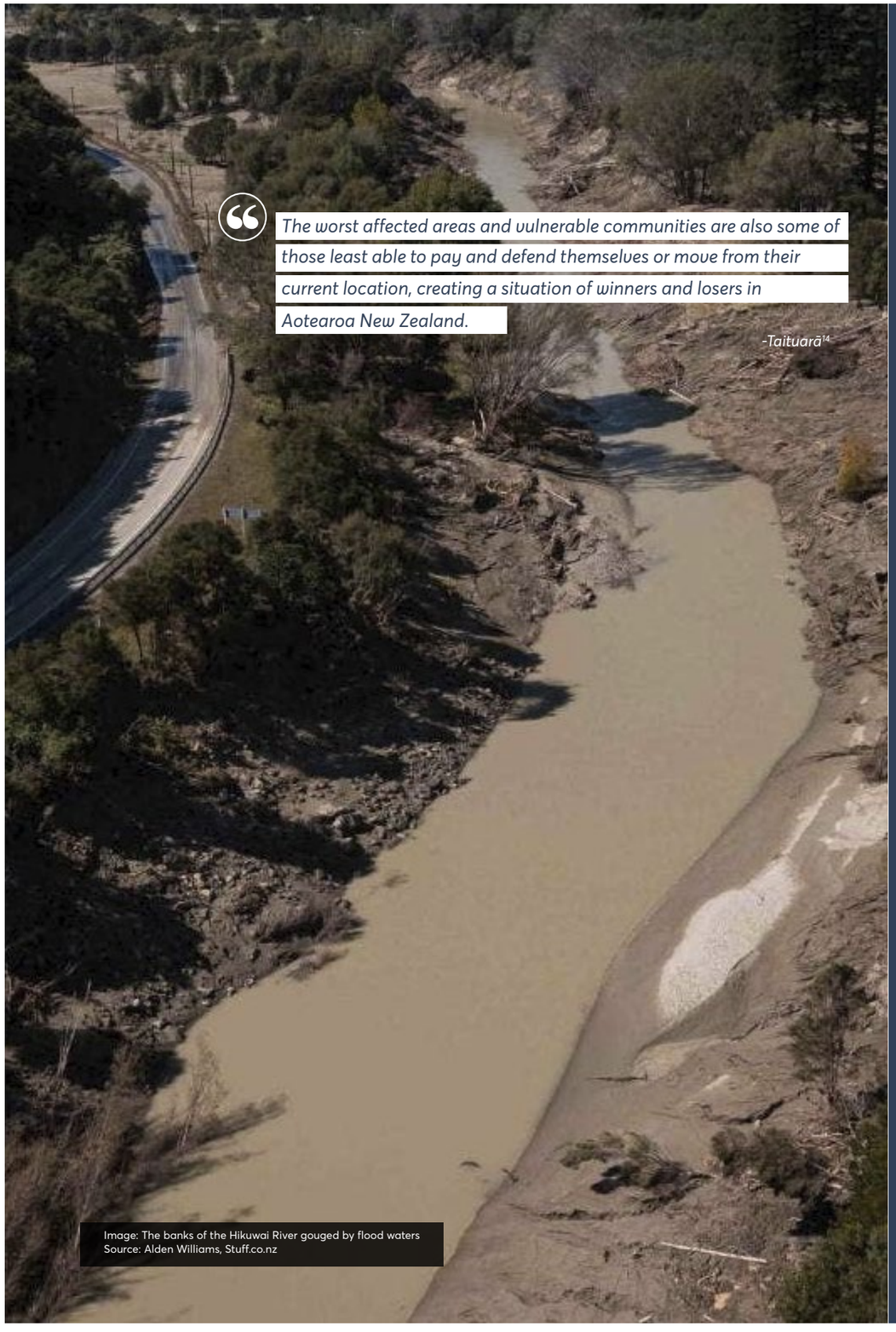


Image: The banks of the Hikuwai River gouged by flood waters
Source: Alden Williams, Stuff.co.nz

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.

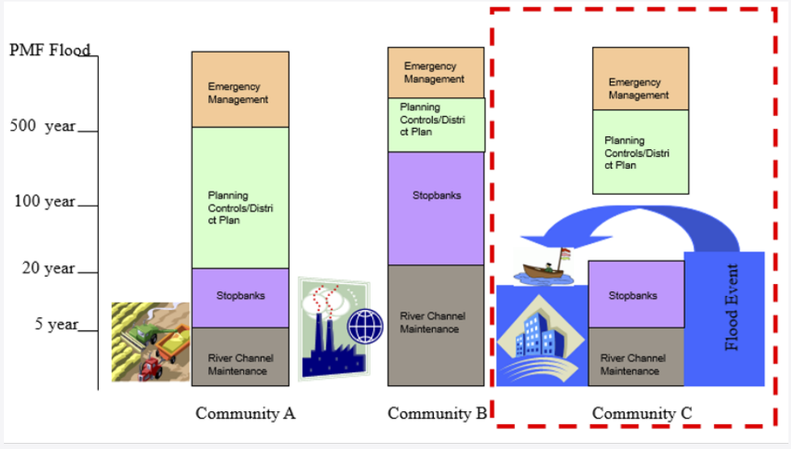


Figure 3. Community scenarios illustrating the importance of Greater Wellington's PARA approach in managing flood hazards.

* 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.

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.

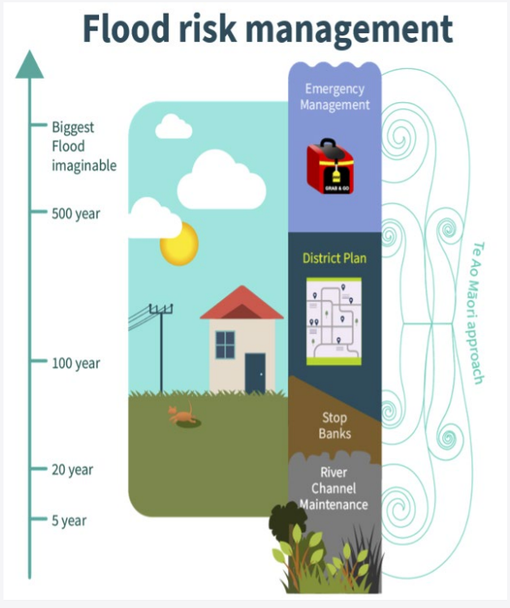


Figure 4. Community scenarios illustrating the importance of GWRC's PARA approach in managing flood hazards.

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.

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.

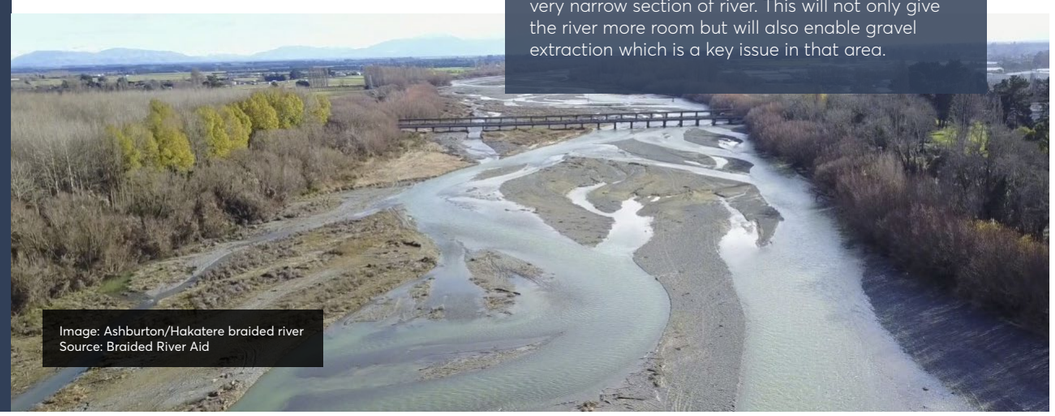


Image: Ashburton/Hakatere braided river
Source: Braided River Aid

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.

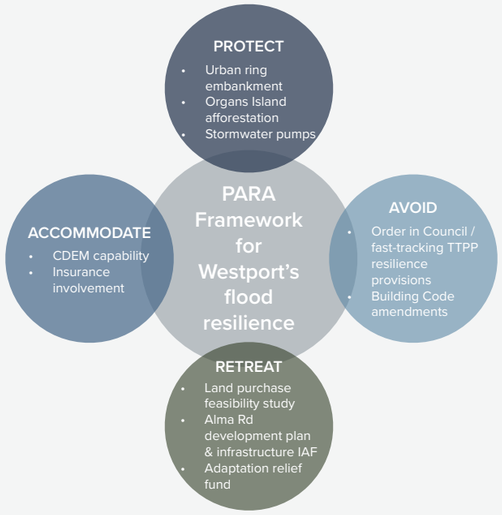
Combined, this package of initiatives was estimated to avoid at least $400 million in direct damages to buildings alone, let alone the wider human, economic, and social costs.

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)

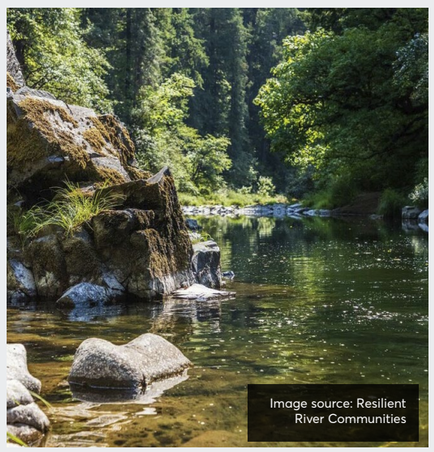


Image source: Resilient River Communities

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.

Refreshed co-investment case

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.

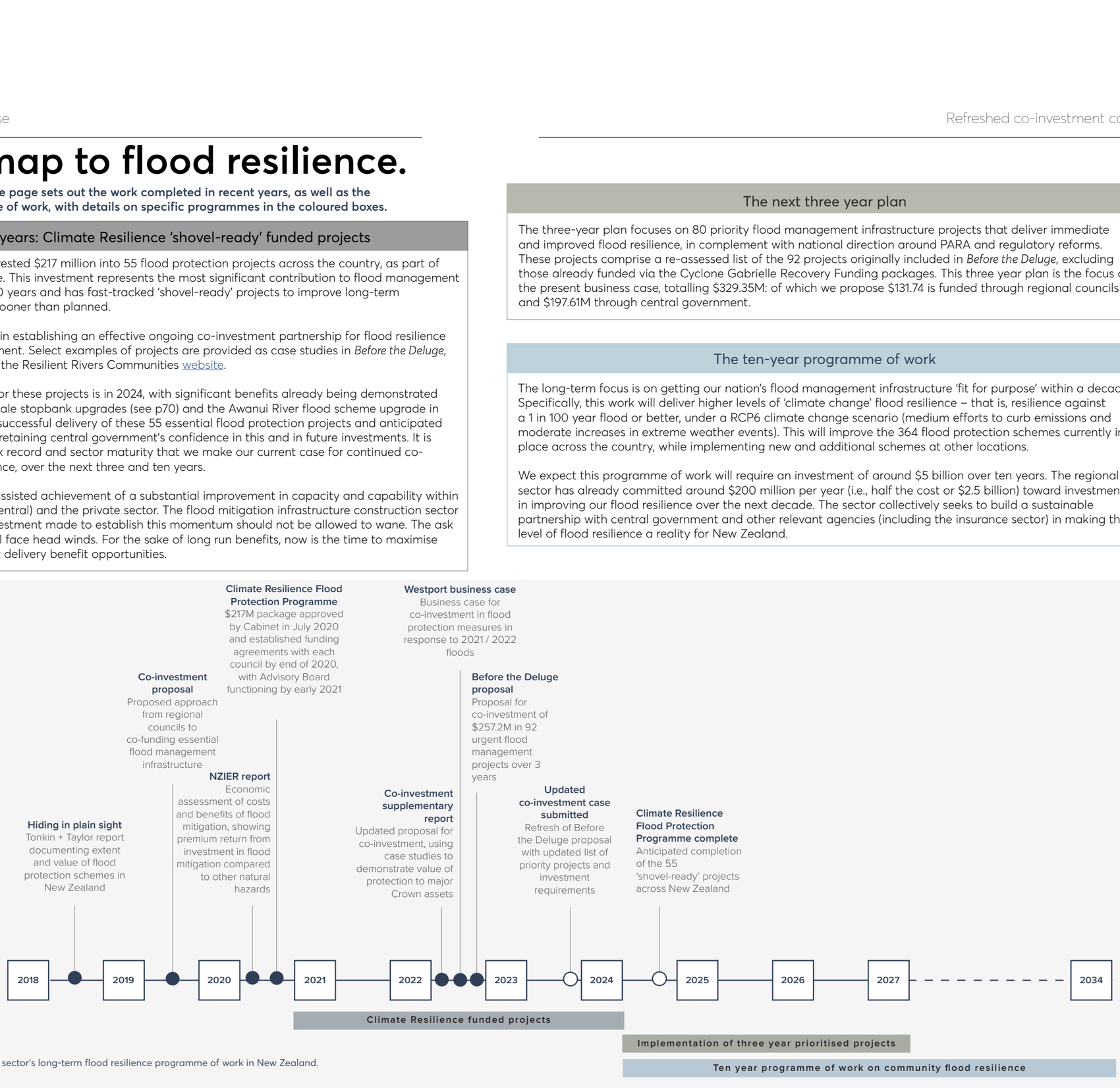


Figure 7. Timeline showing the regional sector's long-term flood resilience programme of work in New Zealand.

STRATEGIC CASE

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.

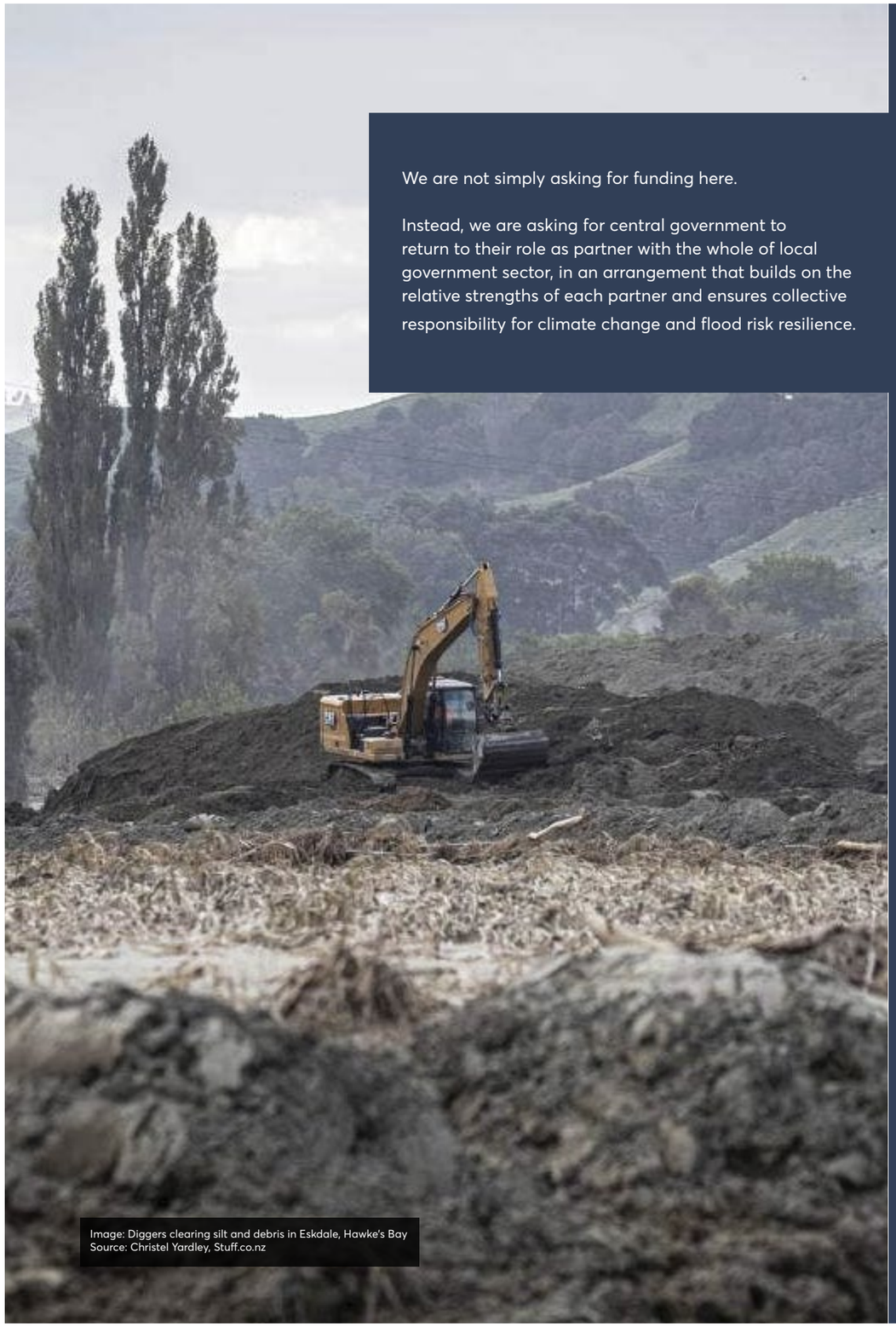
Nevertheless, our central premise remains the same. We maintain that flood protection remains our most immediate and critical adaptation tool, that has the additional benefit of enabling 'time' for other resilience solutions to be designed, implemented, and fully take effect. The projects listed in our 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.

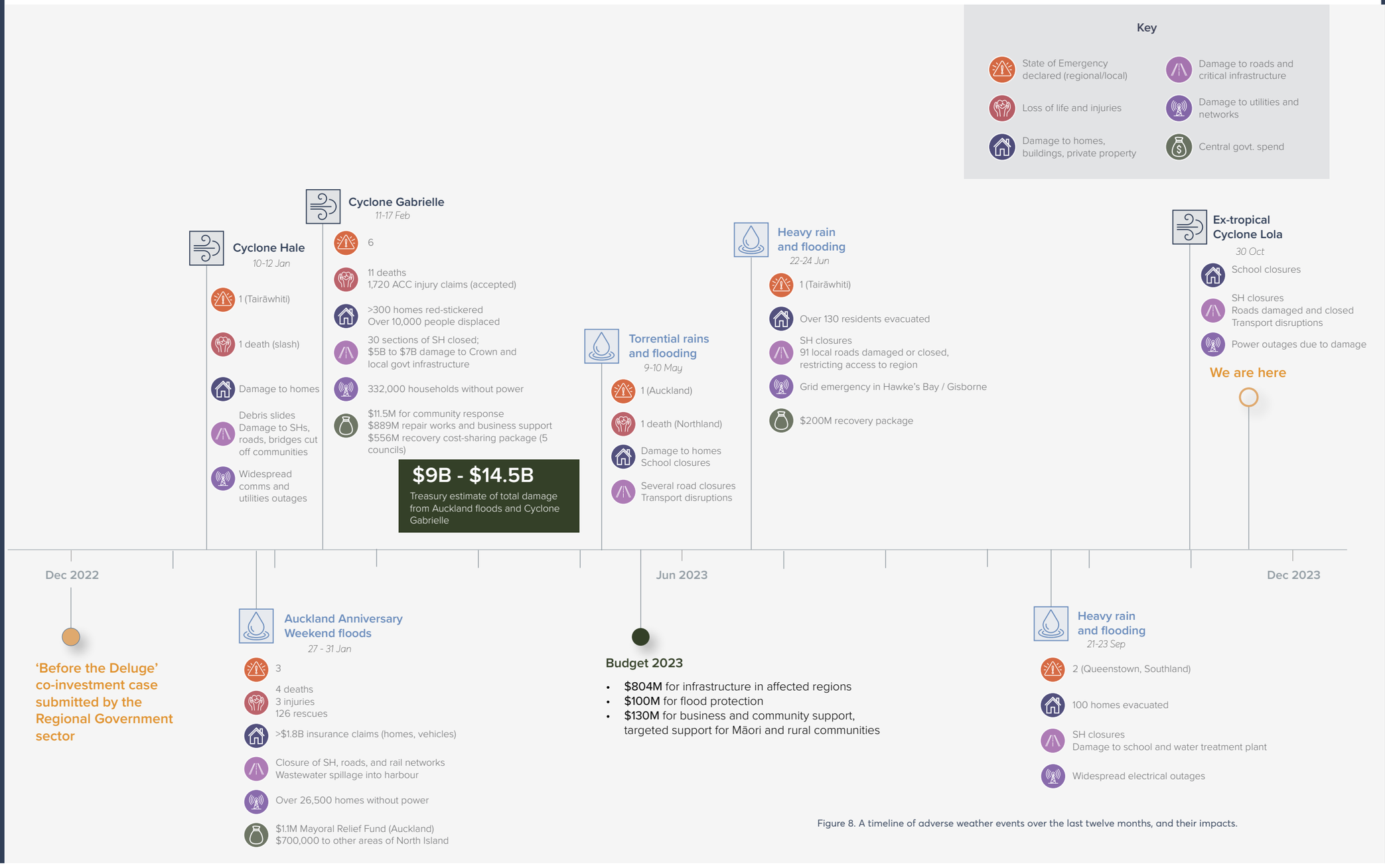


Figure 8. A timeline of adverse weather events over the last twelve months, and their impacts.

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.

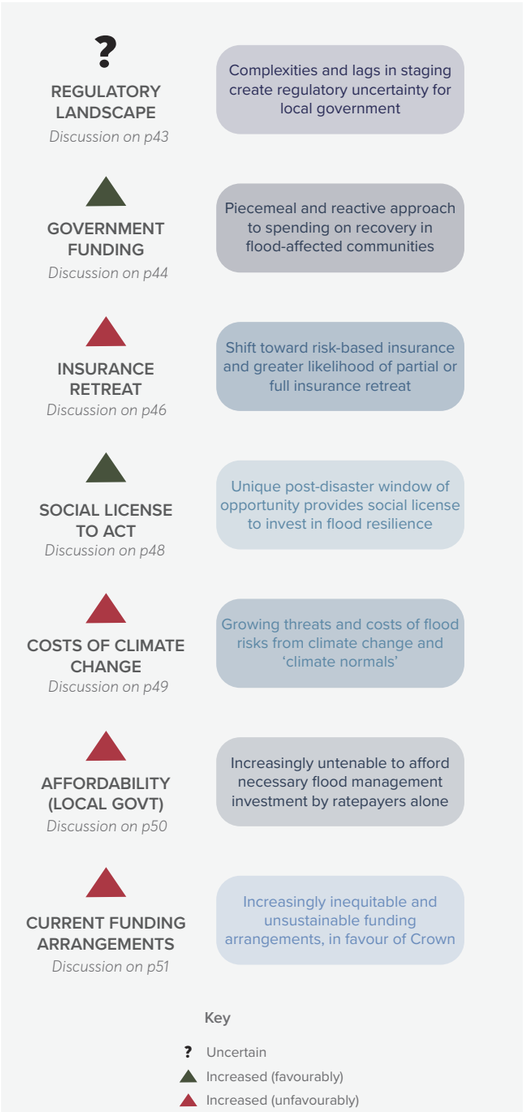


Figure 9. An overview of key changes since our previous co-investment case was submitted in late 2022.

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.

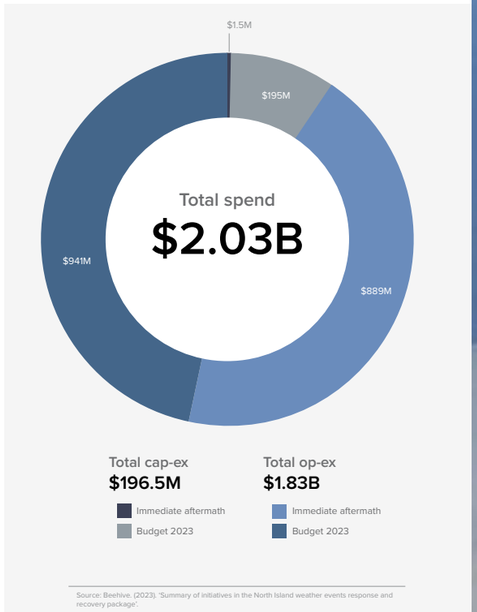
In addition to the regulatory reforms and policy initiatives introduced, the government has spent billions on flood recovery this year alone. As shown in the infographic at right, the **total government spend following the North Island weather events was $2.026 billion**.

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.

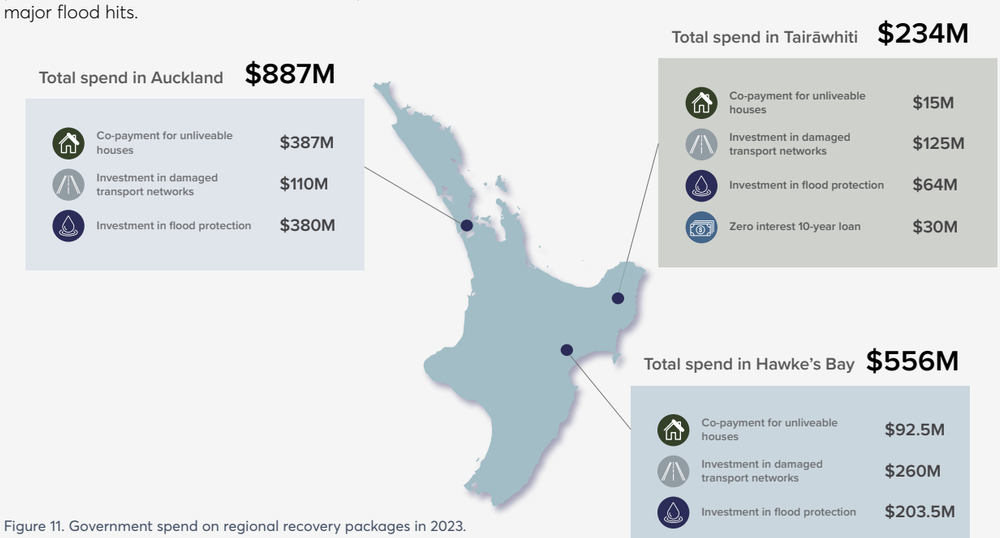


Figure 11. Government spend on regional recovery packages in 2023.

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].

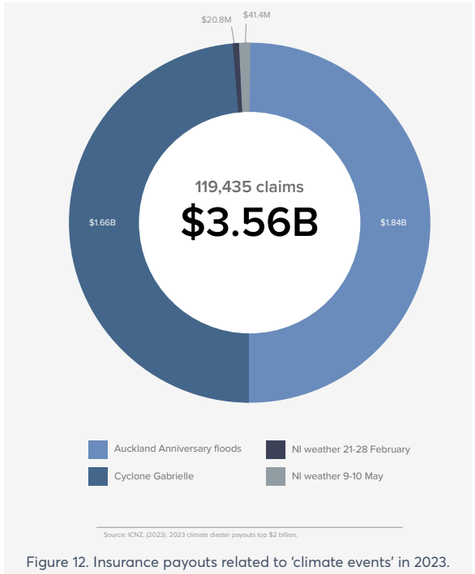


Figure 12. Insurance payouts related to 'climate events' in 2023.

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].

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

* See pages 35-37 of Before the Deluge

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.

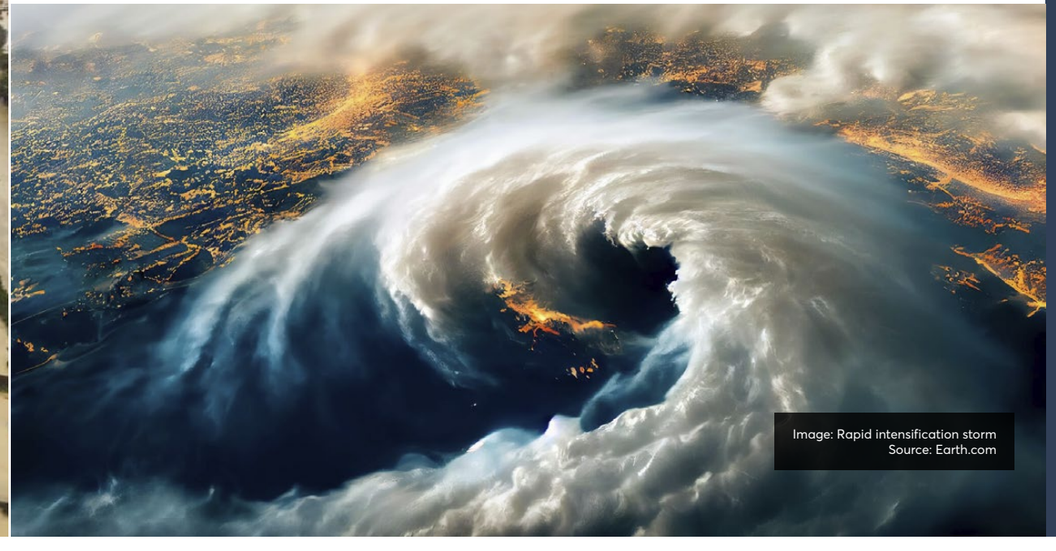


Image: Rapid intensification storm
Source: Earth.com

The affordability challenge

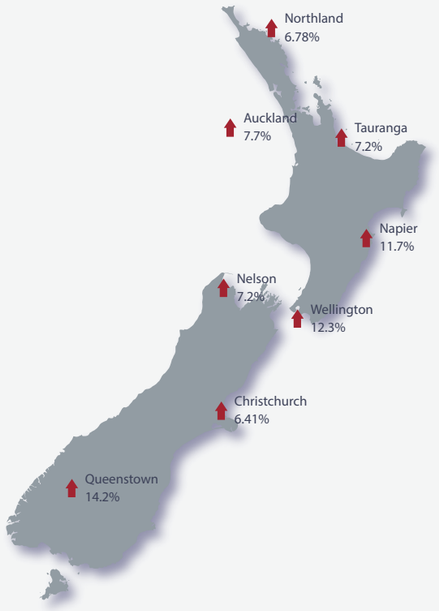
Affordability shouldn't be a barrier to good adaptation.

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

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.

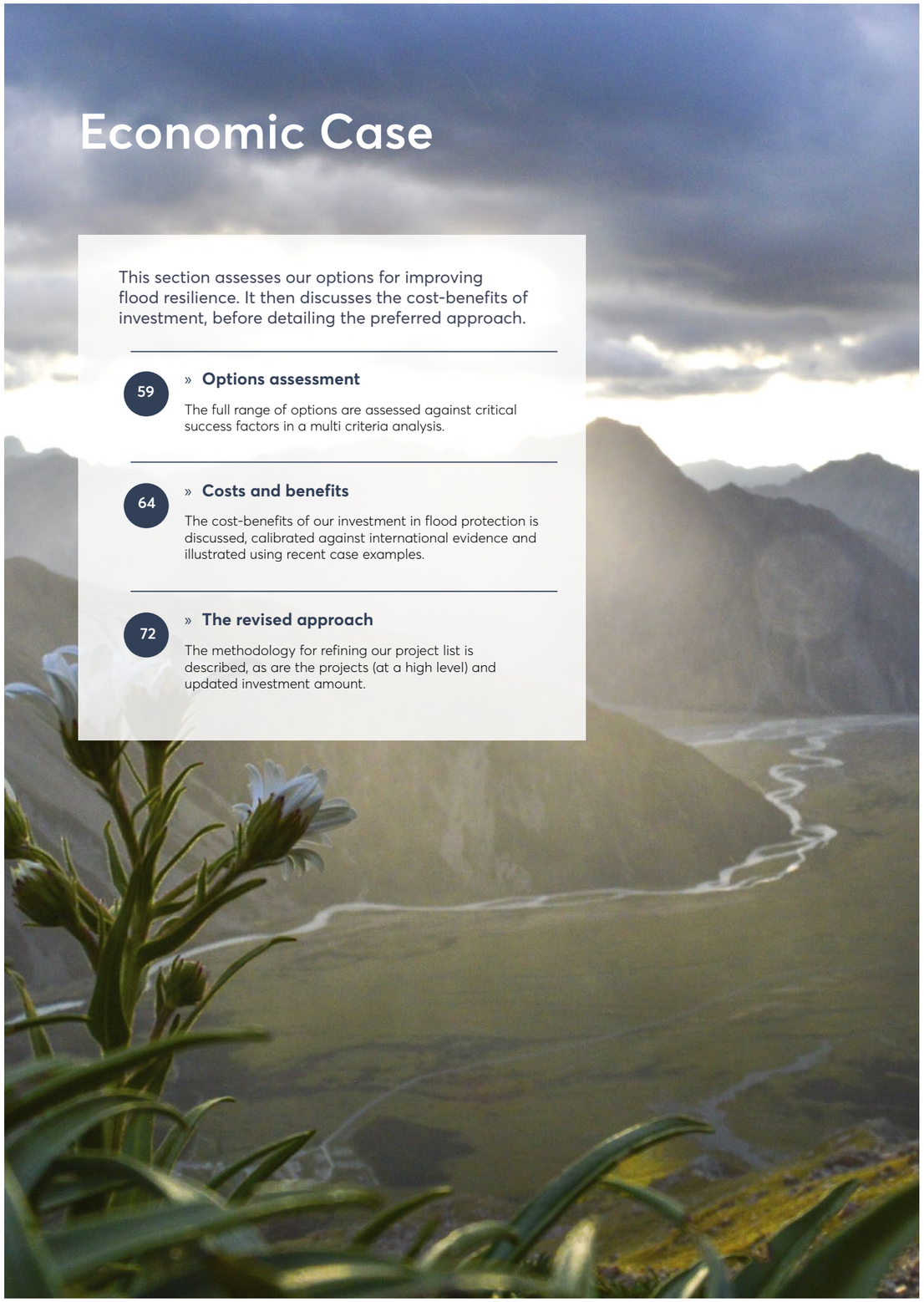
We also note there is strong alignment with the intent behind the **Regional Infrastructure Fund** announced as part of the coalition agreements, and described in the infographic below.

Refreshed co-investment case

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



Economic Case

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

59 » **Options assessment**

The full range of options are assessed against critical success factors in a multi criteria analysis.

64 » **Costs and benefits**

The cost-benefits of our investment in flood protection is discussed, calibrated against international evidence and illustrated using recent case examples.

72 » **The revised approach**

The methodology for refining our project list is described, as are the projects (at a high level) and updated investment amount.

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.

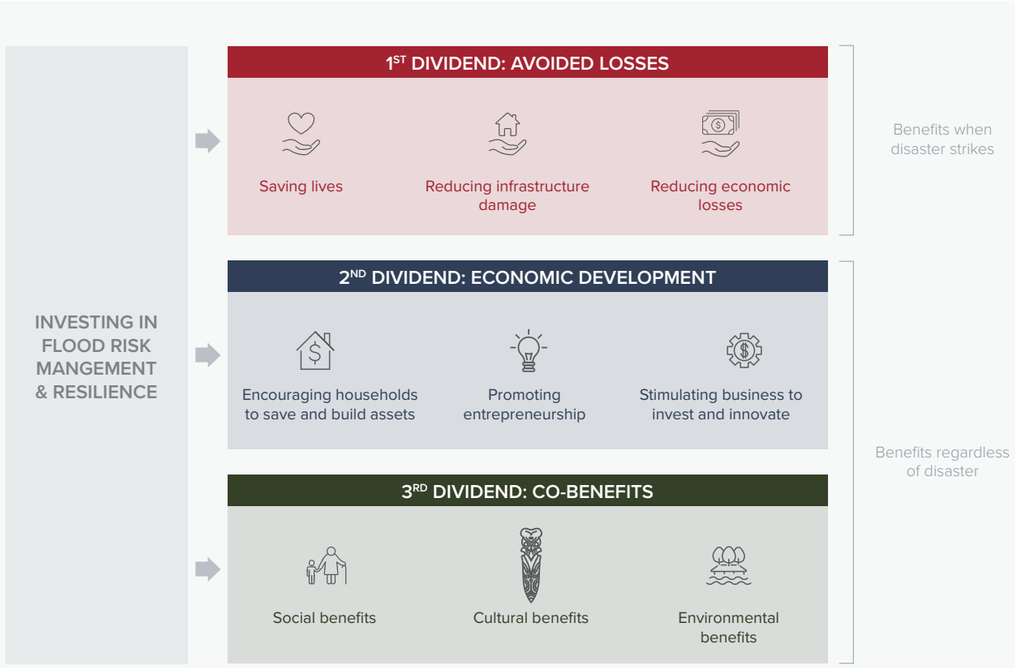
Cost-benefits

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).

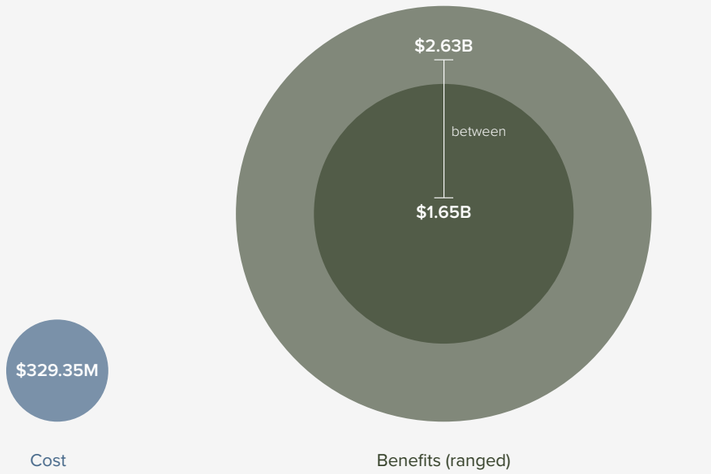
Although not all (avoided) losses can be monetised, international evidence and our own sector experience shows that BCRs for flood management infrastructure tends to range between 1:5 and 1:8[51,52]. This means for every dollar invested, there are direct benefits of between $5-$8 generated.

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

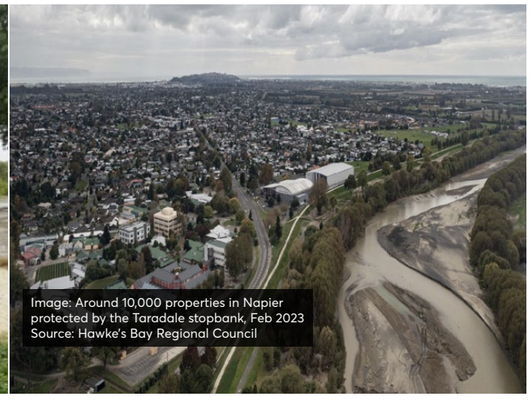


Image: Around 10,000 properties in Napier protected by the Taradale stopbank, Feb 2023
Source: Hawke's Bay Regional Council

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.

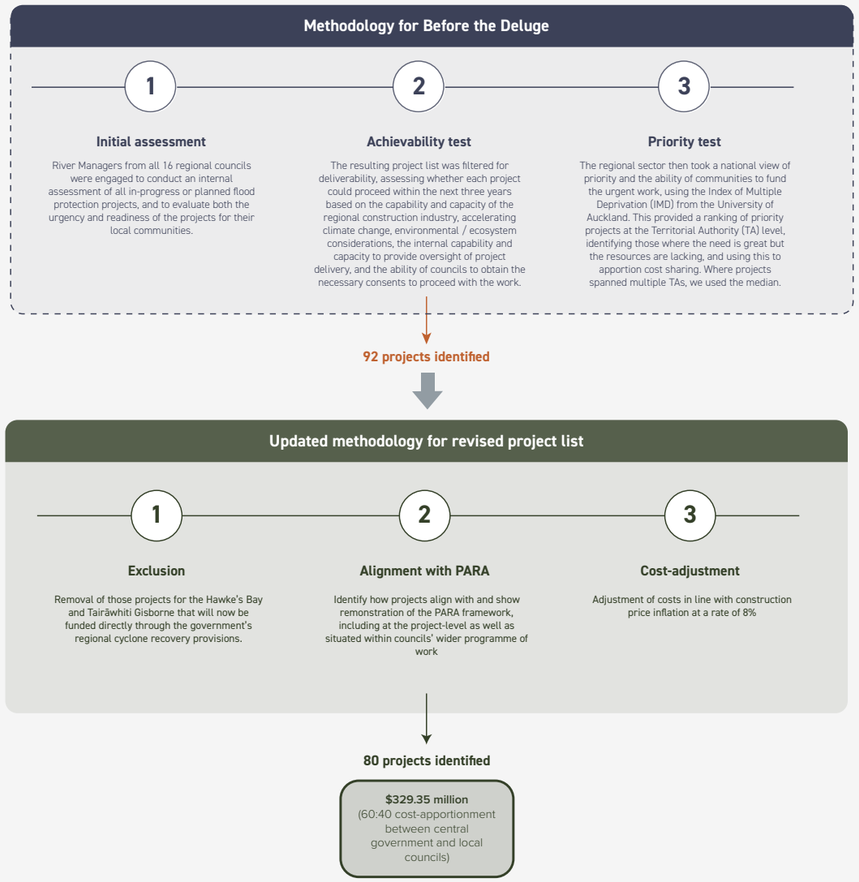


Figure 23. Our methodology for reprioritisation and refining of the project list into the final 80 projects.

List of projects – North Island.

North Island
44 projects
$165.55m investment

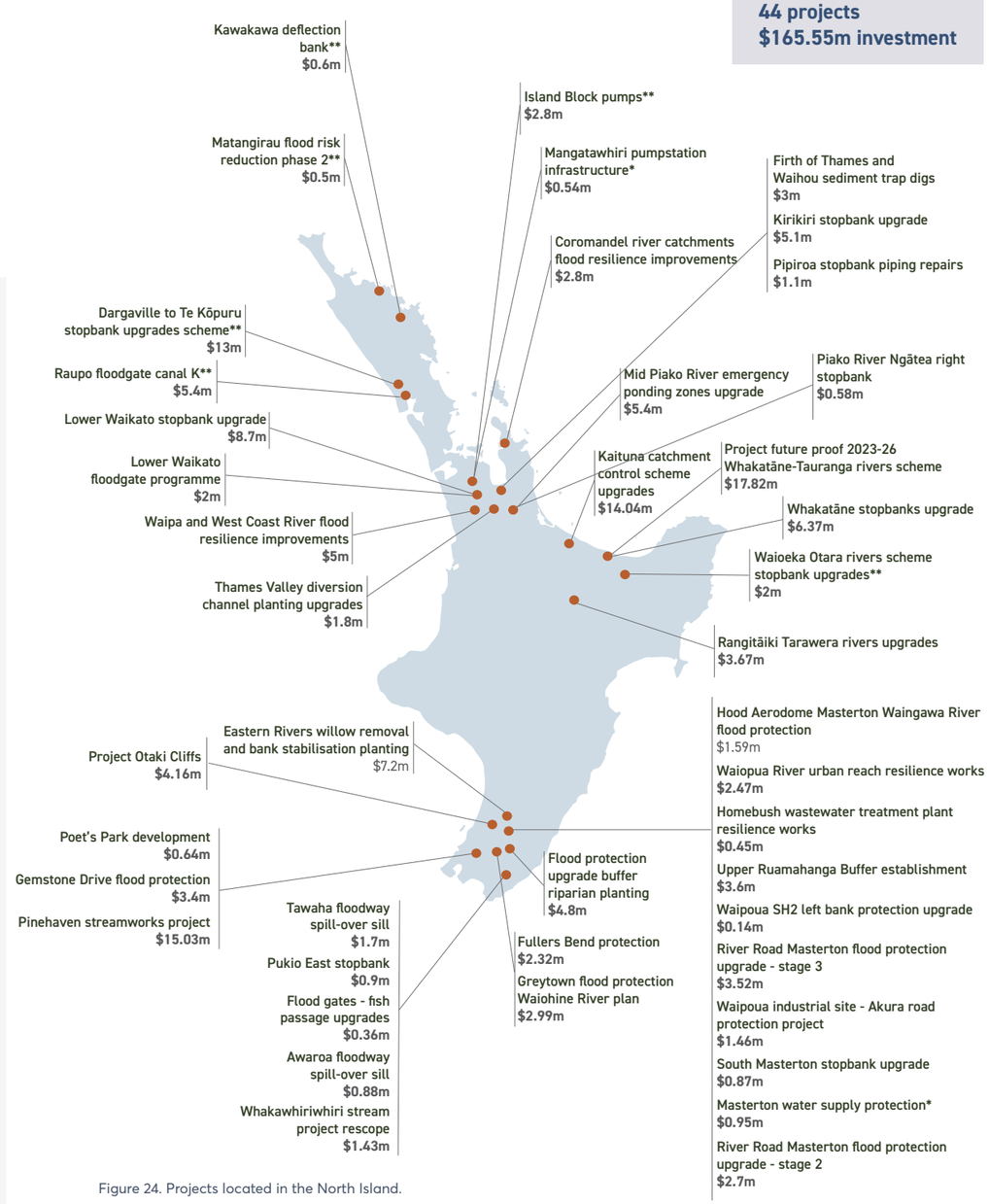


Figure 24. Projects located in the North Island.

The revised approach

List of projects – South Island.

South Island
36 projects
$163.80m investment

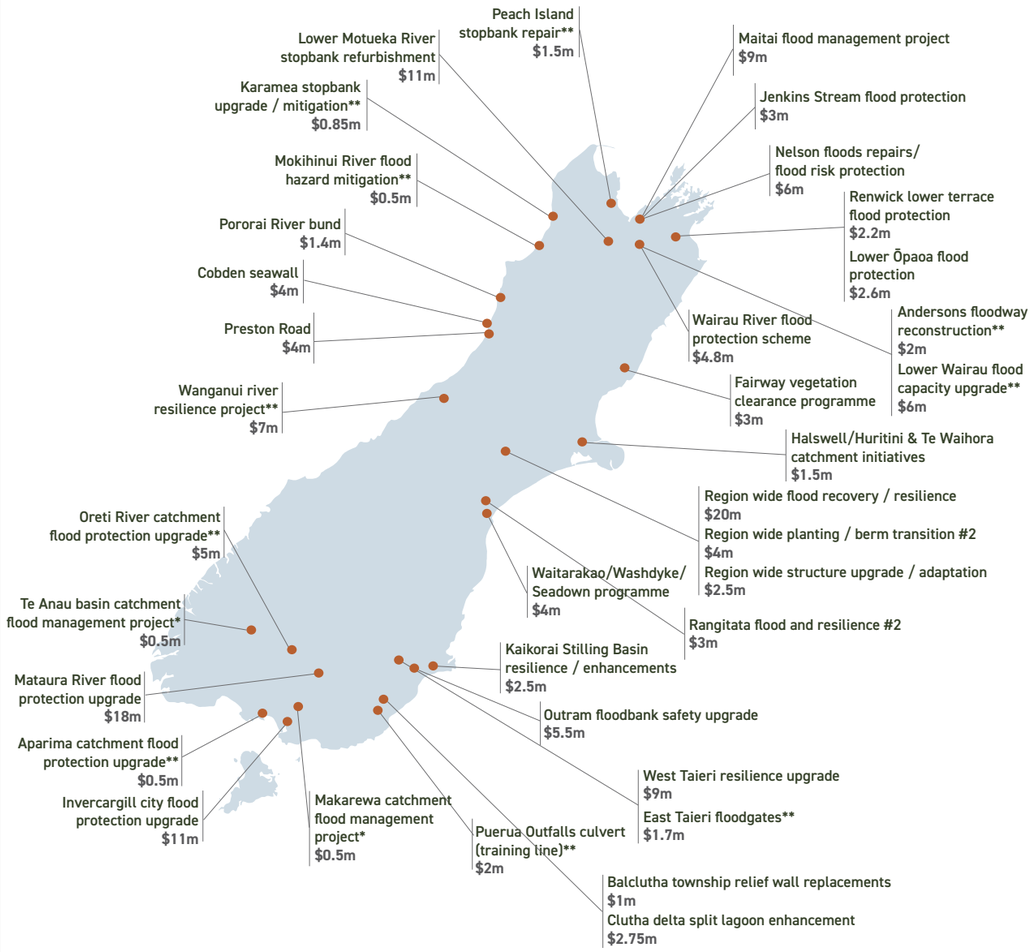


Figure 25. Projects located in the South Island.

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**

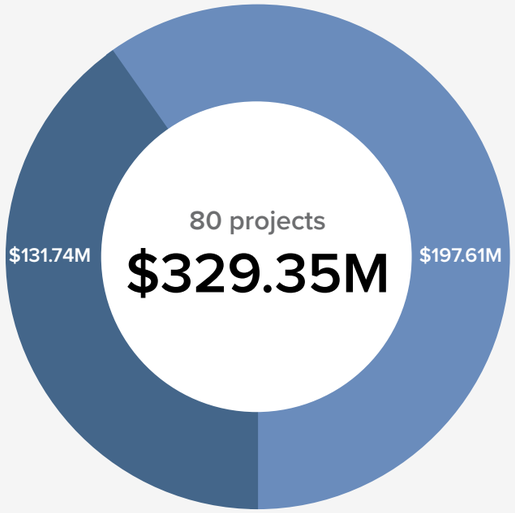
Refreshed co-investment case

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

Refreshed co-investment case

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.

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

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

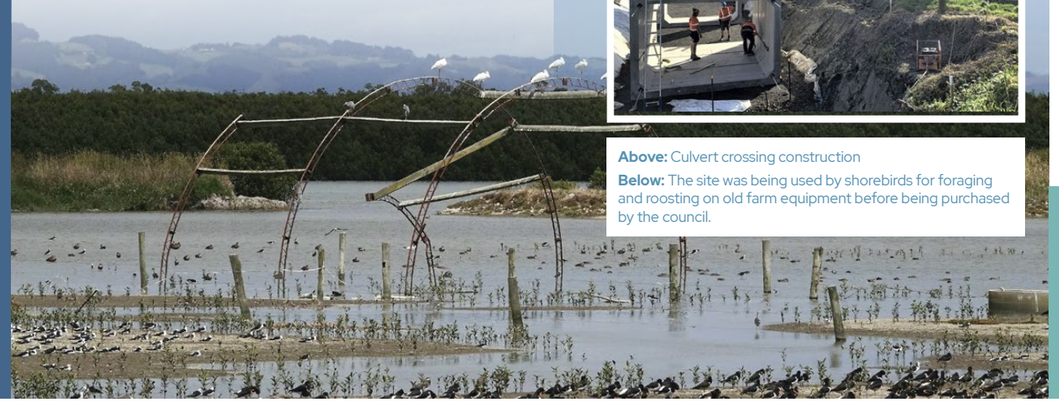
Social and Environmental Benefits

- **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.

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.

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.

Repairing erosion damage to the popular Hutt River Trail.

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.

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 Tīwai.

COMMERCIAL CASE

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.

91 » **Summary of co-investment**

Breakdown between central government and regional council co-investment, contextualised within a decade-long programme of work.

92 » **Delivery staging and timeline**

The fall of capital for the 80 projects over the next three financial 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.

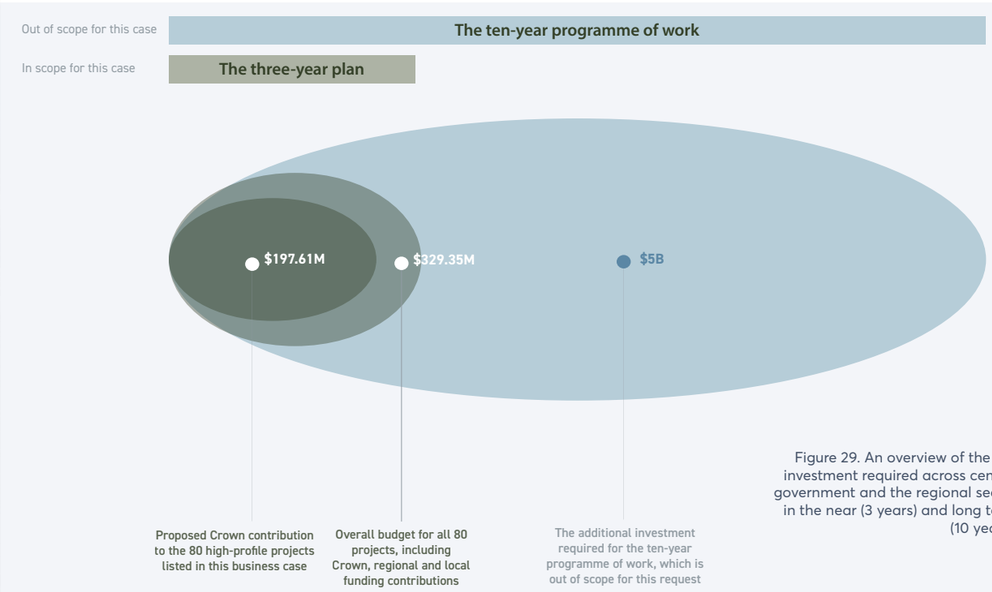


Figure 29. An overview of the co-investment required across central government and the regional sector in the near (3 years) and long term (10 years).

Refreshed co-investment case

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.

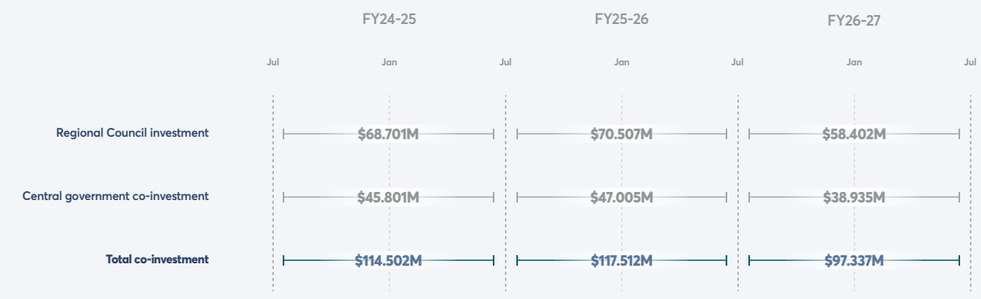
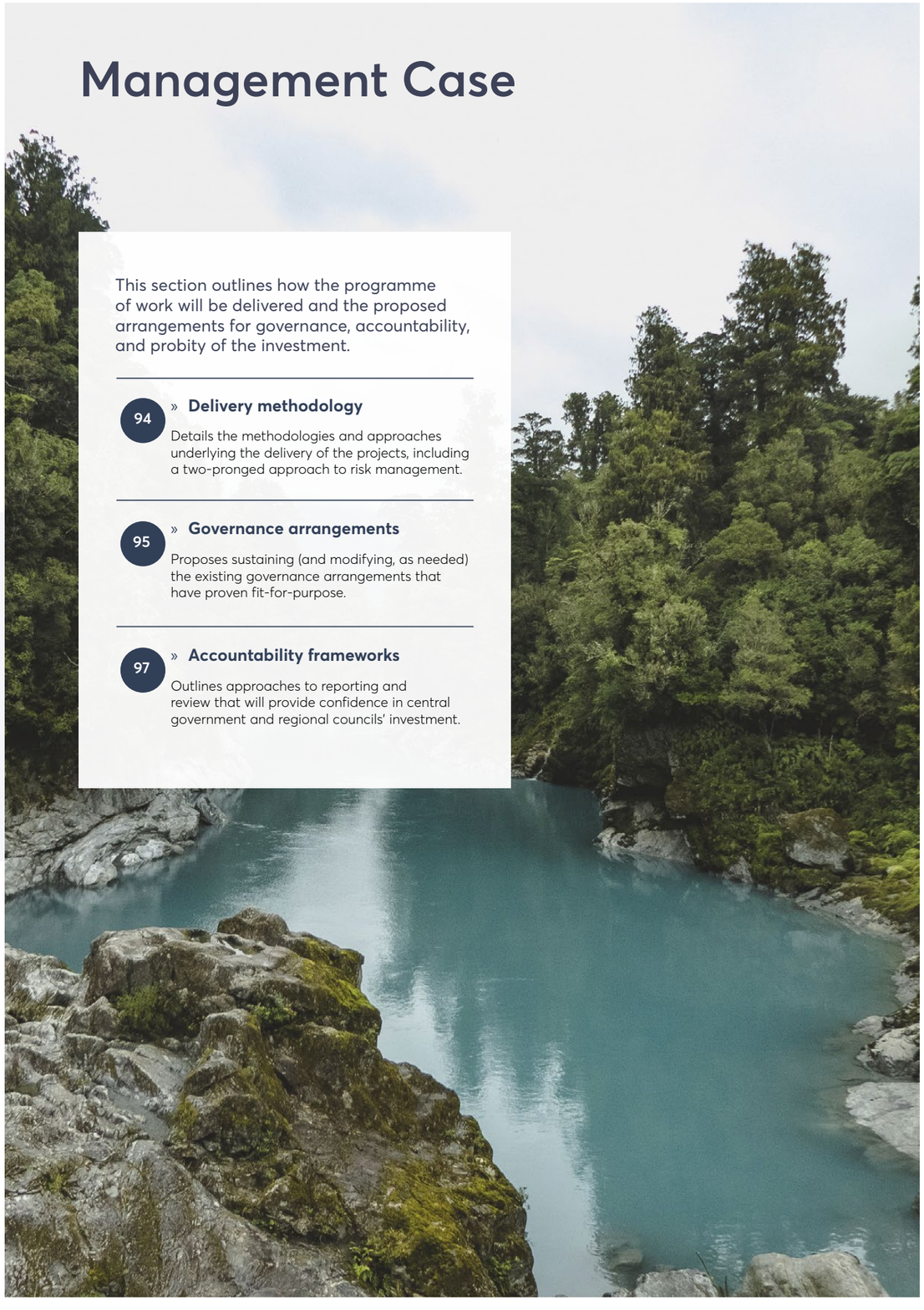


Figure 30. The cap-ex co-investment required for the 80 projects, over the next three years.

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.

94 » **Delivery methodology**

Details the methodologies and approaches underlying the delivery of the projects, including a two-pronged approach to risk management.

95 » **Governance arrangements**

Proposes sustaining (and modifying, as needed) the existing governance arrangements that have proven fit-for-purpose.

97 » **Accountability frameworks**

Outlines approaches to reporting and review that will provide confidence in central government and regional councils' 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.

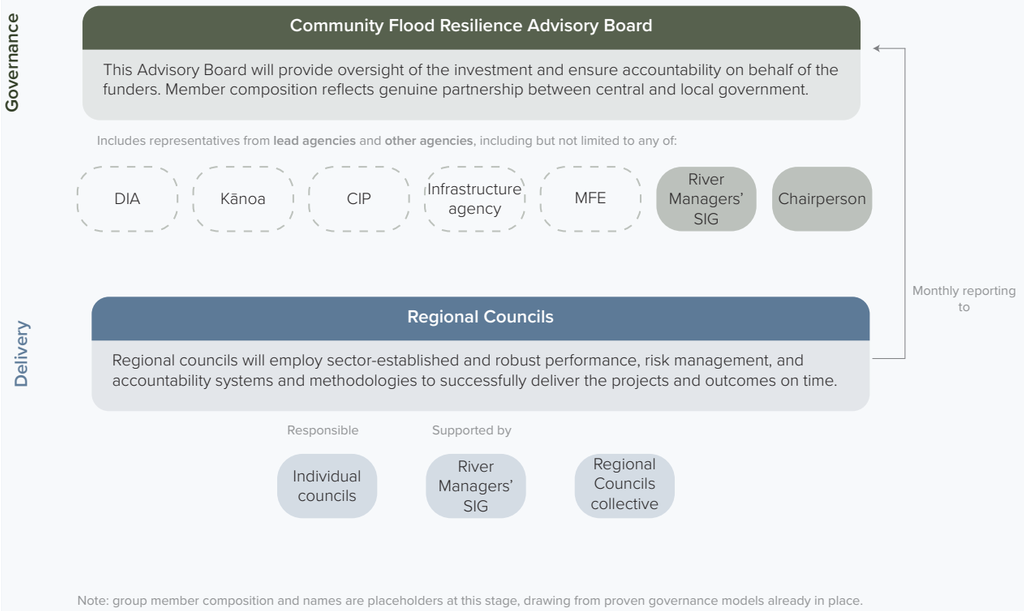
Governance arrangements

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.

Reference list

1 Insurance Council of New Zealand. (2023). 'New Zealand must build back better', 16 February, Retrieved https://www.icnz.org.nz/industry/media-releases/new-zealand-must-build-back-better/
2 National party. (2023). 'Rebuilding the economy', 100-point action plan, Retrieved https://www.national.org.nz/rebuildingtheeconomy
3 Gisborne District Council. (2023). 'Tairāwhiti flood protection update', 6 September, Retrieved https://www.gdc.govt.nz/council/news/september/tairawhiti-flood-protection-update
4 Horticulture New Zealand. (2023). "Every day feels like a year" – Cyclone Gabrielle', 1 March, Retrieved https://www.hortnz.co.nz/news-events-and-media/media-releases/every-day-feels-like-a-year-cyclone-gabrielle/
5 National party. (2023). 'Infrastructure for the future policy', Retrieved https://assets.nationbuilder.com/national-party/pages/17956/attachments/original/1686090956/Infrastructure_for_the_Future.pdf?1686090956
6 Tonkin & Taylor Ltd. (2018). 'Hiding in plain sight: An overview of current practices, national benefits and future challenges of our flood protection, river control and land drainage schemes', Report prepared for River Managers' Special Interest Group, April 2018.
7 NIWA. (n.d.). 'Floods', Retrieved https://niwa.co.nz/natural-hazards/hazards/floods#:~:text=Our%20research%20indicates%20there%20is,in%20any%20given%20year1
8 Hamilton-Irvine, G. (2023). 'Wairoa has no flood protection: Mayor welcomes $70m to change that', New Zealand Herald, 7 August, Retrieved https://www.nzherald.co.nz/hawkes-bay-today/news/wairoa-has-no-flood-protection-mayor-welcomes-70m-to-change-that/QR7XX5IM5JFDHHBNFM7BERPTZE/
9 Tonkin & Taylor Ltd. (2018). 'Hiding in plain sight: An overview of current practices, national benefits and future challenges of our flood protection, river control and land drainage schemes', Report prepared for River Managers' Special Interest Group, April 2018.
10 Ministry for the Environment. (2022). 'Adapt and thrive: Building a climate-resilient New Zealand. Aotearoa New Zealand's First National Adaptation Plan', 3 August, Wellington: New Zealand.
11 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.
12 Ministry for the Environment. (2020). 'National Policy Statement for Freshwater Management 2020', Updated 23 February 2023, Retrieved https://environment.govt.nz/acts-and-regulations/national-policy-statements/national-policy-statement-freshwater-management/
13 Ministry for the Environment. (2022). 'Adapt and thrive: Building a climate-resilient New Zealand. Aotearoa New Zealand's First National Adaptation Plan', 3 August, Wellington: New Zealand
14 Insurance Council of New Zealand. (2023). 'New Zealand must build back better', 16 February, Retrieved https://www.icnz.org.nz/industry/media-releases/new-zealand-must-build-back-better/
15 Greater Wellington Regional Council. (2015). 'Guidelines for Floodplain Management Planning', Updated 7 December 2022, Retrieved https://www.gw.govt.nz/document/929/guidelines-for-floodplain-management-planning)
16 Greater Wellington Regional Council. (2019). 'Te Kāuru Upper Ruamāhanga Floodplain Management Plan', Updated 10 November 2021, Retrieved https://www.gw.govt.nz/document/16641/te-kauru-upper-ruamahanga-flood-plain-management-plan
17 Westcoast Regional Council. (2022). 'Co-investment in Westport resilience', Kawatiri business case, 30 June, Retrieved https://www.wcrc.govt.nz/repository/libraries/id:2459ikxj617q9ser65rr/hierarchy/Documents/Services/Special%20Rating%20Districts/Westport/Westport%20Flood%20Resilience%2030%20June%202022
18 McMahon, B. (2023). 'Two years on and Westport waits', Radio New Zealand, 12 July, Retrieved https://www.rnz.co.nz/news/ldr/493617/two-years-on-and-westport-waits
19 River Managers' SIG Forum. (2023). '10 Year Plan Development', Internal document.
20 Insurance Council of New Zealand. (2023). '2022 confirmed as record year for climate claims', 12 April, Retrieved https://www.icnz.org.nz/industry/media-releases/2022-confirmed-as-record-year-for-climate-claims/
21 Insurance Council of New Zealand. (2023). '2023 climate disaster payouts top $2 billion', 15 September, Retrieved https://www.icnz.org.nz/industry/media-releases/2023-climate-disaster-payouts-top-2-billion/
22 Stock, R. (2023). 'NZ's largest insurer joins trend to increase premiums on risk-prone homes', The Post, 22 August, Retrieved https://www.thepost.co.nz/business/350058987/nzs-largest-insurer-joins-trend-increase-premiums-risk-prone-homes
23 Storey, B., Owen, S., Noy, I. & Zammit, C. (2020). 'Insurance Retreat: Sea level rise and the withdrawal of residential insurance in Aotearoa New Zealand', Report for the Deep South National Science Challenge, December 2020.
24 Reserve Bank of New Zealand. (2023). '2022 Flood risk assessment for residential mortgages', Bulletin Article Vol. 86, No. 2, 27 March, Retrieved https://www.rbnz.govt.nz/hub/publications/bulletin/2023/rbb-2023-86-02

25 New Zealand Institute of Economic Research. (2020). 'Investment in natural hazards mitigation: Forecasts and findings about mitigation investment, Report to the DIA.
26 Reserve Bank of New Zealand. (2023). 'Financial stability implications of recent North Island weather events', 3 May, Retrieved https://www.rbnz.govt.nz/hub/publications/financial-stability-report/2023/may-2023/fsr-may-23-special-topic-2
27 Insurance Council of New Zealand. (2022). 'ICNZ submission on the draft National Adaptation Plan including Managed Retreat', 3 June, Retrieved https://www.icnz.org.nz/wp-content/uploads/2023/01/ICNZ_submission_on_the_draft_National_Adaptation_Plan_including_Managed_Retreat_030622.pdf
28 IAG. (2022). 'IAG seeks three step plan for natural hazard prone New Zealand homes – commits to being part of the solution', News Release 18 August, Retrieved https://www.iag.co.nz/newsroom/news-releases/iag-seeks-three-step-plan-for-natural-hazard-prone-new-zealand-homes
29 Insurance Council of New Zealand. (2023). 'New Zealand must build back better', 16 February, Retrieved https://www.icnz.org.nz/industry/media-releases/new-zealand-must-build-back-better/
30 Watterodt, F. & Doberstein, B. (2023). 'The post-disaster window: The 2021 British Columbia atmospheric rivers phenomenon as a focusing event for policy change', ICLR Quick Response Program Final Report, Retrieved https://www.researchgate.net/profile/Brent-Doberstein/publication/372308431_The_post-disaster_window_The_2021_British_Columbia_atmospheric_rivers_phenomenon_as_a_focusing_event_for_policy_change/links/64aecdc995bbbe0c6e2f0a85/The-post-disaster-window-The-2021-British-Columbia-atmospheric-rivers-phenomenon-as-a-focusing-event-for-policy-change.pdf
31 Senate SHJ. (2023). 'What Cyclone Gabrielle has taught us about social license', Retrieved https://senateshj.co.nz/perspective/what-cyclone-gabrielle-has-taught-us-about-social-licence
32 Garner, A. J. (2023). 'Observed increased in North Atlantic tropical cyclone peak intensification rates', Scientific Reports, 12 Article 16299 (2023). https://doi.org/10.1038/s41598-023-42669-y
33 Li, Y., Tang, Y., Wang, S. et al. Recent increases in tropical cyclone rapid intensification events in global offshore regions. Nature Communications 14, 5167 (2023). https://doi.org/10.1038/s41467-023-40605-2
34 Spence, A. (2023). 'Auckland floods: MetService admits its weather forecasting models were 'poor'', New Zealand Herald, 23 October, Retrieved https://www.nzherald.co.nz/nz/auckland-floods-metservice-admits-its-weather-forecasting-models-were-poor/CQAXHKVNGNADHCGEO6NR3OUNWU/
35 Newman, R., Noy, I. (2023). The global costs of extreme weather that are attributable to climate change. Nat Commun 14, 6103. https://doi.org/10.1038/s41467-023-41888-1
36 Frame, D. J., Rosier, S. M., Noy, I., Harrington, L. J., Carey-Smith, T., Sparrow, S. N., ... & Dean, S. M. (2020). Climate change attribution and the economic costs of extreme weather events: a study on damages from extreme rainfall and drought. Climatic Change, 162, 781-797.
37 United Nations Office for Disaster Risk Reduction. (2023). 'New report shows climate disasters are reversing global development at unprecedented rates', Press release 11 July, Retrieved https://www.undrr.org/news/new-report-shows-climate-disasters-are-reversing-global-development-unprecedented-rates
38 Review into the Future for Local Government. (2023). 'He piki tūranga, he piki kōtuku: The future for local government', Wellington: New Zealand.
39 Mach, K. J., Kraan, C. M., Hino, M., Siders, A. R., Johnston, E. M., & Field, C. B. (2019). Managed retreat through voluntary buyouts of flood-prone properties. Science Advances, 5(10), eaax8995.
40 1News. (2023). 'Rates rise: How much more will you be paying?', 1News, 6 July, Retrieved https://www.1news.co.nz/2023/07/06/rates-rise-how-much-more-will-you-be-paying/
41 Crimp, L. (2023). 'Wairoa District Council proposes 15.4% rates hike', Radio New Zealand, 9 June, Retrieved https://www.rnz.co.nz/news/national/491655/wairoa-district-council-proposes-15-point-4-percent-rates-hike
42 Ministry for the Environment. (2023). 'Report of the Expert Working Group on Managed Retreat: A proposed system for Te Hekenga Rauora/planned relocation', 25 August, Wellington: New Zealand.
43 Ministry for the Environment. (2023). 'Community-led retreat and adaptation funding: Issues and options', Wellington: New Zealand.
44 Hutchings, J. Williams, J., & Lawson, L. (2019). 'Central government co-investment in river management for flood protection: Critical adaptation to climate change for a more resilient New Zealand', 3 August, Retrieved https://www.trc.govt.nz/assets/Documents/Research-reviews/hazards/FloodControlCoInvestment2019.pdf
45 Ministry for the Environment. (2023). 'Community-led retreat and adaptation funding: Issues and options', Wellington: New Zealand.

46 Department of Prime Minister and Cabinet. (2023). 'Strengthening the resilience of Aotearoa New Zealand's critical infrastructure system: Ensuring Aotearoa New Zealand has a secure platform for a productive, sustainable, and inclusive economy', Discussion Document, Retrieved https://consultation.dpmc.govt.nz/national-security-group/critical-infrastucture-phase-1-public-consultation/user_uploads/discussion-document--strengthening-the-resilience-of-nzs-ci-system.pdf
47 National Emergency Management Agency. (2019). 'National Disaster Reslience Strategy', 10 April, Retrieved https://www.civildefence.govt.nz/assets/Uploads/documents/publications/ndrs/National-Disaster-Resilience-Strategy-10-April-2019.pdf
48 National Emergency Management Agency. (2019). 'National Disaster Reslience Strategy', 10 April, Retrieved https://www.civildefence.govt.nz/assets/Uploads/documents/publications/ndrs/National-Disaster-Resilience-Strategy-10-April-2019.pdf
49 Radio New Zealand. (2023). 'Government confirms its 100-day plan', Retrieved https://www.rnz.co.nz/news/political/503534/government-confirms-its-100-day-plan
50 National party. (2023). 'Infrastructure for the future policy', Retrieved https://assets.nationbuilder.com/national-party/pages/17956/attachments/original/1686090956/Infrastructure_for_the_Future.pdf?1686090956
51 Cabinet paper. (2020). 'Improving resilience to flood risk and supporting the COVID-19 recovery', 1 July, Retrieved https://covid19.govt.nz/assets/Proactive-Releases/proactive-release-2020-october/SE23-Minute-and-paper-Improving-Resilience-to-Flood-Risk-and-Supporting-the-COVID-19-Recovery-1-July-2020.pdf
52 New Zealand Institute of Economic Research. (2020). 'Investment in natural hazards mitigation: Forecasts and findings about mitigation investment, Report to the DIA.
53 Tonkin & Taylor Ltd. (2018). 'Hiding in plain sight: An overview of current practices, national benefits and future challenges of our flood protection, river control and land drainage schemes', Report prepared for River Managers' Special Interest Group, April 2018.
54 Horticulture New Zealand. (2023). '"Every day feels like a year" – Cyclone Gabrielle', 1 March, Retrieved https://www.hortnz.co.nz/news-events-and-media/media-releases/every-day-feels-like-a-year-cyclone-gabrielle/
55 Wairoa District Council. (2023). 'Wairoa flood mitigation discussed', 29 June, Retrieved https://www.wairoadc.govt.nz/home/article/981/wairoa-flood-mitigation-discussed-?t=featured&s=1
56 Little, C. (2023). 'Wairoa mayor says town will struggle to pay for flood protection', Radio New Zealand, 2 June, Retrieved https://www.rnz.co.nz/news/national/491222/wairoa-mayor-says-town-will-struggle-to-pay-for-flood-protection
57 Redgrave, T. (2022). 'Boosting HB stopbanks a response to climate change', BayBuzz, 16 December, Retrieved https://baybuzz.co.nz/boosting-hb-stopbanks-a-response-to-climate-change/
58 Hawke's Bay Regional Council. (2023). 'Taradale stopbank upgrade', Note supplied via personal communication, 14 November 2023.
59 Bidwell, H. (2023). 'Cyclone Gabrielle: One-in-500-year flood prevention system on its way', New Zealand Herald, 28 February, Retrieved https://www.nzherald.co.nz/hawkes-bay-today/news/cyclone-gabrielle-one-in-500-year-flood-prevention-system-on-its-way/PF57ZTX7OFG4TKS4YNNTEX22DA/
60 Cabinet paper. (2020). 'Improving resilience to flood risk and supporting the COVID-19 recovery', 1 July, Retrieved https://covid19.govt.nz/assets/Proactive-Releases/proactive-release-2020-october/SE23-Minute-and-paper-Improving-Resilience-to-Flood-Risk-and-Supporting-the-COVID-19-Recovery-1-July-2020.pdf
61 Index of Multiple Deprivation. (2018). Retrieved https://imdmap.auckland.ac.nz/
62 River Managers' SIG Forum. (2023). '10 Year Plan Development', Internal document.

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.

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

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

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

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

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

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

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, particularly 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

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

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

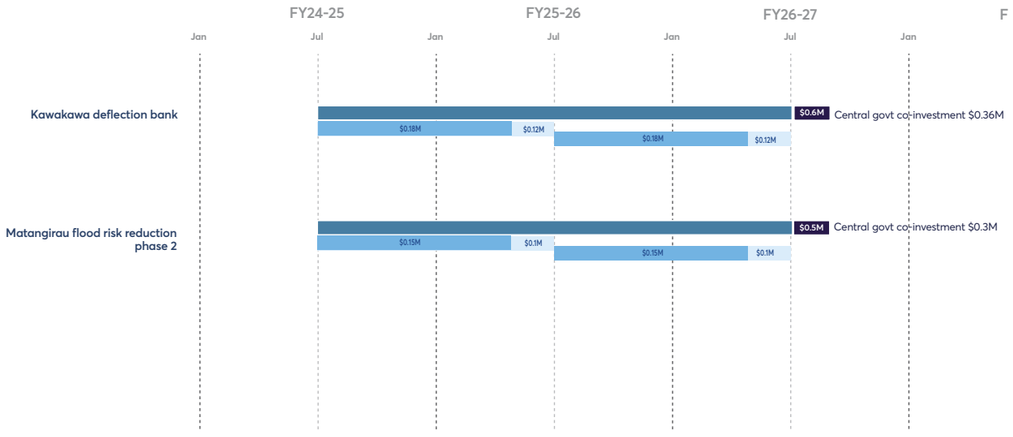
West Coast Regional Council	Westland District	1	Wanganui River Resilience Project	Construction of new riverwall at location of existing breach to prevent additional scouring and eventual progression of erosion towards the nearby State Highway No. 6 including adjacent power and communication services. 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

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

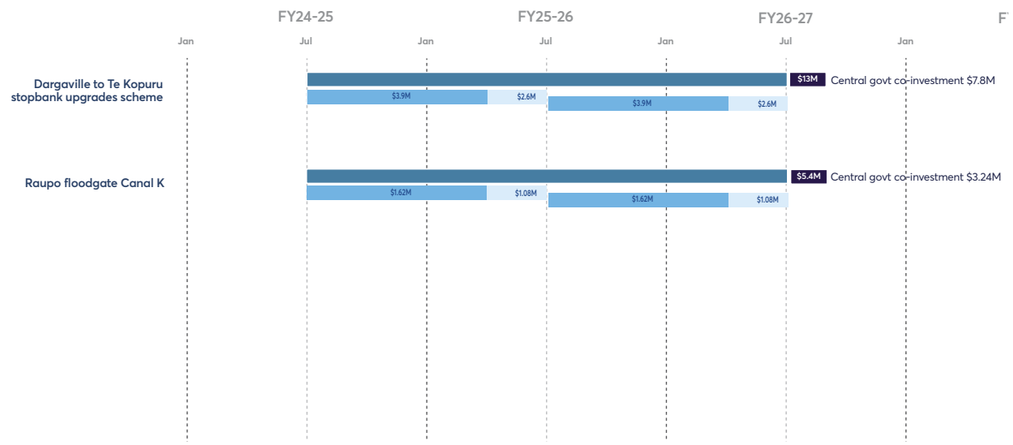
Otago Regional Council	Clutha District	6	Clutha Delta Split Lagoon Environment Enhancement	Split Lagoon forms a part of the Lower Clutha Flood Protection Scheme which protects and drains an area of approximately 9,300 ha. Most of the area covered by the flood scheme is productive farmland, but also includes 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

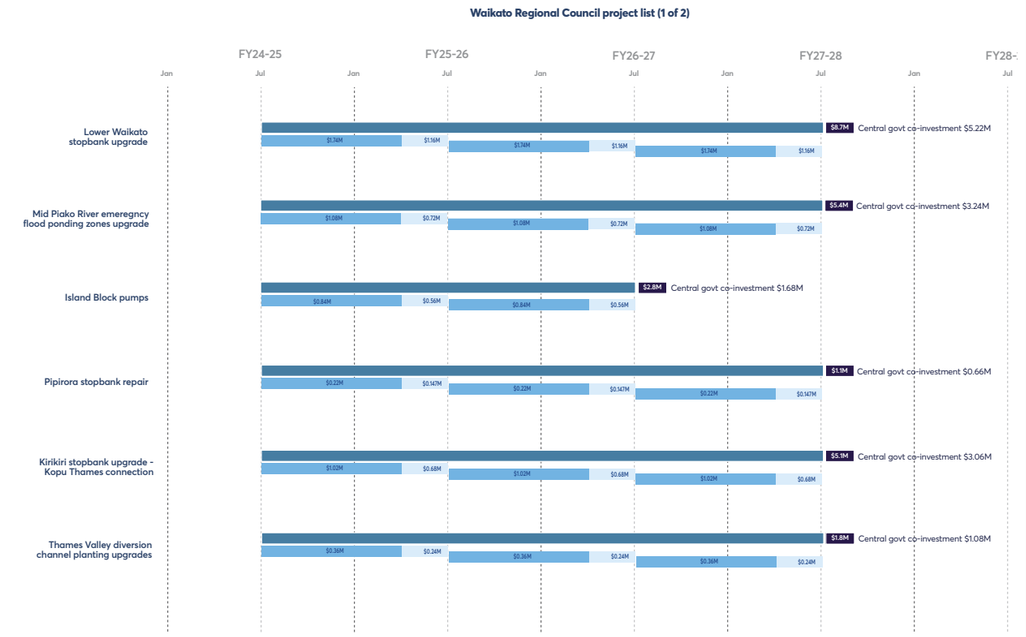
Northland Regional Council project list



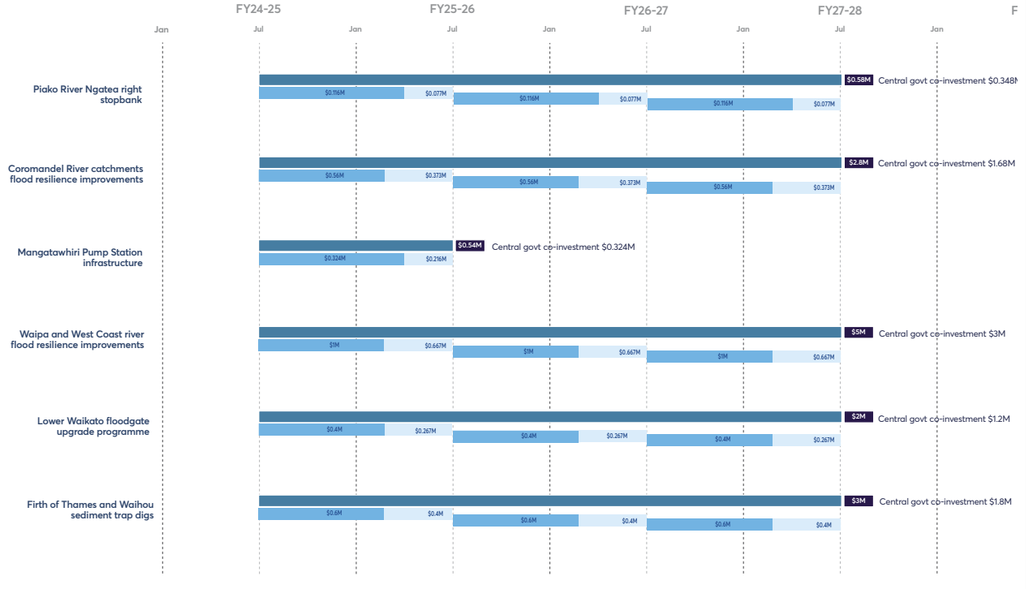
Kaipara District Council project list



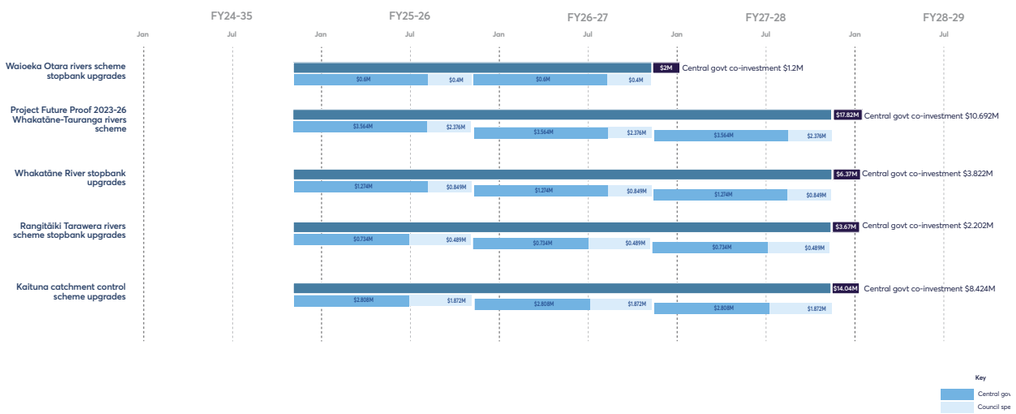
Waikato Regional Council project list (1 of 2)



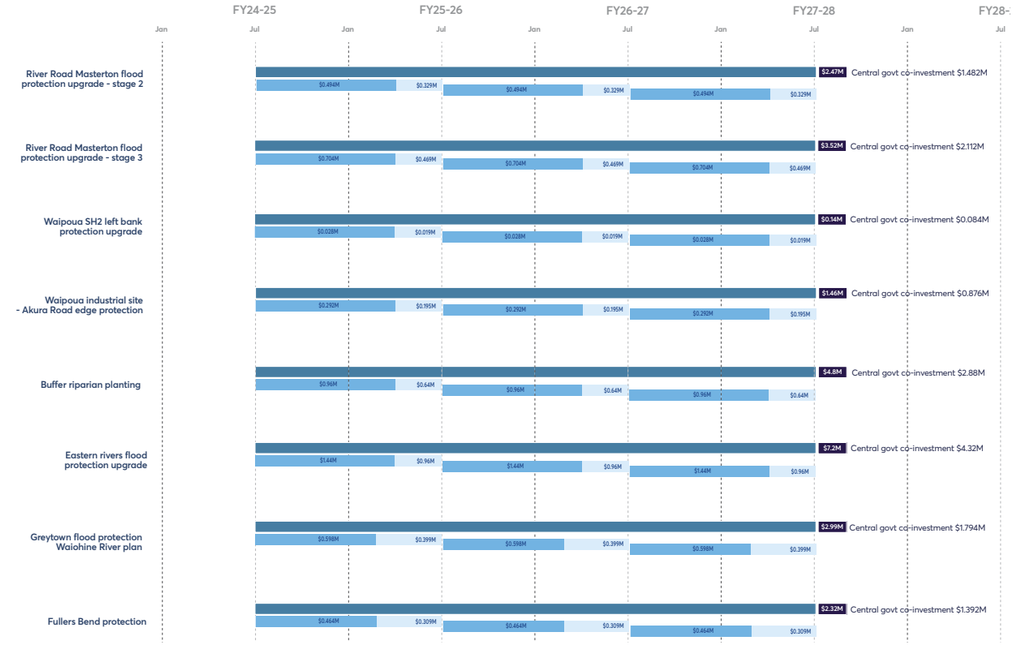
Waikato Regional Council project list (2 of 2)



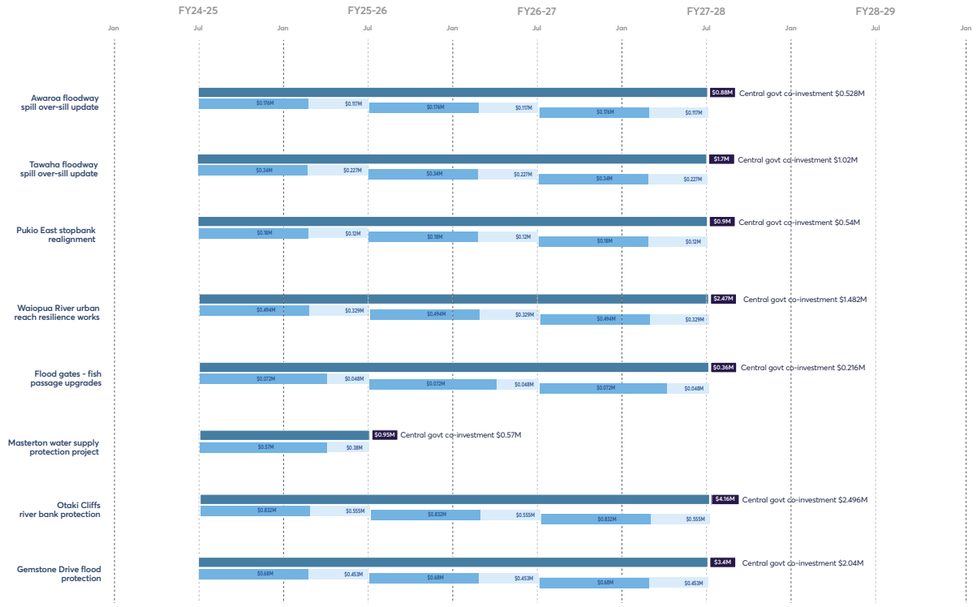
Bay of Plenty Regional Council project list



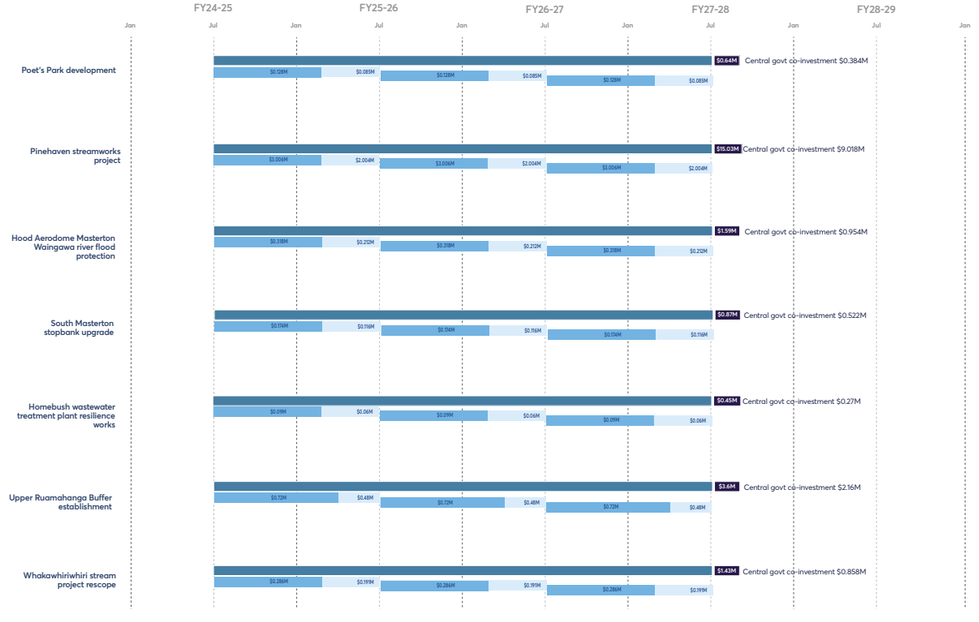
Greater Wellington Regional Council project list (1 of 3)



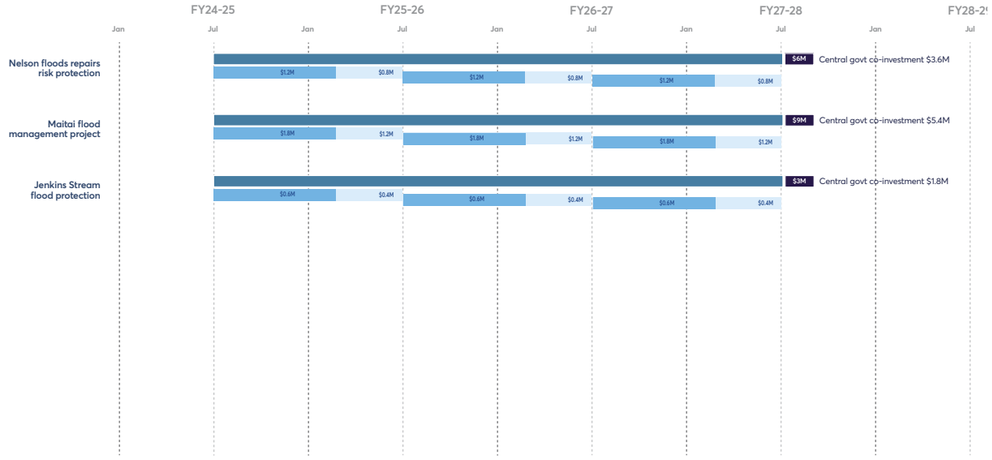
Greater Wellington Regional Council project list (2 of 3)



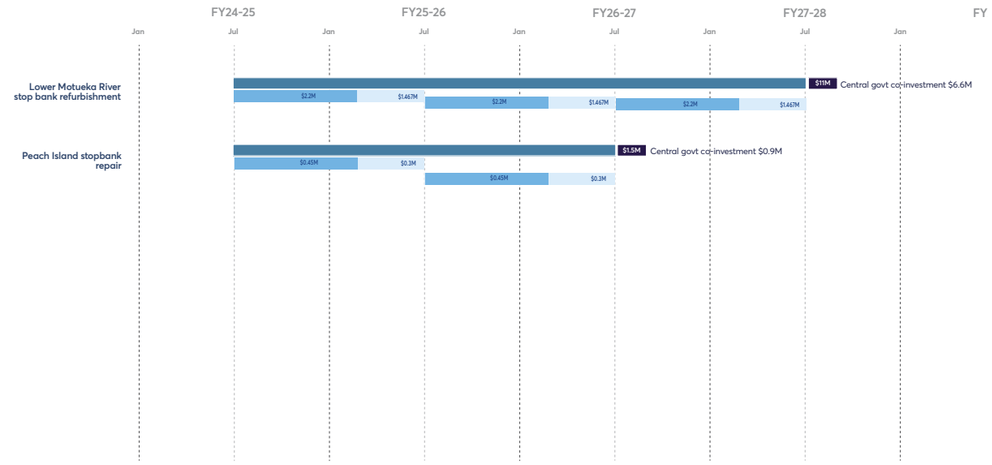
Greater Wellington Regional Council project list (3 of 3)



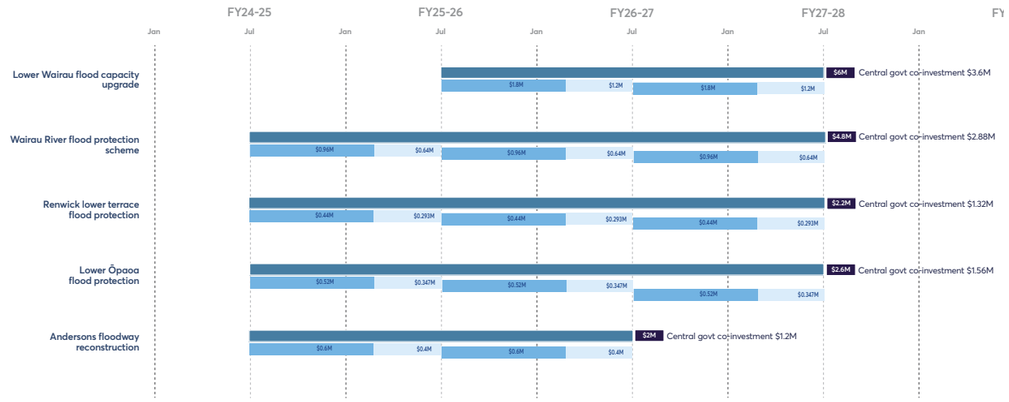
Nelson City Council project list



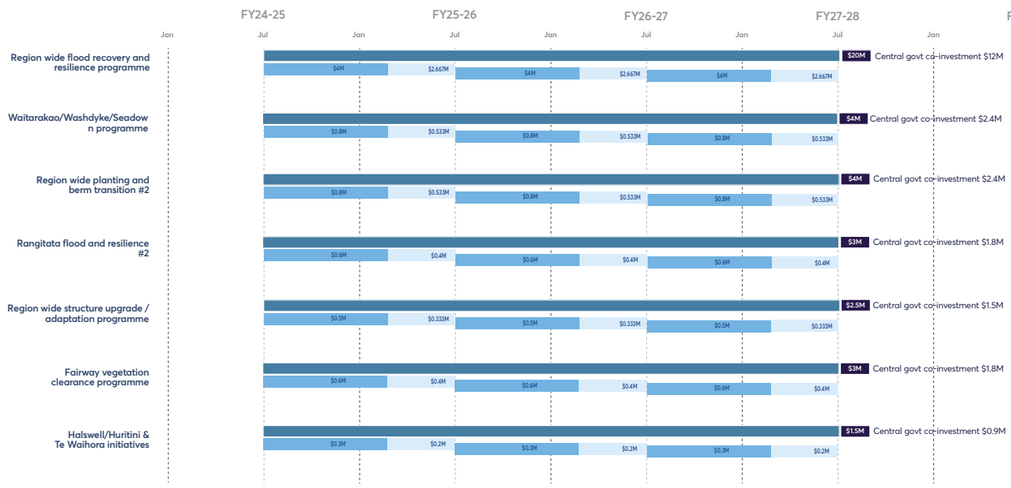
Tasman District Council project list



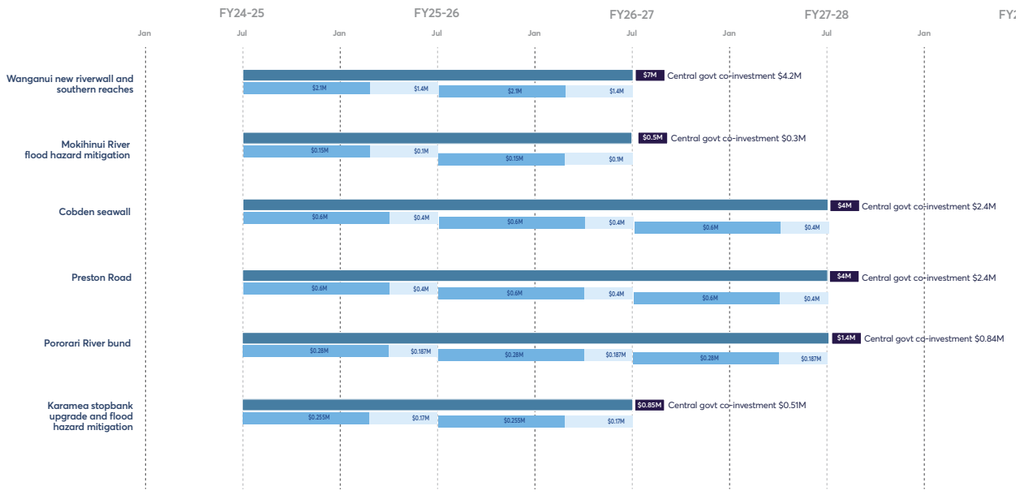
Marlborough District Council project list



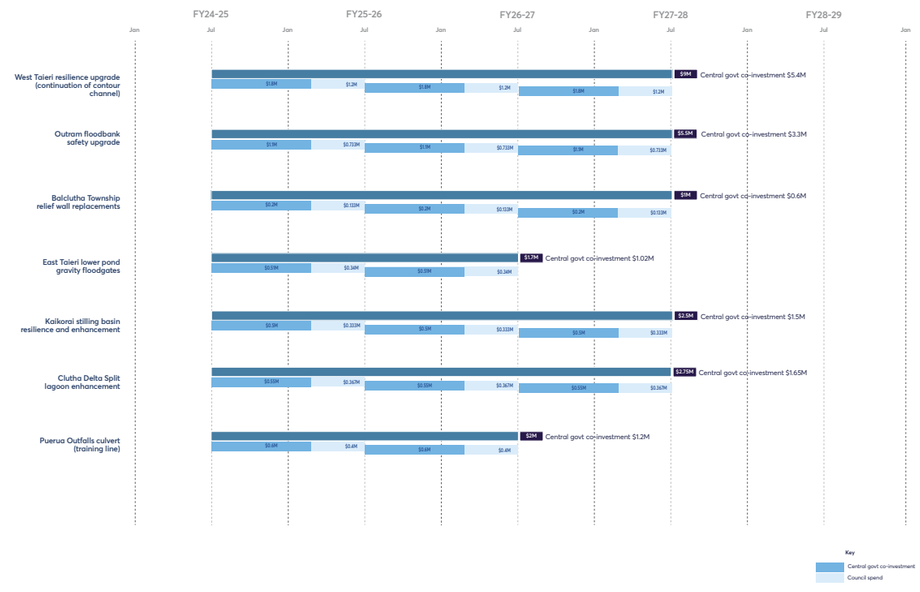
Environment Canterbury project list



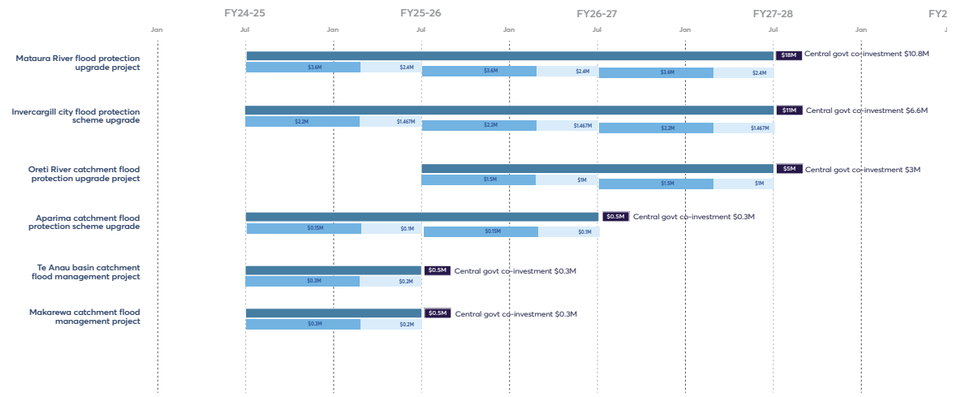
West Coast Regional Council project list



Otago Regional Council project list



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

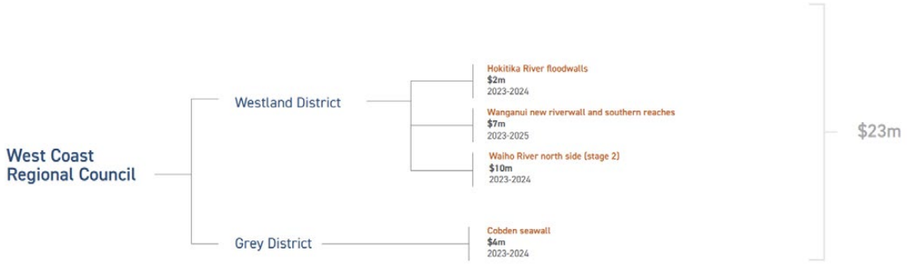
Tania Gibson
Mayor – Grey District

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

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 | TELEPHONE (0064) 3 520 7400
PO BOX 443 | FACSIMILE (0064) 3 520 7494
BLENHEIM 7240 | EMAIL mayor@marlborough.govt.nz
NEW ZEALAND | 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	

Kānoa
Regional Economic Development
& Investment Unit

REGIONAL INFRASTRUCTURE FUND

GRANT FUNDING AGREEMENT

FLOOD RESILIENCE PROGRAMME

BETWEEN

MINISTRY OF BUSINESS, INNOVATION AND EMPLOYMENT

AND

[OTAGO REGIONAL COUNCIL]

FOR

FLOOD PROTECTION WORK TRANCHE 1

Kānoa
Regional Economic Development
& Investment Unit

AGREEMENT

The parties (identified below in Part 1) agree to be bound by the terms and conditions of this Agreement, as set out below in Part 1 (Key Details), Part 2 (General Terms), Part 3 (Definitions and Construction) and the Schedule (Payment Request).

PART 1: KEY DETAILS

1	**Parties**	The Sovereign in right of New Zealand, acting by and through the Secretary for the Ministry of Business, Innovation and Employment (**Ministry**) Otago Regional Council, NZBN9429041912362, 70 Stafford Street, Dunedin, 9054
2	**Funding Start Date**	Commencement Date
3	**End Date**	31 December 2027
4	**Background**	Kānoa - Regional Economic Development & Investment Unit of the Ministry is responsible for administering the Regional Infrastructure Fund (**RIF**) which aims to achieve the following objectives: • lift productivity in regional economies by increasing the performance of businesses and catalysing the development of new or emerging industries; and/or • improve the ability for regional businesses and communities to absorb and recover from shocks and adapt to changing conditions. The Recipient has sought a funding contribution from the Ministry for the purposes of the Project(s) described in Appendix One. The Ministry has agreed to contribute funding on the terms and conditions of this Agreement (**Agreement**). Key details of this Agreement are set out in this **Part 1**. The full terms and conditions are set out in **Part 2**. Defined terms and rules of interpretation are set out in **Part 3**.
5	**Conditions Precedent**	No Funding is payable under this Agreement until the Ministry has confirmed to the Recipient in writing that it has received, and found, in its sole discretion, to be satisfactory to it in form and substance, the following documents and evidence: • **Co-funding**: a copy of a letter from the Recipient confirming any co-funding commitments and evidence of any co-funding commitments; • **Financial information**: a final, updated, budget setting out the funding and application of funds in relation to the Project(s) and the financing thereof, including all fees, costs and expenses (including taxes) in connection with the same; • **Consents**: a copy of the resource consent(s) and building consent(s)to enable physical work to commence and progress without delay in construction season 2024 / 2025;

- **Construction Insurance certificates**: if required by the Ministry, evidence, by way of letter, that the Recipient has (or its broker on its behalf has) addressed all required insurance requirements; and
- **Confirmation of physical works commencement:** written confirmation that the Project(s) will commence physical works in construction season 2024/ 2025.

These conditions precedent must be satisfied within a two month period from the date of signing this Agreement, unless agreed otherwise in writing with the Ministry. In the event that they are not satisfied within that time, the Ministry may notify the Recipient that this Agreement has not come into effect and is null and void.

6 **Project Description**

The Recipient will use the Funding to deliver the programme of works as described in (Appendix One). The Recipient will deliver the Project(s) in accordance with the Project Plan (Appendix One) and will apply the Funding in accordance with the indicative Project Budget: Condition Precedent (**Project(s)**).

7 **Payment**

The Recipient can submit a Payment Request quarterly. At the end of each quarter, being the end of: March, June, September and December, a Payment Request can request reimbursement for up to 60% of the Project(s) costs incurred in that quarter. A summary of Project(s), project descriptions, funding and co-funding can be found in Appendix One.

8 **Key Personnel**

Key Personnel	**Respective Roles**
Richard Saunders	Chief Executive Officer
Nick Donnelly	Chief Financial Officer
Tom Dyer	General Manager Science and Resilience
Michelle Mifflin	Manager Engineering
Brett Paterson	Programme Delivery Team Leader
Michael Burrows	Project Manager
Felicity Murdoch	Project Analyst

9 **Funding**

The total Funding available under this Agreement is up to **NZ $5,400,000** plus GST (if any). This is the Total Maximum Amount Payable.

The Funding will be paid Quarterly on satisfactory submission of a Payment Request in accordance with clause **Error! Reference source not found.** of Part 2 and the terms and conditions of this Agreement.

10 **Co-Funding**

The Recipient must have secured the Co-Funding (see Appendix One) to be used for the Project(s), plus GST (if any). The amount of Co-Funding in Appendix One shall be calculated as the difference between the Total Project Cost less the Maximum Amount Payable.

11 **Reporting**

The Recipient will, in accordance with this clause 11 of Part 1 and Schedule 2, provide the Ministry with the following reports, the timing and details of which, are as set out in Schedule 2:

(a) Monthly Reports (Progress Reports and Monthly check in meeting);

(b) Quarterly Reports; and

(c) Post-Project Completion Outcomes Report.

The Recipient acknowledges that the Ministry continues to develop, review and refine the reporting requirements for the Regional Infrastructure Fund and agrees to provide such additional, amended, varied or new information as the Ministry may reasonably request during the Term.

12 **Additional Undertakings**

The Recipient undertakes to deliver broader procurement outcomes (where appropriate) through this project , and is required to demonstrate, through its procurement processes, employment and upskilling opportunities, including for:

- participation of Māori businesses and local firms to deliver goods, services and capital works to support improved supplier diversity and local opportunity;
- supporting local people into local job opportunities and improved conditions for workers to improve wellbeing in regions;
- environmental and broader community benefits; and
- supporting the transition to a net zero emissions economy and reduction in waste to support meeting the Government's goals.

(the **Additional Undertakings**).

13 **Insurance**

Refer to Part 2, section **Error! Reference source not found.**

14 **Contact Person**

Ministry's Contact Person:	Recipient's Contact Person:
Name: Mark Aliprantis	Name: Michelle Mifflin
Email: mark.aliprantis@mbie.govt.nz	Email: michelle.mifflin@orc.govt.nz
Contract ID:	

15 **Address for Notices**

To the Ministry:	To the Recipient:
15 Stout Street,	Otago Regional Council
PO Box 1473	70 Stafford Street
Wellington 6140	Private Bag 1954
Attention: Kānoa	Dunedin 9054
Email: KānoaMonitor@mbie.govt.nz	Attention: Engineering
	Email: engineering@orc.govt.nz

Kānoa
Regional Economic Development
& Investment Unit

SIGNATURES

SIGNED for and on behalf of the **SOVEREIGN IN RIGHT OF NEW ZEALAND** by the person named below, being a person duly authorised to enter into obligations on behalf of the Ministry of Business, Innovation and Employment:

_____

Name:

Position:

Date:

SIGNED for and on behalf of the Otago Regional Council by the person named below, being a person duly authorised to enter into obligations on behalf of the Recipient:

_____

Name: Richard Saunders

Position: Chief Executive Officer

Date:

_____

Name: N/A

Position: N/A

Date:

Each signatory warrants that the persons signing on behalf of the Recipient have the necessary authority to execute this Agreement on behalf of the Recipient.

END OF PART 1

PART 2: GENERAL TERMS

1 **FUNDING**

1.1 The Ministry must pay the Funding (up to the "Total Maximum Amount Payable" specified in the Key Details) to the Recipient, subject to the terms of this Agreement. Unless stated otherwise in this Agreement, the Recipient may only claim the Funding to the extent necessary to cover Eligible Costs incurred by the Recipient. If the Recipient receives any Funding before it has incurred corresponding Eligible Costs, the Recipient must use the Funding solely on Eligible Costs.

1.2 On completion of a Quarter the Recipient must submit a Payment Request to KānoaMonitor@mbie.govt.nz and copying in Ministry's Contact Person in accordance with item **Error! Reference source not found.** (Payment) of the Key Details.

1.3 Each Payment Request is to be signed by the Otago Regional Council, General Manager Science and Resilience as an authorised signatory of the Recipient (with the appropriate delegations and oversight of Council procurement policies) and must be in the form set out in the Schedule 1 Payment Request and include the confirmations set out therein, and must include:

(a) the amount of Funding requested, which must not exceed item **Error! Reference source not found.** of the Key Details;

(b) a breakdown of total Eligible Costs incurred by the Recipient and confirmation that such costs are Eligible Costs for the purpose of this Agreement and have been paid or are currently due and payable;

(c) copies of invoices and or evidence received by the Recipient from third parties, and/ or internal Finance Evidence (council costs) in relation to the Eligible Costs where those Eligible Costs are more than $10,000 (on an individual basis or when grouped by supplier or subject matter) and statements and accounts showing the Eligible Costs incurred;

(d) a valid GST invoice complying with the Goods and Services Tax Act 1985;

(e) confirmation that no Termination Event is subsisting and that each of the warranties under clause **Error! Reference source not found.** of this Agreement are correct as at the date of the Payment Request; and

(f) contain any other information required by the Ministry.

1.4 The Ministry is not required to pay any Funding in respect of a Payment Request:

(a) where the Ministry is not satisfied with the progress of the Project(s);

(b) if any Project(s) have not been completed by the relevant "Completion Date" specified in Appendix One;

(c) if the Ministry is not satisfied with the information that is contained within, or provided in connection with, the reports or the Payment Request noting that in the context of the Payment Request the Ministry may elect to pay the Recipient for

certain Eligible Costs that are the subject of the Payment Request and withhold payment for other Eligible Costs that the Ministry disputes;

(d) if the Ministry is not satisfied that the Recipient has applied Co-Funding in accordance with clause **Error! Reference source not found.** of this Agreement;

(e) if payment will result in the Funding exceeding the "Total Maximum Amount Payable";

(f) while there are one or more Termination Event(s);

(g) if this Agreement has expired or been terminated; and/or

(h) while the Recipient is in breach of this Agreement.

1.5 Subject to the terms of this Agreement, the Ministry must pay each valid Payment Request by no later than the 20th day of the month after the month the Payment Request is dated, and if such day is not a Business Day, on the next Business Day.

2 **CO-FUNDING**

If specified at item **Error! Reference source not found.** of the Key Details, the Recipient must:

(a) ensure that during the term of this Agreement the Co-Funding:

(i) is and remains secured and available to the Recipient to be applied towards the Project(s) on the same terms and conditions approved by the Ministry; and

(ii) is applied to Eligible Costs as set out in the Key Details; and

(b) immediately notify the Ministry if it becomes aware of any circumstances that may result in the Co-Funding (or any part of the Co-Funding) not being secured and available to the Recipient to be applied towards the Project(s).

3 **RECIPIENT'S RESPONSIBILITIES**

Standards and compliance with laws

3.1 The Recipient must undertake the Project(s) as described in this Agreement.

3.2 In undertaking the Project(s), the Recipient must comply with all applicable laws, regulations, rules and professional codes of conduct or practice.

Project(s), Key Personnel and Contractors

3.3 The Recipient must ensure that the Project(s) are carried out:

(a) promptly with due diligence, care and skill, and in a manner that meets or exceeds Best Industry Practice;

(b) by appropriately trained, qualified, experienced and supervised persons; and

(c) in accordance with any directions of the Ministry, notified by the Ministry in writing from time to time.

3.4 The Recipient must ensure that the Project(s) are completed by the relevant "Completion Date" specified in Appendix One.

3.5 The Recipient must ensure that the Key Personnel undertake their respective roles in connection with the Project(s) as specified in the Key Details, except as otherwise approved in writing by the Ministry. If any Key Personnel become unavailable to perform their role, the Recipient must promptly arrange replacement Key Personnel acceptable to the Ministry.

3.6 The Recipient may not contract the delivery of the Project(s) or any of its obligations under this Agreement except where:

(a) it has the Ministry's prior written approval;

(b) the contractor(s) have been approved by the Recipient; or

(c) the subcontract is for less than $20,000.

3.7 The Recipient is responsible for the acts and omissions of any contractors.

3.8 The Recipient must ensure (and must procure that the head contractor when engaging with any other contractor ensures) that all agreements it enters into with contractors or any other party in connection with the Project(s) are on an "arm's length" basis, provide value-for-money and do not give rise to any Conflict of Interest. The Recipient must provide the Ministry with reasonable evidence of compliance with this clause **Error! Reference source not found.** in response to any request by the Ministry from time to time.

Information Undertakings

3.9 The Recipient must provide the Ministry with the reports as specified in clause 11 of the Key Details in Part 1 and Schedule 2, in accordance with the timeframes and reporting requirements as set out.

3.10 The Recipient must provide the Ministry with any other information about the Project(s) requested by the Ministry within the timeframe set out in the request.

3.11 The Recipient must promptly notify the Ministry if:

(a) the Recipient (or any of its personnel or contractors) becomes aware of, or subject to, a Conflict of Interest;

(b) the Recipient becomes aware of any matter that could reasonably be expected to have an adverse effect on the Project(s), or result in a Termination Event or a breach of any term of this Agreement by the Recipient.

3.12 The Recipient must not at any time do anything that could reasonably be expected to have an adverse effect on the reputation, good standing or goodwill of the Ministry. The

Recipient must keep the Ministry informed of any matter known to the Recipient which could reasonably be expected to have such an effect.

Funding, records and auditors

3.13 The Recipient must receive and manage all Funding in accordance with good financial management and accounting practices and to a high standard that demonstrates appropriate use of public funds including in respect of all adopted and applicable procurement practices and procedures associated with the Recipient as a local authority and the Government procurement rules (as applicable).

3.14 The Recipient must keep full and accurate records (including accounting records) of the Project(s), and retain them for at least 7 years after the last payment of Funding under this Agreement. The Recipient must permit the Ministry (or any auditor nominated by the Ministry) to inspect all records relating to the Project(s) and must allow the Ministry and/or the auditor access to the Recipient's premises, systems and personnel for the purposes of this inspection.

Capital Assets

3.15 If the Recipient uses the Funding to purchase or develop any Qualifying Capital Asset and, at any point during the term of this Agreement or during the 5 years after the End Date, either:

(a) the Recipient sells, disposes or transfers the Qualifying Capital Asset, without the Ministry's prior written consent; or

(b) the Qualifying Capital Asset will no longer be used for the purpose intended by the Ministry at the time this Agreement was entered into,

then the Recipient must immediately repay to the Ministry an amount equal to the amount of Funding used by the Recipient in the purchase or development of the Qualifying Capital Asset, as determined by the Ministry.

Insurance

3.16 The Recipient must effect and maintain insurance that is adequate to cover its obligations under this Agreement, plus any other insurance specified in the Key Details. The Recipient must, on request, provide the Ministry with evidence of its insurance cover required under this clause.

Health and Safety

3.17 Without limiting its other obligations under this Agreement, the Recipient must:

(a) consult, cooperate and coordinate with the Ministry to the extent required by the Ministry to ensure that the Ministry and the Recipient will each comply with their respective obligations under the Health and Safety at Work Act 2015 as they relate to this Agreement and the Project(s);

(b) perform its, and ensure that the contractors perform their, obligations under this Agreement and the Project(s) (as applicable) in compliance with its and their obligations under the Health and Safety at Work Act 2015;

(c) comply with all directions of the Ministry relating to health, safety, and security; and

(d) report any health and safety incident, injury or near miss, or any notice issued under the Health and Safety at Work Act 2015, to the Ministry to the extent that it relates to, or affects, this Agreement or the Project(s).

4 **PROJECT GOVERNANCE**

4.1 If advised in writing by the Ministry the Recipient must:

(a) provide reasonable notice to the Ministry of all Project(s) management group meetings and Project(s) governance group meetings; and

(b) copies of all documents and notices to be tabled at the Project(s) management group meetings and Project(s) governance group meetings to the Ministry no later than a reasonable period prior to the meetings, and the minutes of those meetings within a reasonable period after each meeting.

4.2 The Ministry may appoint observers who will be entitled to attend and speak at all Project(s) management group meetings and Project(s) governance group meetings (but will not be entitled to vote on any matter at those meetings).

5 **INTELLECTUAL PROPERTY**

5.1 The Ministry acknowledges that the Recipient and its licensors own all pre-existing intellectual property which they contribute to the Project(s), and all new intellectual property which they create in the course of the Project(s).

5.2 The Recipient grants an irrevocable, perpetual, royalty-free, sub-licensable licence to the Ministry to use all reports, documents, information and other materials created or provided by the Recipient to the Ministry under or in connection with the Project(s) and this Agreement.

5.3 The Recipient warrants that it has obtained (or will obtain, prior to creation of each relevant work) all rights and permissions necessary to enable the grant and exercise of the licence in clause **Error! Reference source not found.** without infringing the intellectual property rights of any third party.

6 **TERM AND TERMINATION**

6.1 This Agreement will be effective on and from the Commencement Date, which will be the latest to occur of:

(a) the date this Agreement has been signed by both parties and

(b) the date on which the Ministry has provided written notice to the Recipient that the Conditions Precedent specified in the Key Details, if any, have either been satisfied (in the opinion of the Ministry) or waived by the Ministry.

6.2 This Agreement will remain in force until the End Date, unless terminated in accordance with this Agreement (the **Term**).

6.3 The Ministry can terminate this Agreement with immediate effect, by giving notice to the Recipient, at any time while:

(a) the Ministry reasonably considers that the Recipient has become or is likely to become, insolvent or bankrupt;

(b) the Recipient is subject to the appointment of a liquidator, receiver, manager or similar person in respect of any of its assets;

(c) the Recipient has ceased to carry on its operations or business (or a material part of them) in New Zealand; or

(d) any one or more of the follow events or circumstances remains unremedied:

(i) the Recipient is materially in breach of any obligation, or a condition or warranty, under this Agreement;

(ii) the Recipient abandons the Project;

(iii) the Recipient has provided the Ministry with information in connection with or under this Agreement that (whether intentionally or not) is materially incorrect or misleading, and/or omits material information;

(iv) the Ministry reasonably considers that this Agreement or the Project(s) has/ have caused, or may cause, the Ministry and/or the New Zealand Government to breach any legal obligations (including its international trade obligations);

(v) the Recipient is involved in any intentional or reckless conduct which, in the opinion of the Ministry, has damaged or could damage the reputation, good standing or goodwill of the Ministry, or is involved in any material misrepresentation or any fraud;

(vi) the Recipient (or any of its personnel or contractors) is subject to a Conflict of Interest which cannot be managed to the Ministry's satisfaction; or

(vii) any change in law, regulations, government policy or other circumstances materially affects the Ministry's ability to perform its obligations under this Agreement.

6.4 However, where the Ministry considers that a Termination Event set out in clause **Error! Reference source not found.** can be remedied, the Ministry must give notice to the Recipient requesting a remedy, and must not exercise its right of termination unless the relevant event remains unremedied for at least 14 days (or any longer period agreed with the Recipient) after that notice has been provided by the Ministry.

6.5 The Ministry may recover Funding from the Recipient as follows:

(a) **Misspent Funding**. At any time the Ministry may recover the amount of any Funding that has been spent or used other than in accordance with this Agreement, together with interest on all such amounts calculated at 10% per annum from the date of the misspending to the date the money is repaid.

(b) **Uncommitted Funding**. On expiry or termination of this Agreement, the Ministry may recover any Funding paid to the Recipient, which the Recipient:

(i) has not spent or contractually committed to spend in accordance with this Agreement; or

(ii) has spent or contractually committed to spend in accordance with this Agreement but which the Recipient can have refunded or released from that commitment, provided the Recipient must use all reasonable endeavours to obtain such refund or release.

(c) **Co-Funding not provided.** If Co-Funding is required as set out in the Key Details, on expiry or termination of this Agreement, if the Co-Funding has not been used for the Project(s), the Ministry may recover an amount that represents the same proportion of the Funding as the proportion of Co-Funding that has not been used is of the total Co-Funding.

(d) **Project abandoned.** If the Recipient has abandoned the Project(s) or stated an intention to abandon the Project(s), and does not within 10 Business Days of being requested to do so by the Ministry demonstrate to the Ministry's satisfaction that the Recipient will proceed with the Project, the Ministry may recover an amount up to the total value of the Funding, provided the Ministry may not recover under this subclause if the Recipient satisfies the Ministry that it acted on reasonable grounds in deciding to abandon the Project(s).

(e) **Excess Funding.** On expiry or termination of this Agreement, where the total Funding paid under this Agreement and any other money received by the Recipient to carry out the Project(s) exceeds the funding required to perform the Project(s), the Recipient must upon request refund to the Ministry the excess amount. The Recipient is not required to refund, under this clause **Error! Reference source not found.**, any amount that exceeds the total amount of Funding.

6.6 Clauses **Error! Reference source not found.**, 3.1, **Error! Reference source not found.**, **Error! Reference source not found.**, **Error! Reference source not found.**, **Error! Reference source not found.**, **Error! Reference source not found.**, **Error! Reference source not found.**, **Error! Reference source not found.**, **Error! Reference source not found.**, **Error! Reference source not found.**, **Error! Reference source not found.**, **Error! Reference source not found.** and **Error! Reference source not found.** survive expiry or termination of this Agreement, along with any other parts of this Agreement necessary to give effect to those provisions. Expiry or termination of this Agreement does not affect any accrued rights, including any rights in respect of a breach of this Agreement or Termination Event that occurred before expiry or termination.

7 **WARRANTIES**

7.1 The Recipient warrants that, in the course of its activities in connection with the Project(s), it will not infringe any intellectual property or other rights of any third party.

7.2 The Recipient warrants that, as at the date of this Agreement:

(a) It has full power and authority to enter into and perform its obligations under this Agreement which, when executed, will constitute binding obligations on it in accordance with this Agreement's terms;

(b) all information and representations disclosed or made to the Ministry by the Recipient in connection with this Agreement are true and correct, do not omit any material matter, and are not likely to mislead or deceive the Ministry as to any material matter;

(c) it has disclosed to the Ministry all matters known to the Recipient (relating to Project(s), the Recipient, its contractors or its personnel) that could reasonably be expected to have an adverse effect on the reputation, good standing or goodwill of the Ministry; and

(d) it is not aware of any material information that has not been disclosed to the Ministry which may, if disclosed, materially adversely affect the decision of the Ministry whether to provide the Funding.

7.3 The Recipient acknowledges that the Ministry has entered into this Agreement in reliance on these warranties.

7.4 The Recipient acknowledges and agrees that the Ministry has made no warranty or representation that any funding or financial support is or will be available to the Recipient in respect of the Project other than the Funding.

8 **LIABILITY**

8.1 The maximum liability of the Ministry under or in connection with this Agreement, whether arising in contract, tort (including negligence) or otherwise, is limited to the total amount of Funding paid or payable under this Agreement.

8.2 The Ministry is not liable for any claim under or in connection with this Agreement, whether arising in contract, tort (including negligence) or otherwise, where such claim is or relates to any loss of profit, loss of revenue, loss of use, loss of reputation, loss of goodwill, loss of opportunity (in each case whether direct, indirect or consequential) or any other indirect, consequential or incidental loss or damages of any kind whatsoever.

9 **CONFIDENTIALITY**

9.1 Subject to clause **Error! Reference source not found.** and **Error! Reference source not found.**, each party must keep the other party's Confidential Information in confidence, and must use or disclose that Confidential Information only to the extent necessary to perform

its obligations, and/or take the intended benefit of its rights, under this Agreement. However, this will not prohibit:

(a) either party from using or disclosing any information with the written prior consent of the other party;

(b) use or disclosure of information that has become generally known to the public other than through a breach of this Agreement;

(c) either party from disclosing information to its personnel or contractors with a need to know, so long as the relevant personnel and contractors use the information solely to enable that party to perform its obligations and/or take the intended benefit of its rights under this Agreement, and so long as they are informed of the confidential nature of the information and in the case of the Recipient, the Recipient receives an acknowledgement from its personnel or contractors that they acknowledge, and must comply with, the confidentiality obligations in this Agreement as if they were party to it;

(d) disclosure required by any law, or any compulsory order or requirement issued pursuant to any law; or

(e) the Ministry from using or disclosing to any party any documents, reports or information received in relation to this Agreement, provided that prior to any such disclosure the Ministry removes all information that is commercially sensitive to the Recipient from the relevant work.

9.2 The Recipient acknowledges and agrees that nothing in this Agreement restricts the Ministry's ability to:

(a) discuss, and provide all information in respect of, any matters concerning the Recipient, the Project(s) or this Agreement with any Minister of the Crown, any other government agency or any of their respective advisors;

(b) meet its obligations under any constitutional or parliamentary convention (or other obligation at law) of or in relation to the New Zealand Parliament, the New Zealand House of Representatives or any of its Committees, any Minister of the Crown, or the New Zealand Auditor-General, including any obligations under the Cabinet Manual including the "no surprises" principle; and

(c) publicise and report on the awarding of the Funding, including the Recipient's and any of its subcontractor's names, the amount and duration of the Funding and a brief description of the Project(s), on websites; in media releases; general announcements and annual reports.

9.3 The Recipient acknowledges that:

(a) the contents of this Agreement; and

(b) information provided to the Ministry,

may be official information in terms of the Official Information Act 1982 and, in line with the purpose and principles of the Official Information Act 1982, this Agreement and such

information may be released to the public unless there is good reason, in terms of the Official Information Act 1982 to withhold it.

10 **MEDIA AND COMMUNICATIONS**

10.1 Before making any media statements or press releases (including social media posts) regarding this Agreement and/or the Ministry's involvement with the Project(s), the Recipient will consult with the Ministry, and will obtain the Ministry's prior approval to any such statements or releases.

10.2 The Recipient will refer any enquiries from the media or any other person about the terms or performance of this Agreement to the Ministry's Contact Person.

10.3 The Recipient will acknowledge the Ministry as a source of funding in all publications (including any digital presence) and publicity regarding the Project(s) in accordance with the Kānoa Funding Acknowledgement Guidelines on the website: Funding acknowledgement guidelines (growregions.govt.nz). The Recipient must obtain the Ministry's approval of the form and wording of the acknowledgement prior to including the acknowledgement in the publication or publicity (as the case may be).

10.4 If requested by the Ministry, the Recipient will establish or erect temporary and/or permanent signage (which may be in the form of a plaque) at the site of the Project(s) acknowledging the Ministry as a source of funding for the Project. The Ministry may provide such signage and the Ministry will consult with the Recipient in respect of a suitable location for such signage.

10.5 The Recipient does not have the right to enter into any commitment, contract or agreement on behalf of the Ministry or any associated body, or to make any public statement or comment on behalf of the Ministry.

10.6 All correspondence with the Ministry under this clause **Error! Reference source not found.** must be directed to the Ministry's Contact Person and copied to Kānoacomms@mbie.govt.nz.

11 **DISPUTES**

11.1 In the event of any dispute, controversy or claim arising out of or in connection with this Agreement, or in relation to any question regarding its existence, breach, termination or invalidity (in each case, a Dispute), either party may give written notice to the other specifying the nature of the Dispute and requesting discussions under this clause **Error! Reference source not found.**. As soon as reasonably practicable following receipt of a Dispute Notice, the parties must meet (in person, or by audio or video conference) and endeavour to resolve the Dispute by discussion, negotiation and agreement.

11.2 A party must not commence any proceedings in connection with a Dispute unless at least 40 days have elapsed since the issue of a corresponding Dispute Notice, and that party has used reasonable endeavours to comply with this clause **Error! Reference source not**

found.. However, nothing in this clause will prevent either party from seeking urgent interim relief from a court (or other tribunal) of competent jurisdiction.

12 **CONTACT PERSONS**

12.1 All matters or enquiries regarding this Agreement must be directed to each party's Contact Person (set out in the Key Details).

12.2 Each party may from time to time change the person designated as its Contact Person on 10 Business Days' written notice to the other Party.

13 **GENERAL**

13.1 Each notice or other communication given under this Agreement (each a notice) must be in writing and delivered personally or sent by post or email to the address of the relevant party set out in the Key Details or to any other address from time to time designated for that purpose by at least 10 Business Days' prior written notice to the other party. A notice under this Agreement is deemed to be received if:

(a) **Delivery**: delivered personally, when delivered;

(b) **Post**: posted, 5 Business Days after posting or, in the case of international post, 7 Business Days after posting; and

(c) **Email**: sent by email:

(i) If sent between the hours of 9am and 5pm (local time) on a Business Day, at the time of transmission; or

(ii) If subclause (i) does not apply, at 9am (local time) on the Business Day most immediately after the time of sending,

provided that an email is not deemed received unless (if receipt is disputed) the party giving notice produces a printed copy of the email which evidences that the email was sent to the email address of the party given notice.

13.2 The Recipient agrees to execute and deliver any documents and to do all things as may be required by the Ministry to obtain the full benefit of this Agreement according to its true intent.

13.3 No legal partnership, employer-employee, principal-agent or joint venture relationship is created or evidenced by this Agreement.

13.4 This Agreement constitutes the sole and entire understanding with respect to the subject matter hereof and supersedes all prior discussions, representations and understandings, written or oral.

13.5 No amendment to this Agreement will be effective unless agreed in writing and signed by both parties.

13.6 The Recipient may not assign or transfer any of its contractual rights or obligations under this Agreement, except with the Ministry's prior written approval.

13.7 The Ministry may assign or transfer any of its contractual rights or obligations under this Agreement without the Recipient's prior approval. The Ministry may at any time disclose to a proposed assignee or transferee any information which relates to, or was provided in connection with, the Project or this Agreement.

13.8 No failure, delay or indulgence by any party in exercising any power or right conferred on that party by this Agreement shall operate as a waiver. A single exercise of any of those powers or rights does not preclude further exercises of those powers or rights or the exercise of any other powers or rights.

13.9 The exercise by a party of any express right set out in this Agreement is without prejudice to any other rights, powers or remedies available to a party in contract, at law or in equity, including any rights, powers or remedies which would be available if the express rights were not set out in this Agreement.

13.10 This Agreement is not intended to confer any benefit on or create any obligation enforceable at the suit of any person not a party to this Agreement.

13.11 Any provision of this Agreement that is invalid or unenforceable will be deemed deleted, and will not affect the other provisions of this Agreement, all of which remain in force to the extent permitted by law, subject to any modifications made necessary by the deletion of the invalid or unenforceable provision.

13.12 This Agreement is to be governed by the laws of New Zealand, and the parties submit to the non-exclusive jurisdiction of the courts of New Zealand.

13.13 This Agreement may be executed in any number of counterparts (including scanned and emailed copies). So long as each party has received a counterpart signed by each of the other parties, the counterparts together shall constitute a binding and enforceable agreement.

END OF PART 2

PART 3: DEFINITIONS AND CONSTRUCTION

Defined terms
In this Agreement, unless the context requires otherwise:

Agreement means this agreement including Parts 1, 2 and 3 and Schedule 1 (and any other annexures or attachments).

Approved Contractor means an "Approved Contractor" specified in the Key Details.

Best Industry Practice means that degree of skill, care and foresight and operating practice that would reasonably and ordinarily be expected of a skilled and competent supplier of services engaged in the same type of undertaking as that of the Recipient or any contractors (as applicable) under the same or similar circumstances as those contemplated by this Agreement.

Business Day means any day other than a Saturday, Sunday or public holiday within the meaning of section 44 of the Holidays Act 2003.

Co-Funding means the "Co-Funding" (if any) or any part of the Co-Funding (as the context requires), described in the Key Details.

Commencement Date has the meaning given in clause **Error! Reference source not found.** of Part 2.

Completion Date is the date that the relevant Project Deliverable is to be completed by the Recipient, described in the Key Details, and includes any amendment to the date which may be agreed in writing (including by email but only when the Ministry's Contact Person expressly confirms in writing that they have received approval of the change from the correct Ministry delegation holder) between the parties from time to time.

Confidential Information of a party (Owner), means any information in the possession or control of another party (Holder) that:

(a) was originally acquired by the Holder in connection with this Agreement through disclosures made by or at the request of the Owner; and/or

(b) was originally acquired by the Holder in connection with this Agreement through any access to, or viewing, inspection or evaluation of, the premises, facilities, documents, systems or other assets owned or controlled by the Owner; and/or

(c) is derived from information of a kind described in paragraph (a) or (b) above;

but excludes any information which the Holder can show:

(d) was lawfully acquired by the Holder, entirely independently of its activities in connection with this Agreement, and is free of any other obligation of confidence owed to the Owner; and/or

(e) has been independently developed by the Holder without reference to the Owner's Confidential Information, and without breaching any other obligation of confidence owed to the Owner.

Notwithstanding the foregoing, the terms of this Agreement are Confidential Information of which each Party is both an Owner and a Holder.

Conflict of Interest means any matter, circumstance, interest or activity of the Recipient, its personnel or contractors, or any other person with whom the Recipient has a relationship that:

(a) conflicts with:

(i) the obligations of the Recipient (or its personnel or contractors) to the Ministry under this Agreement; or

(ii) the interests of the Recipient in relation to this Agreement and/or the procuring of the Project; or

(b) otherwise impairs or might appear to impair the ability of the Recipient (or any of its personnel or contractors) to diligently and independently carry out the Project in accordance with this Agreement.

Eligible Costs means the actual costs reasonably incurred by the Recipient:

(a) on or after the Funding Start Date and no later than the End Date;

(b) in good faith for the purpose of carrying out the Project or for purposes incidental to the Project, including all internal costs, disbursements and expenses incurred by the Recipient for such purposes (and to the extent the Recipient is carrying out any other activities) reasonably and proportionately allocated towards such purposes; and

(c) to the extent that the expenditure relates to work performed by parties not at ”arm’s length”, that expenditure is assessed at reasonable market value, and contains no unacceptable overhead and no element of “in group profit”.

End Date means the “End Date” specified in the Key Details.

Funding means the funding or any part of the funding (as the context requires) payable by the Ministry to the Recipient in accordance with the terms of this Agreement, as described in the Key Details.

Funding Start Date means the “Funding Start Date” specified in the Key Details.

Key Details means Part 1 of this Agreement.

Key Personnel means the “Key Personnel” specified in the Key Details.

Payment Request means a request submitted to the Ministry by the Recipient seeking payment of Funding substantially in the form set out in the Schedule to this Agreement.

Post-Project Completion Outcomes Report has the meaning given in the Key Details.

Project(s) means the “Project(s)” described in the Key Details.

Project Deliverable means a deliverable to be provided by the Recipient to the Ministry, as set out in the Key Details.

Qualifying Capital Asset means a capital asset (as determined in accordance with generally accepted accounting practice, as defined in the Financial Reporting Act 2013) purchased or developed by the Recipient using no less than $50,000 of Funding.

Recipient means the Recipient specified in the Key Details.

Termination Event means any one or more of the events or circumstances set out in clause **Error! Reference source not found.**.

Construction

In the construction of this Agreement, unless the context requires otherwise:

Currency: a reference to any monetary amount is to New Zealand currency;

Defined Terms: words or phrases appearing in this Agreement with capitalised initial letters are defined terms and have the meanings given to them in this Agreement;

Documents: a reference to any document, including this Agreement, includes a

reference to that document as amended or replaced from time to time;

Inclusions: a reference to "includes" is a reference to "includes without limitation", and "include", "included" and "including" have corresponding meanings;

Joint and Several Liability: any provision of this Agreement to be performed or observed by two or more persons binds those persons jointly and severally;

Parties: a reference to a party to this Agreement or any other document includes that party's personal representatives/successors and permitted assigns;

Person: a reference to a person includes a corporation sole and also a body of persons, whether corporate or unincorporate;

Precedence: if there is any conflict between the different parts of this Agreement, then unless specifically stated otherwise, Part 2 will prevail over the Key Details, and the Key Details will prevail over any Attachments;

Related Terms: where a word or expression is defined in this Agreement, other parts of speech and grammatical forms of that word or expression have corresponding meanings;

Statutes and Regulations: a reference to an enactment or any regulations is a reference to that enactment or those regulations as amended, or to any enactment or regulations substituted for that enactment or those regulations;

Writing: a reference to "written" or "in writing" includes email and any commonly used electronic document format such as .DOC or .PDF.

END OF PART 3

SCHEDULE 1 : PAYMENT REQUEST

To: MINISTRY OF BUSINESS, INNOVATION AND EMPLOYMENT
Dated: [*]

PAYMENT REQUEST NO. [•]

1. We refer to the Funding Agreement dated [*] between [*] as recipient (**Recipient**) and The Sovereign in right of New Zealand, acting by and through the Chief Executive of the Ministry of Business, Innovation and Employment (**Ministry**) (the **Agreement**). Terms defined in the Agreement have the same meaning in this Payment Request.

2. This is a Payment Request for the purpose of clause **Error! Reference source not found.** of the Agreement.

3. The Project Deliverables which are the subject of this Payment Request are:

   [*insert description of Project Deliverables*].

4. The amount of Funding requested is $[•] plus GST if any.

5. The Funding requested in this Payment Request is required to meet the Eligible Costs.

6. Invoices/statements and accounts evidencing the Eligible Costs incurred are attached.

**Note that for any Eligible Costs that are more than $10,000 (on an individual basis or when grouped by supplier or subject matter) a copy of the original invoices received from third parties in relation to the Eligible Costs must be provided.*

7. That each of the items referred to in paragraph 5 are Eligible Costs for the purpose of the Agreement have been paid or are currently due and payable.

8. [Co-Funding must be used to meet the following Eligible Costs that have been incurred by us:

   [*include breakdown description of Eligible Costs that Co-Funding must meet*]

9. [*Include valid GST invoice if relevant].*

10. We confirm that:

    (a) no Termination Event is subsisting; and

    (b) each of the warranties set out in the Agreement are correct as at the date of this Payment Request.

Except to the extent otherwise agreed in writing by the Ministry, all those items forming part of the Eligible Costs identified in any previous Payment Request as due or becoming due and payable, have been paid in full.

By and on behalf of the Recipient by

Tom Dyer
Position: General Manager Science and Resilience

_____

Authorised Officer

SCHEDULE 2: REPORTING

***Note**: The purpose of this Schedule 2 is to supplement and support the Recipient's reporting obligations set out in clause 12 of Part 1. The below reporting framework is generic and subject to ongoing refinement in accordance with the reporting requirements for the Regional Infrastructure Fund and after further discussion with Recipients]*

A. Monthly Reports

Report Type	Frequency	Description/Purpose	Information to be provided includes
Progress Report	Monthly (to be provided by the 10th Business Day following the end of each month)	Complete online questionnaire to track project progress.	**Project Delivery vs Budget** • Risks and/or issues arising or expected to arise with the Project, costs or performance of this Agreement including detail of any issues notified to the Ministry in accordance with clause **Error! Reference source not found.** of Part 2; • Days ahead or behind schedule as at report date; • Actual spend to report date vs budgeted spend (RIF Funding Only); • Co-funding spent to report date; • Forecast cost to completion of project; • Current project account balance; • Planned spend for next 3 months; • Amount paid to report date to local contractors and suppliers; and • Emerging risks affecting delivery. **Employment** • new employees started during the preceding month; • total employees employed as at the report date (including new employees); • total hours worked by all employees (includes contractors); • currently employed employees that are resident locally; • currently employed that were previously on Job Seeker Support; and

Report Type	Frequency	Description/Purpose	Information to be provided includes
			• percentage of total employees who are Māori. **Physical Works** A detailed summary and overview of the physical works undertaken during the reporting period including: • Metres of earth works (Stop banks) worked on which work comprises new, strengthened repaired, or increased height; • Tonnage of armour rock emplaced; • Tonnage of groynes; • Pump stations (the number of pump stations which are a work in progress or completed); • Metres of revetment work; • Floodgates (number of flood gates which are a work in progress or completed); • Metres of floodway passage capacity upgraded (vegetation and debris removal); • Metres of spillway and sill upgrades being undertaken; • Culvert intake/outflow (number of culvert intake/outflows which are a work in progress or completed); and • Metres of earth works (Stop banks) worked on (which work comprises vegetation stabilisation and/or erosion control).
Progress Check-In Meeting	Monthly (at a time to be agreed between the Ministry and the Recipient in the month following the	Scheduled 1:1 on-site, phone or online meetings with Ministry's Advisor	**Meeting** Discussion Topics include: • Review monthly project reports; • Recipient to advise details on areas of project risk; • Recipient to provide details on any advances or payment requests; and • Recipient to provide update on milestone achievements, budget changes, media and events.

Report Type	Frequency	Description/Purpose	Information to be provided includes
	Progress report)		

B. Quarterly Reporting

Report Type	Frequency	Description/Purpose	Information to be provided includes
Quarterly Report	Quarterly to be provided by the 10th Business Day following the end of each quarter and within 20 Business Days of completion of the Project	Submission of relevant documentation or media as evidence of financial position, milestones completed or supplementary proof of project delivery or outcomes.	Information to be provided includes: • A copy of the latest project expenditure to date including, actual against budgeted expenditure and co-funding applied to the project; • A copy of the latest available balance sheet, income statement, and cashflow statement; • A copy of the latest project asset register; • Any project reports, certificates, artifacts gathered as evidence of completed agreed deliverables to date; • Any photos, media or marketing related to the delivery or progress of the project to date; • Details of contracts entered into and related procurement process; • Technical reports; and • Board Reports (as related to the project).

C. Project Completion Outcomes Reporting

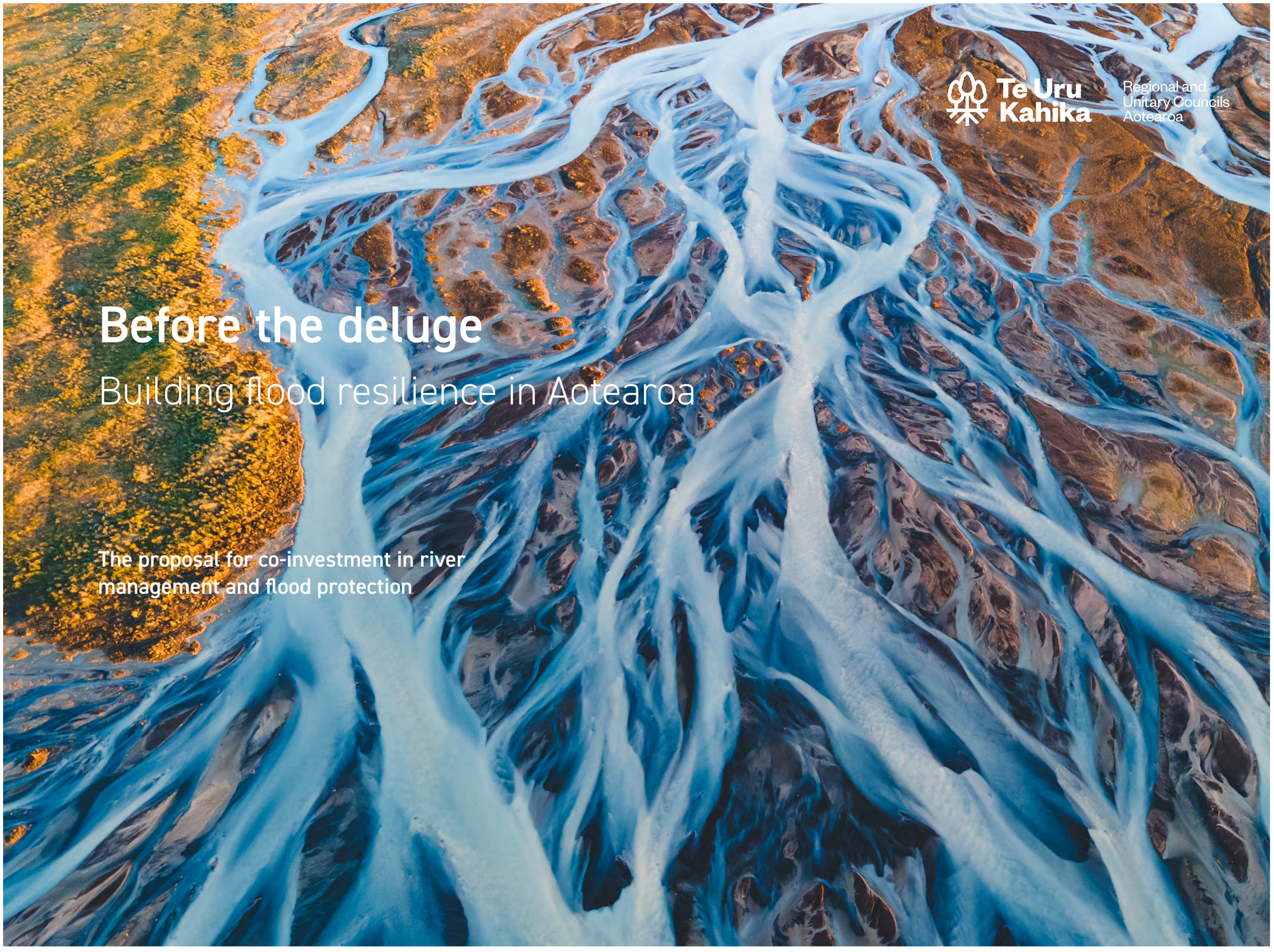
Report Type	Frequency	Description/Purpose	Examples of Information to be provided
Outcome Report/s	Due within 3 months after Practical Completion of the Project	Report to summarise what has been achieved, any variations from what was expected and other summary information	Information to be provided includes: • Summary of the benefits achieved through the Project; • Expected future benefits of the completed project/infrastructure; • Any variation from expectations at the start of the project; • Photos of the infrastructure completed and the opening event (if there is one); and • Any other summary information required.

APPENDIX ONE – PROJECT DETAILS

Project name and description	**Construction Commencement must be 2024/25 construction season**.	**End Date must before end of 2026/27 construction season**	**Project Cost, plus GST (if any)**	**Maximum Grant Amount Payable**
Contour Channel (West Taieri) Resilience Upgrade – continuation	October 2024	December 2027	$9,000,000	$5,400,000

APPENDIX TWO – PROJECT BUDGET(S)

Continuation of the Contour Channel (West Taieri) Resilience upgrade					
Milestone	**Funding Quarter**	**Comment**	**Ministry Quarterly Funding payment (,000)**	**Quarterly ORC Co-Funding (,000)**	**Total Project Cost (,000)**
Milestone 1	Q2 2024/2025	Commence bridge A Construction. Commence design and consenting packages	$ 559	$ 372	$ 931
Milestone 2	Q3 2024/2025	Complete bridge A Construction. Continue design and consenting packages	$ 210	$ 140	$ 350
Milestone 3	Q4 2024/2025	Continue design and consenting packages.	$ 135	$ 90	$ 225
Milestone 4	Q1 2025/2026	Continue design and consenting packages. Commence Floodbank construction.	$ 174	$ 116	$ 290
Milestone 5	Q2 2025/2026	Continue design and consenting packages. Continue Floodbank construction.	$ 507	$ 338	$ 845
Milestone 6	Q3 2025/2026	Complete all design and consenting packages. Continue Floodbank construction. Commence bridge B Construction.	$ 531	$ 354	$ 885
Milestone 7	Q4 2025/2026	Continue Floodbank construction. Complete bridge B Construction.	$ 774	$ 516	$ 1,290
Milestone 8	Q1 2026/2027	Continue Floodbank construction.	$ 123	$ 82	$ 205
Milestone 9	Q2 2026/2027	Continue Floodbank construction. Commence bridge C Construction.	$ 690	$ 460	$ 1,150
Milestone 10	Q3 2026/2027	Continue Floodbank construction. Complete bridge C Construction.	$ 976	$ 651	$ 1,627
Milestone 11	Q4 2026/2027	Continue Floodbank construction.	$ 721	$ 481	$ 1,202
Milestone 12	Q1 2027/2028	Complete Floodbank construction.	$ -	$ -	$ -
Milestone 13	Q2 2027/2028	Complete project closure	$ -	$ -	$ -
		Project totals	**$ 5,400**	**$ 3,600**	**$ 9,000**



Te Uru Kahika
Regional and Unitary Councils Aotearoa

Before the deluge

Building flood resilience in Aotearoa

The proposal for co-investment in river management and flood protection

Image: Birds eye view of river (Resilient River Communities)

Resilient River Communities

The MBIE/Kānoa/Regional and United Council 'Climate Resilience Flood Protection Programme' is developing the way forward for central government co-investment in flood resilience.

The 16 regional and unitary councils across Aotearoa are tasked with the integrated management of land, air, and water resources; supporting biodiversity and biosecurity; provision of transport services regionally; and building community resilience against climate change and natural hazards such as floods.

Collectively the regional sector's efforts are represented - through council Chief Executives - under the newly established identity Te Uru Kahika. Te Uru Kahika draws on expertise and local knowledge to promote the wellbeing of our environments and our communities.

In recent years, Te Uru Kahika has boosted its capacity to prepare for and respond to the impacts of climate change and natural hazards. The increase in flooding expected due to climate change has been a particular focus of this collective, as well as for the councils themselves.

River management and flood protection schemes, managed by the regional sector, have a critical role in mitigating against the full consequences of damaging flood events, the most frequent natural hazard experienced in New Zealand. This has been led by the River Managers' Special Interest Group (SIG), comprised of regional and unitary councils working collaboratively to increase community flood resilience.

However, climate change is expected to lead to more frequent and intense floods, and adapting to these increasing risks in the face of climate change comes with costs that can no longer be shouldered at a regional level alone.

In 2021, Resilient River Communities was launched as a joint initiative between Kānoa (the regional Economic Development and Investment Unit), regional and unitary councils. The Kānoa Climate Resilience Flood Protection Programme initiative was aimed at developing and upgrading crucial river management and flood protection schemes via a co-investment partnership approach with central government.

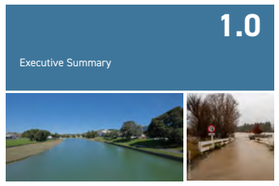
Through this initiative $312 million worth of flood resilience projects are being delivered across Aotearoa, with a $217 million co-investment from Kānoa. In addition to the flood resilience benefits, these schemes have also enabled social procurement outcomes including the creation of jobs, new businesses, and opportunities for local communities.

Alongside this, in recent years Te Uru Kahika, through the River Managers' SIG, has led a wider programme of work establishing the need and urgency for longer-term central government co-investment in flood protection and management. This included work lead by Tonkin+Taylor in 2018 and a substantive sector report published in 2020.

Thus far, these efforts have facilitated dialogue with key Ministers and officials, including the release of a 2020 Cabinet paper which set out a proposed framework for central government to take on a more active stewardship role in improving community resilience to flood risk. However, a co-investment commitment has not been secured to date.

Given the upcoming resource management reforms, alongside the growing risk of flood risk, it is timely to revisit the matter of co-investment that will provide pathways to long-term solutions for Aotearoa.

Table of contents



Executive Summary | 04

Overview of the rationale for co-investment and the path forwards

Strategic case | 15

Kānoa case studies | current state of flood protection | flooding and its impacts | challenges and risks | objectives, constraints and dependencies

Economic case | 50

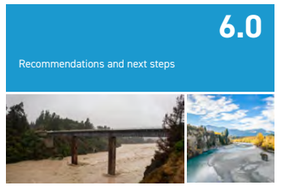
Project assessment approach | project listings | long term co-investment approach

Financial case | 70

Funding approach and sources | investment cashflow

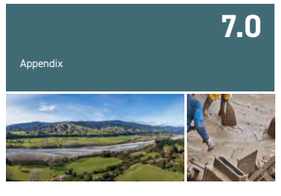
Implementation approach | 73

Regional construction pipeline | construction cost inflation | project timelines by Regional Council



Recommendations | 82

Recommendations for action



Appendix | 84

Detailed project tables and delivery timelines

How to read this document

The structure of this document largely follows the Treasury-endorsed Better Business Case methodology, and is divided into five sections:

- The **strategic case** sets out the challenges we are facing and the rationale for investment
- The **economic case** assesses the options for intervention and defines the preferred way forward
- The **financial case** identifies the funding sources and provides the financial tables
- The **implementation approach** defines the role of Te Uru Kahika in the investment and identifies the subsequent areas of work
- **Recommendations** summarises the document and provides a roadmap of the way forward
- The **appendix** provides more detailed supporting information about the projects and case studies.

Printing this document

This document contains a number of complex infographics and tables. While it should largely be legible if printed at A4, it will be even more legible if printed at the intended size of A3.

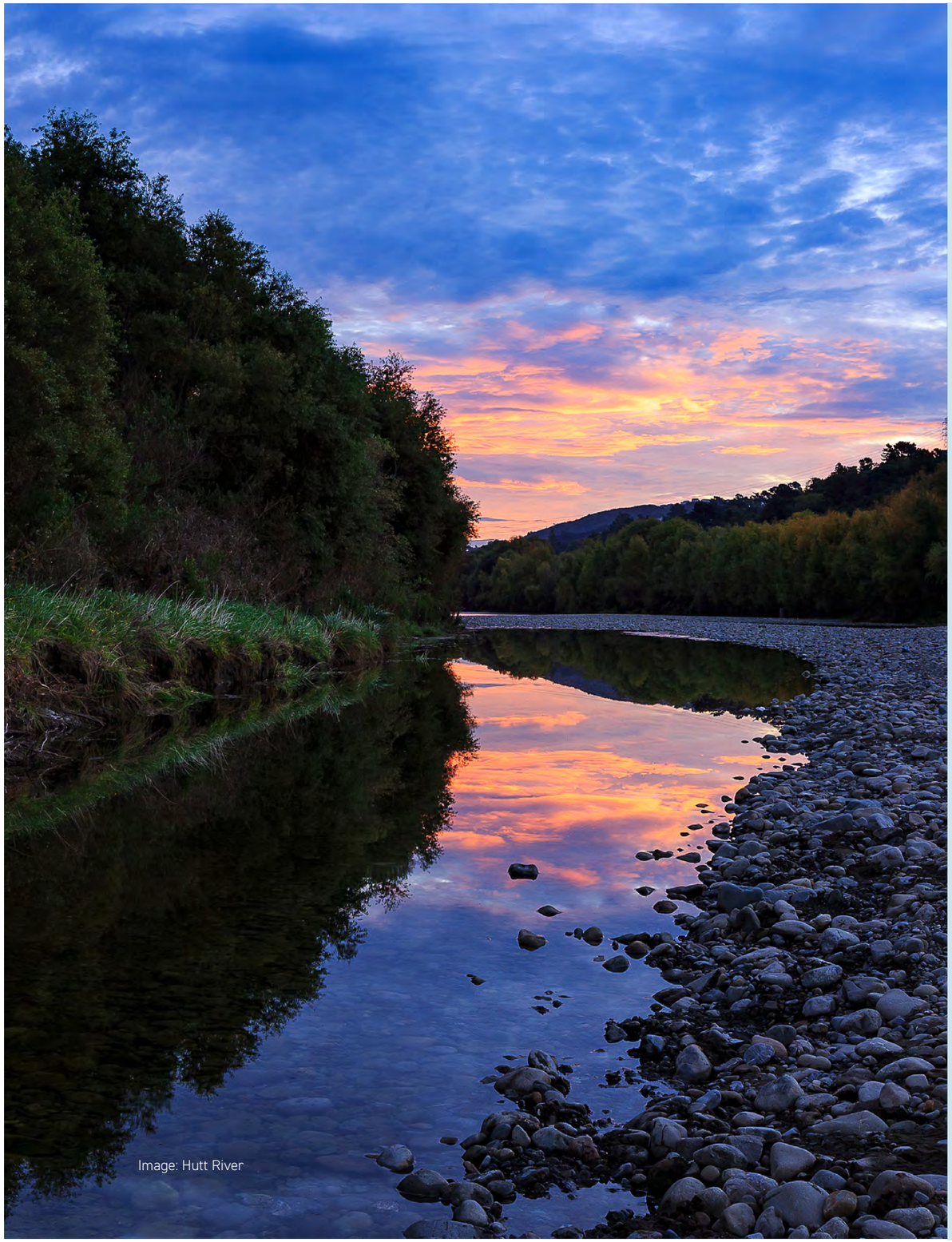


Image: Hutt River

At a glance

An overview of the challenge and the necessary response.

A significant investment is required.

Te Uru Kahika is seeking co-investment of $257.2m from central government alongside $171m from regional councils to accelerate delivery of 92 urgent shovel-ready projects.

Continuation of existing Covid recovery funding allows:

- The momentum developed over the last few years to be maintained
- More vulnerable communities to be protected
- Minimising and/or avoiding the fiscal impacts of more frequent and severe floods.

The case for taking immediate action is irrefutable.

Both national and international studies show the return on investment from well-designed flood protection works is considerable: $1 spent protecting a community avoids $5-$8 in clean-up costs afterwards, before the intangible benefits - in health, social, cultural, and environmental impacts - are considered.

The climate is rapidly changing. The frequency and magnitude of floods is accelerating.

There is a distinct national interest and national assets to be protected.

Co-investment from central government acknowledges shared accountabilities.

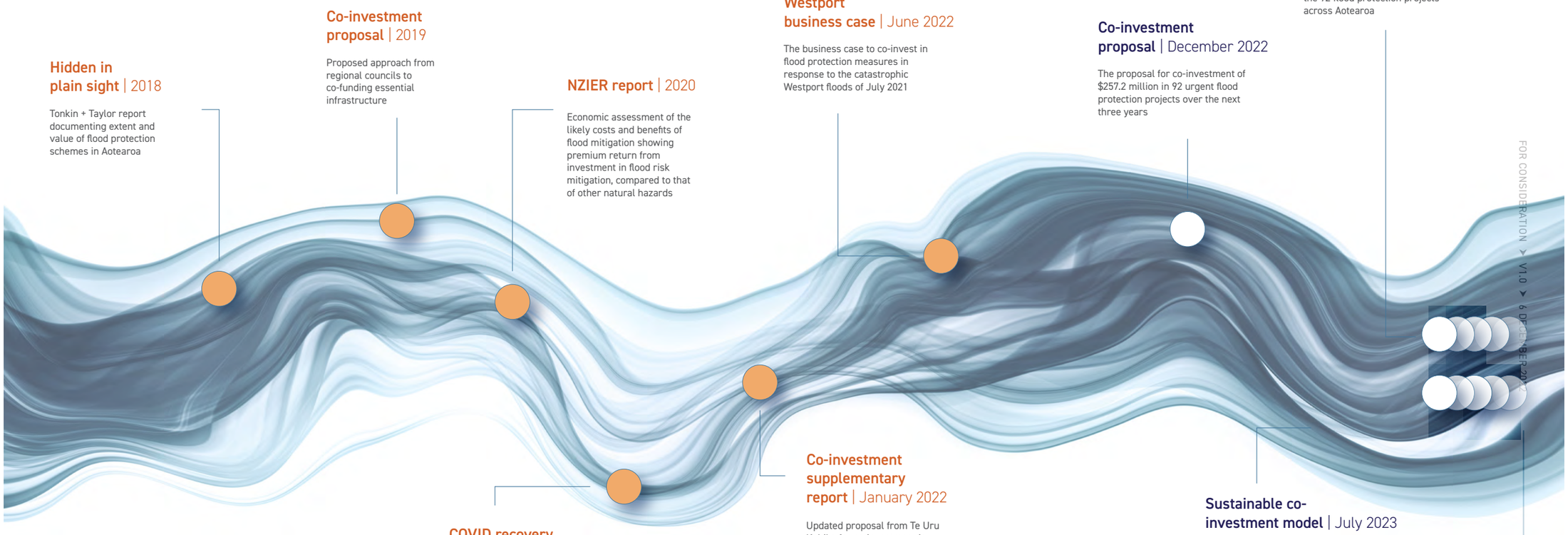
Regional councils have demonstrated their capacity and capability to deliver flood protection infrastructure.

This remains the first line of defence against flood risks, and a primary means of building community resilience until other longer term measures are put into effect.

The role of this investment case

How this investment proposal relates to other initiatives.

Considerable work has been done over the last few years to assess and quantify the risks and investment approaches needed to address them, as the diagram below shows. The work we are planning – discussed in more detail on the following pages – builds on the analysis and co-investment pathways developed between central government and Te Uru Kahika over the last few years, with the intention of providing Aotearoa with a pragmatic roadmap for flood resilience over the coming decades.



Hidden in plain sight | 2018

Tonkin + Taylor report documenting extent and value of flood protection schemes in Aotearoa

Co-investment proposal | 2019

Proposed approach from regional councils to co-funding essential infrastructure

NZIER report | 2020

Economic assessment of the likely costs and benefits of flood mitigation showing premium return from investment in flood risk mitigation, compared to that of other natural hazards

COVID recovery funding | 2020

$217m capital injection for essential works as part of the COVID recovery programme

Westport business case | June 2022

The business case to co-invest in flood protection measures in response to the catastrophic Westport floods of July 2021

Co-investment supplementary report | January 2022

Updated proposal from Te Uru Kahika for co-investment in flood protection schemes, demonstrating (through three case studies) the value of Crown assets being protected by schemes

Co-investment proposal | December 2022

The proposal for co-investment of $257.2 million in 92 urgent flood protection projects over the next three years

Delivery projects | July 2023

Commencement of the majority of the 92 flood protection projects across Aotearoa

Sustainable co-investment model | July 2023

Development of the long-term approach to sustainable co-investment in flood protection under the PARA framework commences

1.0

Executive Summary

The current state of flood protection

Flood protection is crucial to the economic, social, cultural, and environmental wellbeing of Aotearoa.

Flooding is the most common natural hazard in Aotearoa, with a major flood event occurring on average every eight months. Across the country around 675,000 people – or 14 percent of the population – live in areas prone to flooding.

Floods impose an annual cost to the nation of over $160 million in direct economic damage and clean-up costs, and a much higher toll in wider economic, social, cultural, and environmental impacts. It is also one of the most avoidable hazards and can largely be mitigated through flood protection schemes that reduce the risk of flooding.

Flood protection can be understood as a network asset that may include stopbanks, floodgates, pump stations, diversions, and river management works; all of which work together to protect areas where people live, work, and play.

There are currently 367 flood protection schemes in place, representing a combined capital value of $2.3 billion, with $200 million in annual operational expenses to maintain current levels of service. Together, these schemes directly protect around 1.5 million hectares of land and capital across the country, including the most highly populated regions in the country and many areas of significant cultural and social value, such as marae and urupā.

The map at right provides a snapshot of key flood-related metrics, including the estimated benefit value (in $billions) of these schemes for each region across the country. Consequently, these tend to be areas with the highest levels of economic activity and are therefore central to New Zealand's economy.

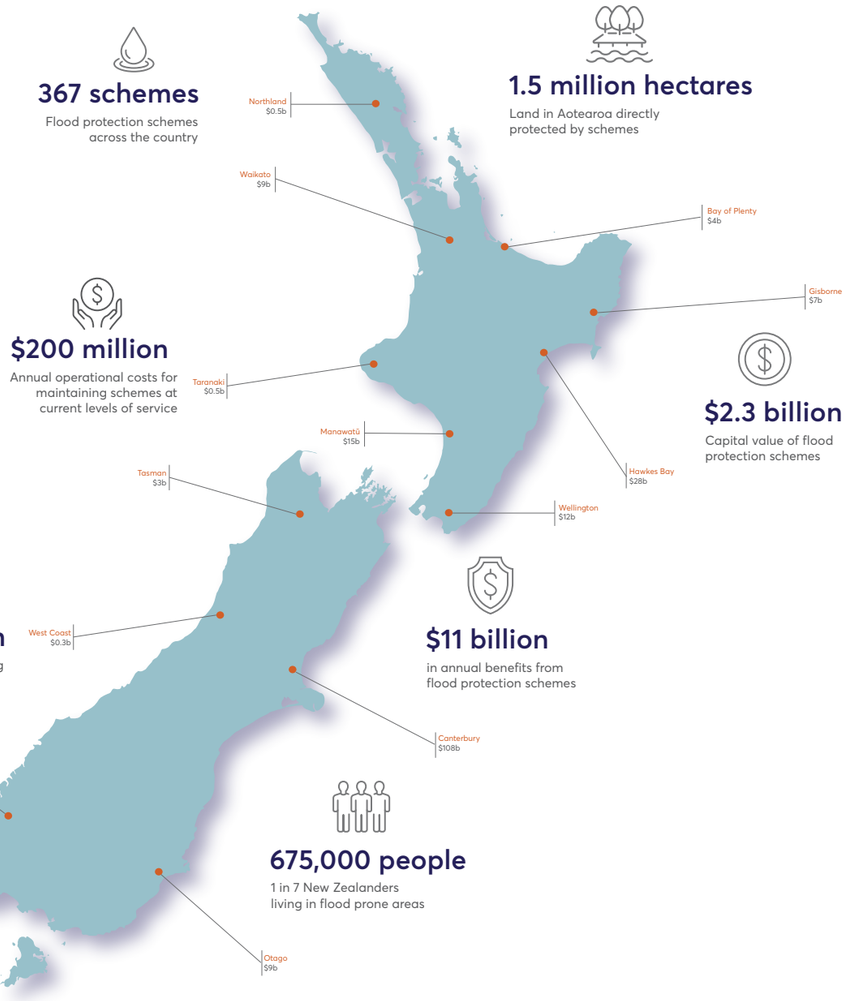
In this way, flood protection schemes comprise a core economic enabling infrastructure and are crucial to the economic, social, cultural, and environmental wellbeing of Aotearoa.

Schemes are largely funded through targeted rates and operated and managed by local and regional councils. Yet, they also provide wider benefits in protecting Crown assets on non-rateable land, and critical national infrastructure such as three waters, transport networks, and energy and telecommunication links.

Indeed, the total value of these benefits to the nation have been estimated at $11 billion each year. This is a benefit-to-cost ratio of around 5:1.

Despite the billions of dollars in benefits, flood management and protection has been largely absent from conversations with central government over the last three decades

This current funding model is neither sustainable nor fit-for-purpose in the face of growing challenges around climate change and the ability of local ratepayers to fund the necessary level of investment.



Source: Tonkin & Taylor (2018). Hiding in plain sight: An overview of current practices, national benefits and future challenges of our flood protection, river control and land drainage schemes. Report for River Managers' SIG.

The evolving scale of the challenge

Climate change impacts and our current funding approach are exacerbating our risks.

Flooding poses very significant risks to lives, livelihoods, communities and the economy, as we continue to see with every major flooding event. However, there are three main indicators that the situation is about to become worse.

First and foremost, existing flood protection schemes require ongoing maintenance and repair to maintain the levels of service and/or renew the asset for upcoming decades. Many schemes need major upgrades in order to continue functioning as intended. This does not include the implementation of new schemes and initiatives to meet current and future needs.

However, flood protection schemes are primarily funded through a ratepayer base, and increasing rates to fund this necessary work is neither viable nor equitable. In the absence of any central government funding, the affordability and continuity of flood protection schemes – so crucial to protecting our nation's assets – remains under threat.

Second, the assets protected by these schemes have steadily increased in value over time. Adjacent urban development has also intensified. This means that the damage from a major flood event will incur significant wellbeing and economic costs, which are rising over time. Traditionally some of these costs have been recouped via insurance, although pay-outs do not cover the full extent of damage nor do they reduce the future risk of flooding.

Third, and relatedly, the impacts of climate change are creating further risks to our flood resilience. Both NIWA and international evidence indicates an increased frequency and severity of extreme flood events, alongside rising sea levels which pose threats to coastal communities.

Increasing flood events lead to successive increases in insurance premiums as well as the partial or full withdrawal of cover by insurance companies, as already seen in parts of the United States.

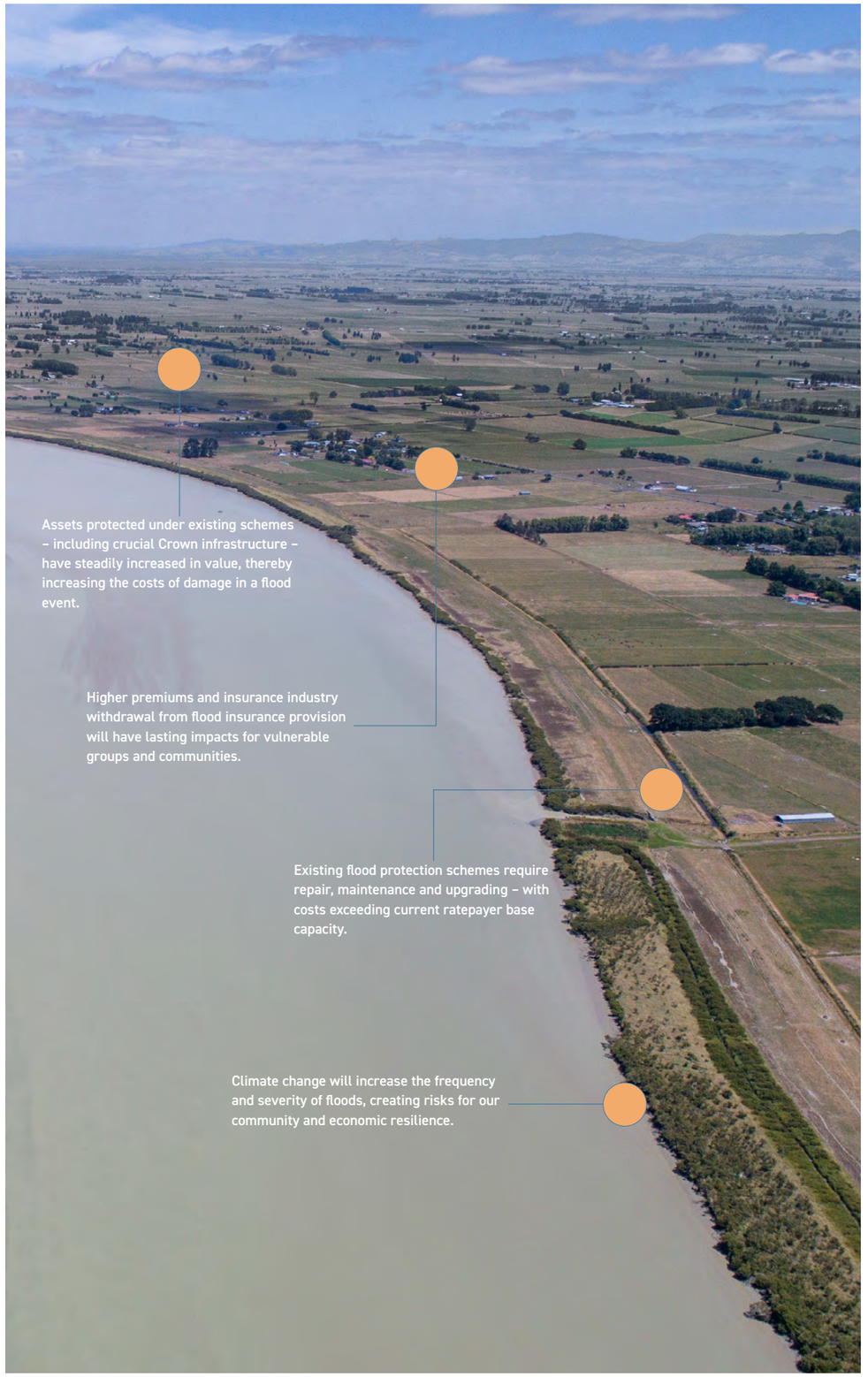
Indeed, recent research has conservatively estimated that New Zealand will see very significant insurance premium hikes within the next ten years, with more than 10,000 houses across Wellington, Auckland, Christchurch, and Dunedin experiencing full insurance withdrawal by 2050. While the Insurance Council of New Zealand has previously signalled their own commitment toward maintaining insurance support for high risk communities, this is contingent on broader national-level commitments toward flood risk mitigation.

Higher insurance premiums and retreat will create lasting impacts for vulnerable communities who will be unable to rebuild nor have the means to relocate after a flood. This is just one way climate change will disproportionately be felt those most vulnerable in society, with enduring impacts on intergenerational wellbeing.

Flooding also represents a significant liability for the government through disaster response and funding via agencies such as NEMA. The projected costs of climate change on storms and flood liability alone is conservatively estimated to increase Crown liability to between $231 and $261 million per year by 2050.

Together, these lines of evidence suggest materially increased risks to Aotearoa's wellbeing and economy in coming years. Mitigating these foreseeable risks through central government co-investment will serve as the nation's first line of defence against climate change-induced flooding, with benefits for every New Zealander.

Sources: NZIER (2020). ***Investment in natural hazards mitigation: Forecasts and findings about mitigation investment***. Report to DIA; Storey, B., Owen, S., Noy, I. & Zammit, C. (2020). ***Insurance Retreat: Sea level rise and the withdrawal of residential insurance in Aotearoa New Zealand.*** Report for the Deep South National Science Challenge, December 2020.



Impact on communities: The case of Westport

There are significant and long-term impacts on our communities and economies from flooding events.

Flooding creates detrimental economic, social, cultural, and environmental impacts for communities, as illustrated by the recent Westport floods.

Floods create significant financial costs in damage, recovery and response, and wider economic damage

The July 2021 floods alone saw more than 2,000 people evacuated from over 826 properties. Nearly a quarter of the town's housing stock was damaged or deemed unsafe for occupation, representing around $88 million in insurance claims settled to date.

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

Initial damage assessments carried out in late February estimated between $21.5 and $43 million in damages from the two flooding events. This includes costs in damage to crucial infrastructure such as roading and water supply, removal of domestic waste, and damage to at least 70 farms district wide.

More than a year on from the July floods, less than one fifth of homes have been fully repaired and the costs of recovery have been estimated at nearly $100 million. Unfortunately, these damage and recovery costs will fall to the community in a region with high levels of socioeconomic deprivation.

Beyond the immediate costs incurred from flood damage, there is also the sizeable cost associated with Government responses to flooding events, such as deploying the New Zealand Defence Force, emergency services, and other relief agencies. While these have not been quantified for the Westport case, data from 1976 to 2004 indicates government expenditure on civil defence responses for floods alone averaged about $15 million per year.

There are also broader economic costs associated with social and business disruption, such as accommodating displaced residents, losses in income and production from businesses being unable to operate, disruption to schooling, and damage to natural and cultural heritage. Ultimately these costs are subsequently borne by the entire nation through higher insurance premiums as well as tax increases to fund repairs and future flood response.

Floods also create significant social and environmental impacts on wellbeing

The impacts of flooding on families and communities can extend well beyond the 'recovery and rebuild' stage. Aside from potential injuries and loss of life, there is also the enduring psychological and emotional toll on affected communities.

A recent news article following Westport residents a year on from the July floods shows just how much of a daily stressor it can be, and how long it can take for a community to recover from a major flood event. Long term, these can affect people's tolerance of flood risk and their willingness to live in certain areas.

Flooding and other natural disasters can also exacerbate inequities, especially when there is a reliance on insurance-based transfer of risk, as is the case in New Zealand. This is because low-income and disadvantaged households disproportionately live in low-cost housing/rentals less resilient to floods and in high-risk areas, and may be unable to afford appropriate levels of insurance.

Thus, many of these families are unable to rebuild post-disaster and struggle to recover. They may also lack the means and support networks to relocate, resulting in higher debt or even homelessness. The compounding effect of these challenges creates a poverty trap with lasting intergenerational impacts.

Such impacts may be further amplified for vulnerable groups in Aotearoa – including Māori, recent migrants and ethnic minorities, the elderly, and people with disabilities. A recent DIA report identifies at least 75 communities across Aotearoa with high levels of socioeconomic vulnerability and exposure to risk of flood, with 44 of these being particularly 'vulnerable' in terms of not having flood protection infrastructure nor financial capacity to fund flood responses.

Finally, there are also environmental impacts of flooding. For example, as a result of the July 2021 floods in Westport more than 2,100 tonnes of flood-affected building and domestic waste was sent to landfills. This creates a further unquantified financial and environmental cost.

In this way, the economic, environmental, social, and intergenerational wellbeing impacts of flooding are felt long after the floods recede. More often than not, these impacts of climate change-induced weather events are disproportionately borne by low-income and vulnerable groups. Importantly, it is not just these natural disasters, but also how governments mitigate and respond to them, that contributes to growing inequality.

Sources: Stuff.co.nz. (15 July 2022). ***More than 400 homes still not repaired one year on from Westport floods.*** Retrieved from https://www.stuff.co.nz/the-press/news/west-coast/300636197/more-than-400-homes-still-not-repaired-one-year-on-from-westport-floods; DIA. (2020). ***Vulnerable communities exposed to flood hazard*** report.

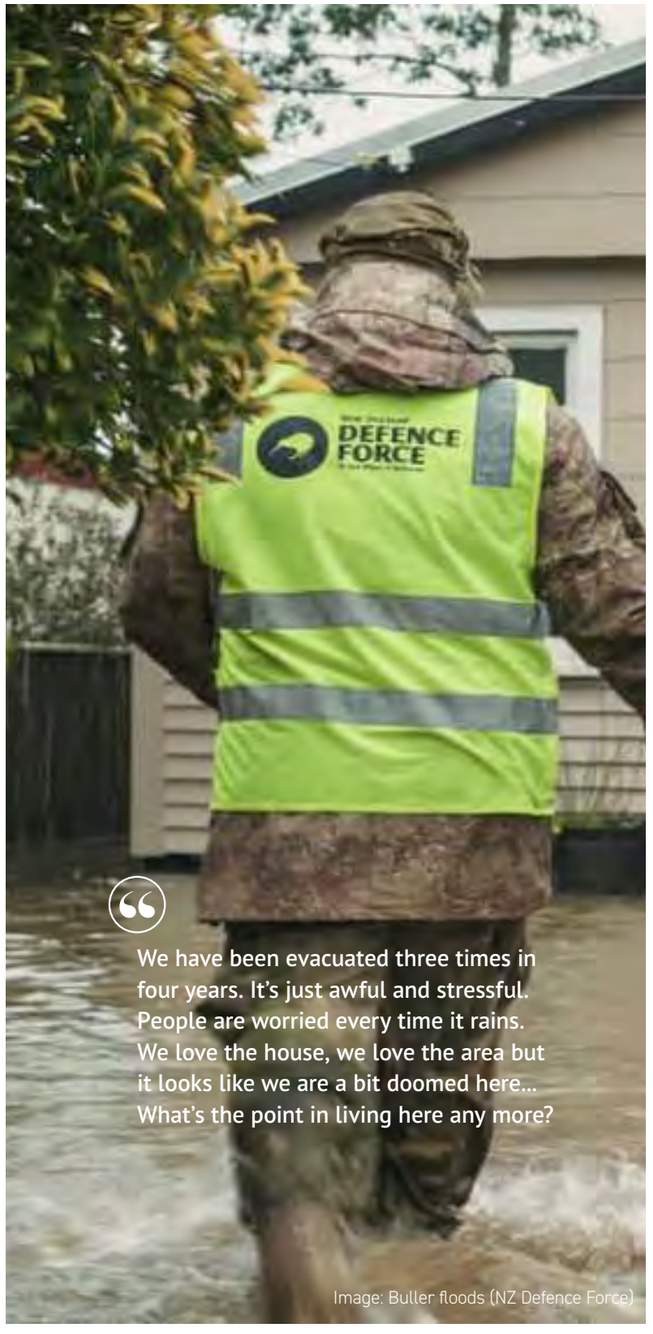


Image: Buller floods (NZ Defence Force)

There are strategic risks in our current approach

The business as usual approach to flood protection is creating significant strategic risk for the Crown.

Climate change will increase our flood risk of flood events, and if left unmitigated this will lead to partial or full insurance retreat.

Climate change increases flood risk and insurance retreat

Climate change has been identified as a threat to the re/insurance industry as early as 1979. The issue impacts insurance markets in two ways.

First, extreme weather events are increasing our underlying flood risk meaning insurance companies are also increasingly taking on a greater risk, along with potentially bigger financial losses. This requires a greater reliance on reinsurance to remain solvent.

Second, it means that flooding is no longer an unforeseeable or chance event, but is becoming an increasing reality for many regions. Indeed, the Insurance Council of New Zealand (ICNZ) notes that certain impacts of climate change such as sea level rise are neither unforeseen nor insurable.

As a result, insurers are more attuned to climate change in their actuarial analysis and pricing. Using sophisticated catastrophe and disaster modelling tools, insurers are now shifting toward risk-based pricing where individual flood risk ratings determine premiums.

In some cases, the level of flood risk may be too high or unprofitable for re/insurers to underwrite, making insurance unaffordable and/or restricted in certain regions (partial retreat) or creating 'no go' zones where insurance companies fully retreat from providing coverage.

Previous evidence suggests partial insurance retreat occurs when flood probabilities exceed the 2% Annual Exceedance Probability (AEP) threshold, and full retreat by 5%. In fact, we are already seeing insurance retreat play out in flood-prone areas such as Florida and Louisiana, in the United States.

The state of play in Aotearoa

According to a 2018 Lloyd's of London report, New Zealand is the second riskiest country, after Bangladesh, in terms of expected losses from natural disasters (as a proportion of GDP). We also have one of the highest levels of insurance penetration in the world - between 96 to 98% of homes being insured - with flood risk cross-subsidised over a wide base.

However, in late 2021 Tower Insurance shifted toward an individual risk based system for flood protection with approximately 10% of its customer base seeing an increase in premiums. Based on early indications we can expect the local insurance market to follow suit, especially since most insurance companies in Aotearoa are internationally based.

Other companies such as IAG have also signalled the impending impact of climate change on risk, while calling for urgent collaborative flood risk prevention and reduction.

These changes are likely to have implications for insurance availability and affordability, and central government is already considering options for home flood insurance as outlined in the National Adaptation Plan.

The ICNZ has also set out its views on the need for an urgent, proactive, and coordinated approach to flood risk mitigation and adaptation in Aotearoa. They have emphasised that the time for acting is now, while insurance is still largely accessible across the country, rather than relying on affordability issues as the trigger for action.

More recently IAG has echoed these sentiments and put forward a three-step plan for flood risk reduction, including:

(1) improved mapping of flood prone locations;

(2) implementing national policy to stop development in flood prone locations; and

(3) developing a business case for a national programme of investment in flood protection based on priority locations identified in step 1.

Thus, there is growing impetus from the insurance industry for more proactive risk reduction and adaptation in the lead up to its eventual shift toward risk-based pricing, alongside consistent signalling that the industry is committed to being part of the solution.

Sources: Bajrektarevic, A., & Baumer, C. (2012). *Climate change and reinsurance: The human security issue.* Economics, Management & Financial Markets, 7(4), 42-86; Surminski, S. (2017). *Fit for the future? The reform of flood insurance in Ireland: resoluing the data controversy and supporting climate change adaptation.* Policy paper, The Grantham Research Institute on Climate Change and the Environment; Storey, B., Owen, S., Noy, I. & Zammit, C. (2020). *Insurance Retreat: Sea level rise and the withdrawal of residential insurance in Aotearoa New Zealand.* Report for the Deep South National Science Challenge, December 2020; Llyod's of London. (2018). *A world at risk: Closing the insurance gap.*; Ministry for the Environment. 2022. *Aotearoa New Zealand's first national adaptation plan.* Wellington.; ICNZ. (2022). *ICNZ submission on the draft National Adaptation Plan including managed retreat.* Retrieved www.icnz.org.nz.

The co-investment approach

Significant national interest in flood protection requires ongoing co-investment.

Our co-investment proposal will enable essential infrastructure work to progress in some of our most vulnerable communities.

In 2021, Kānoa invested $217 million into 55 flood protection projects across Aotearoa as part of the government's COVID-19 recovery programme. This investment represents the most significant contribution from central government in over 30 years and has fast-tracked projects to improve long-term community flood resilience.

Regional councils prioritised 'shovel ready' projects that would accelerate existing or planned programmes of work for flood risk management. Kānoa and central government priorities for these projects were around climate resilience, with social procurement as an implementation requirement.

This programme was considered the first step in an establishing an effective ongoing co-investment partnership for flood resilience between central and local government.

The midway progress report (included in the Strategic Case section) evidences councils' capability and track record of delivery on projects funded through central government contributions. A selection of case studies are also included; demonstrating the social, economic, cultural, and environmental benefits arising from these projects.

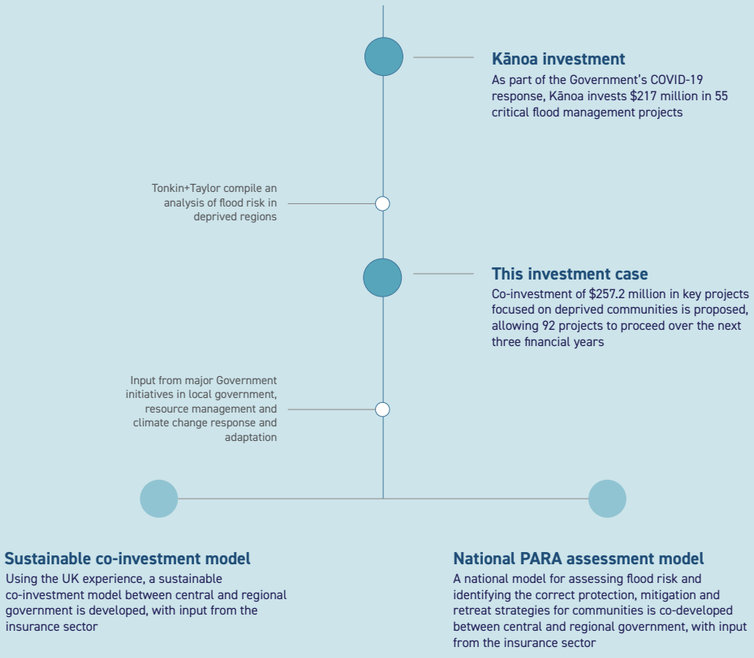
The sector's delivery and execution of these 55 essential flood protection projects provides an important foundation for co-investment and developing genuine partnership with central government in improving community flood resilience and wellbeing outcomes.

Within this context, our request for co-investment of $257.2 million over three years represents the continuation of essential infrastructure work, allowing some of our most vulnerable communities to progress shovel-ready flood protection projects.

Central government has and continues to demonstrate a significant interest in improving our flood resilience in the face of climate change; as seen in the 2020 Cabinet Paper, the National Adaptation Plan 2022-2028, and the Resource Management Act reforms. This interest is also increasingly reflected in our communities' needs and expectations.

Sources: Cabinet paper. (2020). *Improving resilience to flood risk and supporting the COVID-19 recovery;* Ministry for the Environment. 2022. *Aotearoa New Zealand's first national adaptation plan.* Wellington.; ICNZ. (2022). *ICNZ submission on the draft National Adaptation Plan including managed retreat.* Retrieved www.icnz.org.nz.

Two additional elements are required to ensure Aotearoa has a robust approach to flood protection that will respond effectively to the challenges of climate change. These are a sustainable co-investment model that brings together central and regional government, and a national PARA assessment model that enables informed decisions to be made about protection, mitigation and retreat on a community-by-community basis across Aotearoa. These elements are discussed later in our investment case.



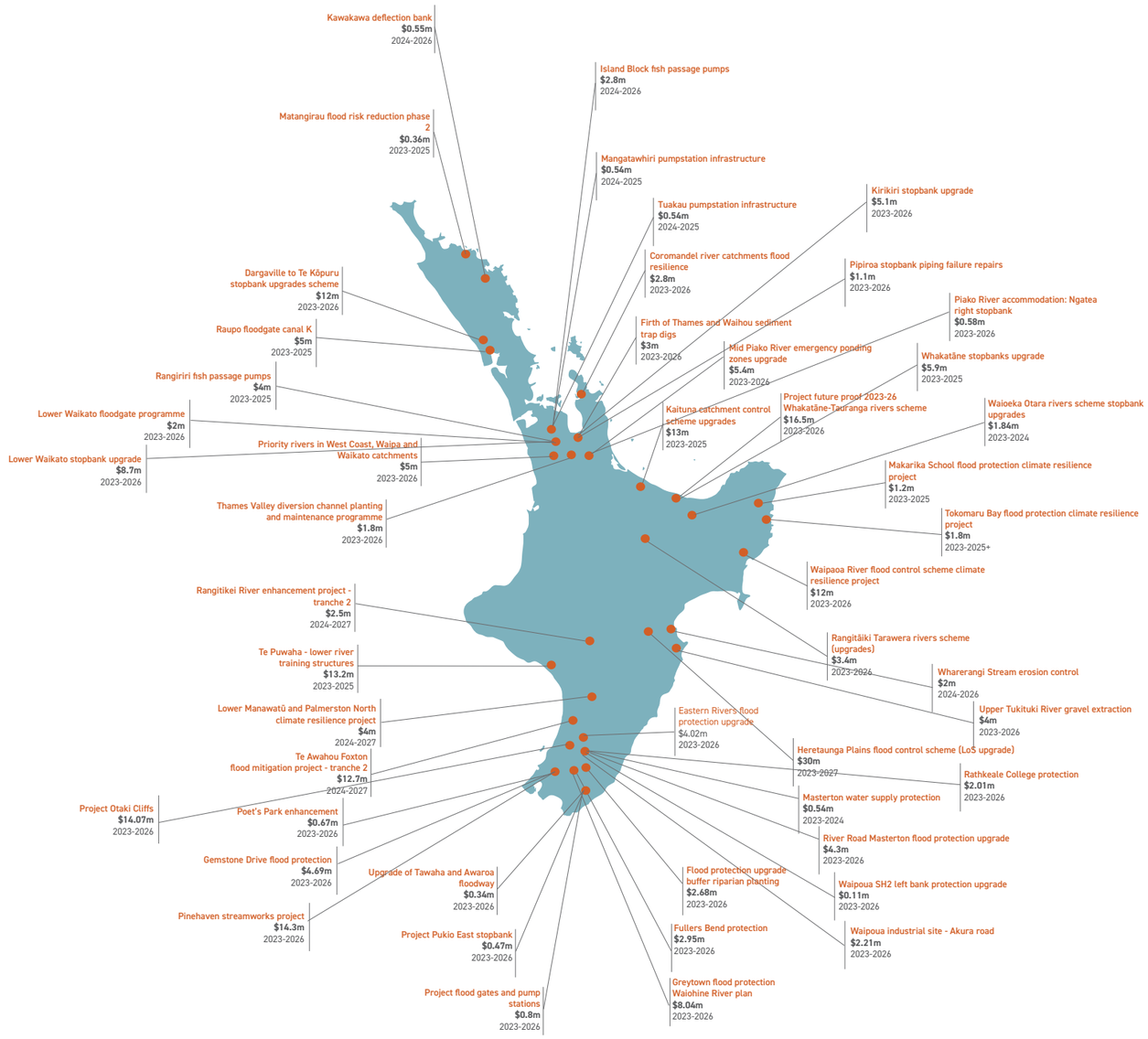
Project locations: North Island

Profile

Total number of projects = 49
Total investment = $250.6m

Territorial authority by deprivation quintile

Ōpōtiki District	5321
Far North District	4801
Horowhenua District	4627
Hauraki District	4622
Gisborne District	4480
Whanganui District	4383
Whakatāne District	4322
Waitomo District	4219
Kaipara District	3998
Masterton District	3939
Waikato District	3725
Thames-Coromandel District	3593
Hastings District	3535
Palmerston North City	3519
Napier City	3390
Taupō District	3248
Upper Hutt City	3200
Kāpiti Coast District	3095
Western Bay of Plenty	2933
Carterton District	2728
South Wairarapa District	2565



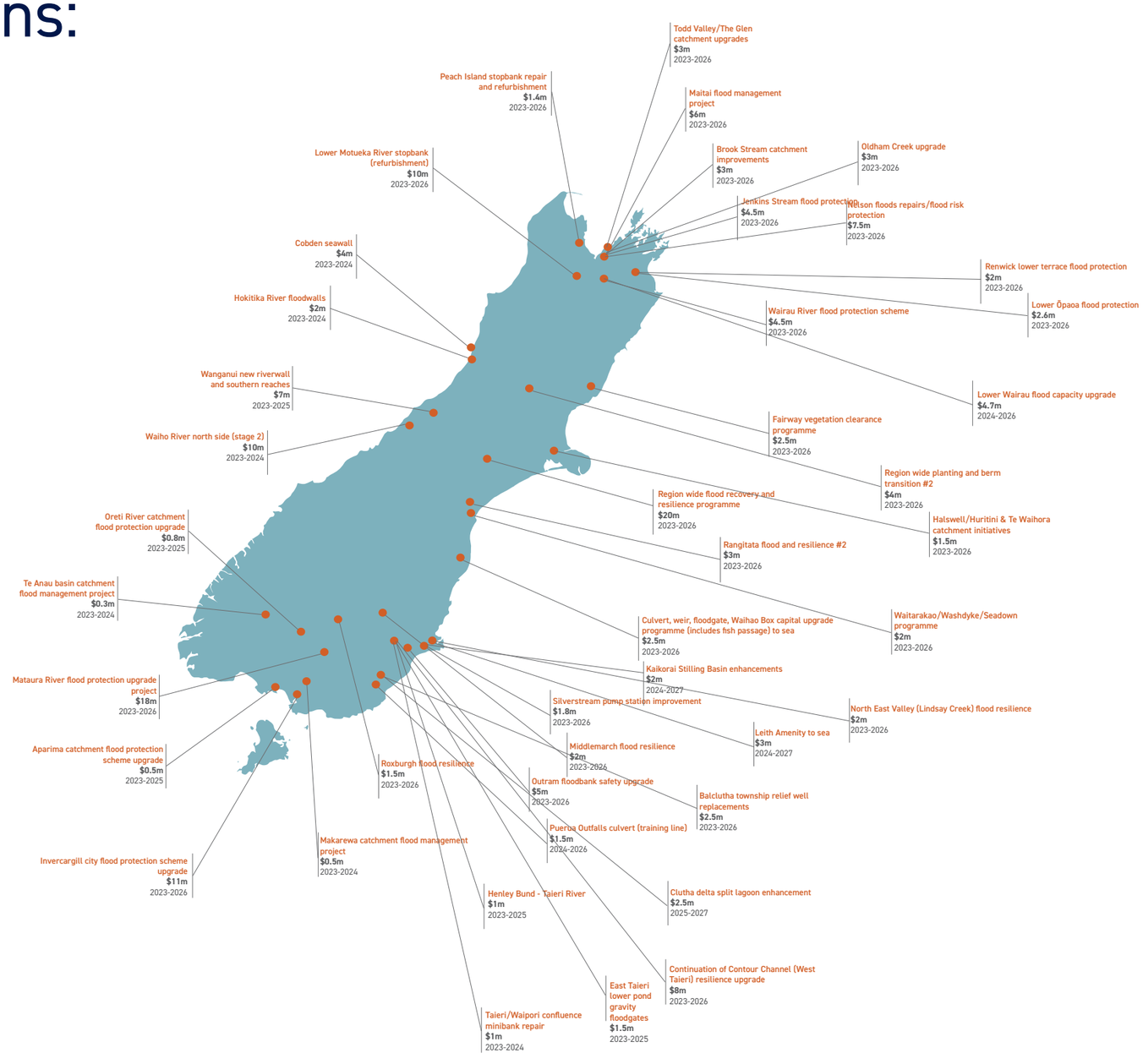
Project locations: South Island

Profile

Total number of projects = 43
Total investment = $177.6m

Territorial authority by deprivation quintile

Grey District	3896
Invercargill City	3395
Gore District	3044
Westland District	3032
Nelson City	2911
Christchurch City	2831
Clutha District	2813
Dunedin City	2791
Timaru District	2641
Tasman District	2517
Marlborough District	2449
Ashburton District	2314
Waimakariri District	2204
Southland District	1879
Central Otago District	1217



Project investment summary

A deprivation-based approach has been used to allocate national funding, using a 75/60 model.

Following the recent steer by DIA as well as the focus on deprived communities in the 2020 Cabinet Paper, we have used deprivation as both a prioritisation tool for the most vulnerable region, as well as a suggested mechanism for apportioning cost share across projects.

The methodology is based on a region - here, we refer to the Territorial Authority (TA) level - being allocated a co-investment contribution based on ability to fund the flood protection measures from the regional ratepayer base.

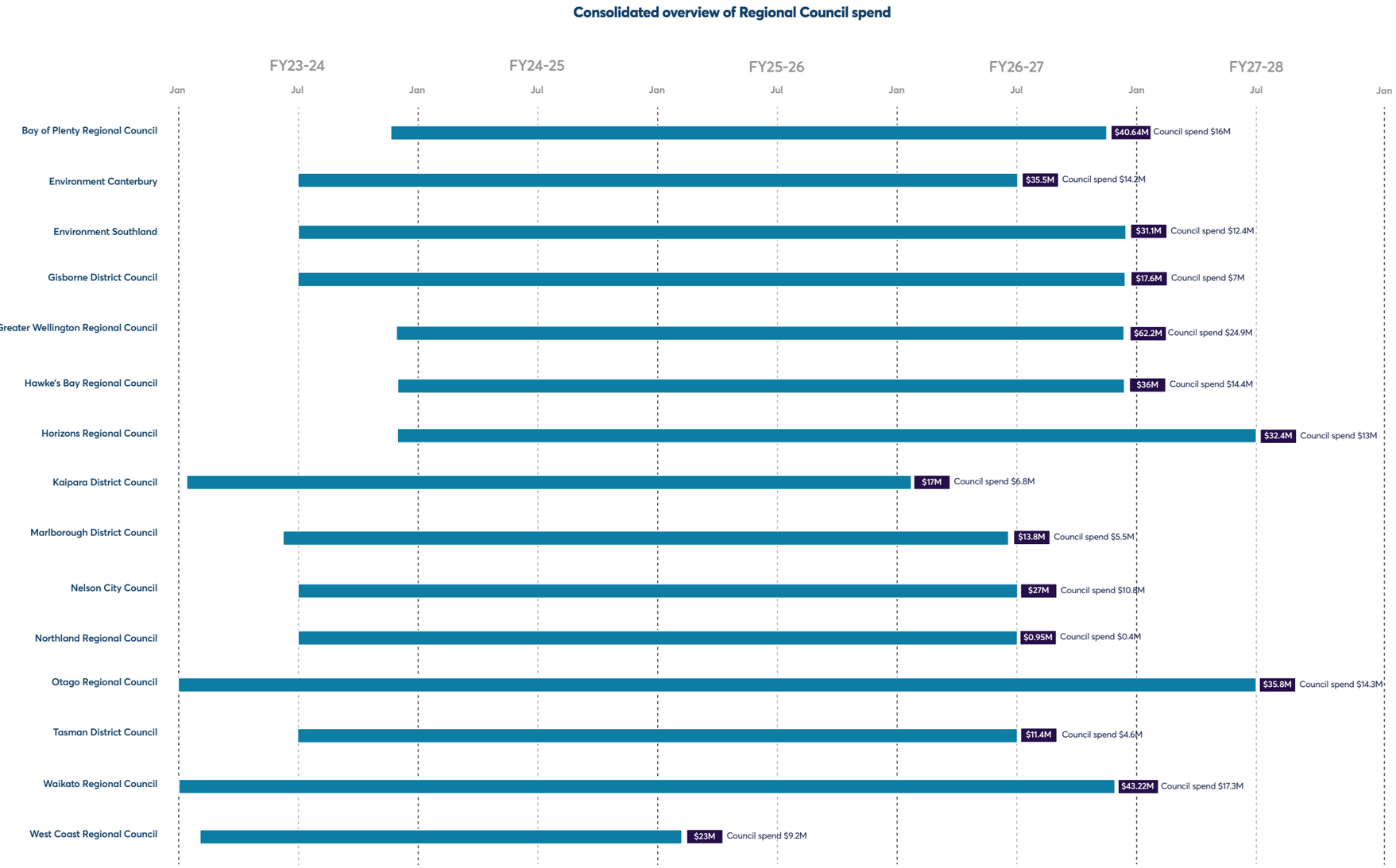
Thus, majority of regions are allocated a co-investment contribution of 60%, with the most deprived territorial authority - Ōpōtiki District - getting a higher rate of 75%. This higher deprivation

The table at right summarises the funding breakdown across projects and shows what the allocation of investment between central government and regional councils might look like with this approach.

As indicated, the central government investment is $257.2m and the regional council investment is $171m.

Territorial Authority (TA)	IMD (Total)	Level of assistance	Total Project Cost	Crown	Regional
Ōpōtiki District	5321	75%	$1.84	$1.38	$0.46
Far North District (2)	4801	60%	$0.91	$0.55	$0.36
Horowhenua District	4627	60%	$12.70	$7.62	$5.08
Hauraki District (6)	4622	60%	$16.98	$10.19	$6.79
Gisborne District (3)	4480	60%	$17.60	$10.56	$7.04
Whanganui District	4383	60%	$13.20	$7.92	$5.28
Whakatane District (2)	4322	60%	$22.40	$13.44	$8.96
Waitomo District	4219	60%	$5.00	$3.00	$2.00
Kaipara District (2)	3998	60%	$17.00	$10.20	$6.80
Masterton District (6)	3939	60%	$13.19	$7.91	$5.28
Grey District	3896	60%	$4.00	$2.40	$1.60
Waikato District (6)	3725	60%	$18.44	$11.06	$7.38
Thames-Coromandel District	3593	60%	$2.80	$1.68	$1.12
Hastings District (2)	3535	60%	$34.00	$20.40	$13.60
Palmerston North City (2)	3519	60%	$6.50	$3.90	$2.60
Invercargill City	3395	60%	$11.00	$6.60	$4.40
Napier City	3390	60%	$2.00	$1.20	$0.80
Taupo District	3248	60%	$3.40	$2.04	$1.36
Upper Hutt City (3)	3200	60%	$19.66	$11.80	$7.86
Kapiti Coast District	3095	60%	$14.70	$8.82	$5.88
Gore District	3044	60%	$18.00	$10.80	$7.20
Westland District (3)	3032	60%	$19.00	$11.40	$7.60
Western Bay of Plenty	2933	60%	$13.00	$7.80	$5.20
Nelson City (6)	2911	60%	$27.00	$16.20	$10.80
Christchurch City	2831	60%	$1.50	$0.90	$0.60
Clutha District (3)	2813	60%	$6.50	$3.90	$2.60
Dunedin City (10)	2791	60%	$27.80	$16.68	$11.12
Carterton District	2728	60%	$2.68	$1.61	$1.07
Timaru District (3)	2641	60%	$7.50	$4.50	$3.00
South Wairarapa District (5)	2565	60%	$12.60	$7.56	$5.04
Tasman District (2)	2517	60%	$11.40	$6.84	$4.56
Marlborough District (4)	2449	60%	$13.80	$8.28	$5.52
Ashburton District	2314	60%	$20.00	$12.00	$8.00
Waimakariri District (2)	2204	60%	$6.50	$3.90	$2.60
Southland District (4)	1879	60%	$2.10	$1.26	$0.84
Central Otago District	1217	60%	$1.50	$0.90	$0.60
Total investment			**$428.20**	**$257.20**	**$171.00**

The delivery roadmap



2.0

Strategic case

Understanding flood risk

We are a nation shaped by water and Aotearoa has a long history of living with flooding.

Flood risk is the product of hazard, exposure, and vulnerability.

Floods are the most commonly occurring natural **hazard** in Aotearoa, with a major flooding event occurring on average every eight months. Across the country around 675,000 people – or 14 percent of the population – live in areas prone to flooding.

Floods impose an annual cost to the nation of over $160 million in direct economic damage and clean-up costs, along with wider and more enduring economic, social, environmental, and cultural impacts.

There are three main types of floods:

1. **Fluvial (riverine) floods** when intense rainfall causes rivers or lakes to overflow onto neighbouring land
2. **Pluvial floods** when extreme rainfall creates flash floods or surface water that overwhelms drainage capacity in urban areas
3. **Coastal floods** when storm surges, high tides, or tsunamis inundate land near the coast

For simplicity, we use the term 'flood' more generally throughout this document, referring to specific types where relevant.

Although the incidence of flood events is expected to increase globally due to the impacts of climate change, it also remains one of the most avoidable natural hazards and can largely be mitigated through flood protection and adaptation schemes that minimise flood risk.

The figure and sidebar at right explain flood risk in more detail.

Understanding Flood Risk

Hazard

Aotearoa's unique topography, geography, and history of settlement on flood plains and in coastal regions means that flooding is a common natural hazard. Climate change is expected to further increase the frequency and magnitude of flood events in the near future.

Exposure

Parts of the population, ecosystems, and key infrastructure may be more or less exposed to floods due to their location as well as the presence and effectiveness of flood protection infrastructure. In response to population growth, policy decisions impacting urbanisation, planning, intensification, and implementation of flood protection infrastructure can result in differential exposure to flooding. Around the country, communities may also be exposed to multiple hazards beyond just floods.

Vulnerability

Flooding can have devastating impacts on our economic, social, cultural, and environmental wellbeing. These impacts may be greater for certain groups and communities due to factors such as income, housing type, age, and social networks. Therefore, vulnerability varies across different groups, affecting how these groups can respond to and recover from flooding events.

Flood Risk

Flood risk is therefore the product of dynamic interactions between hazards, exposure, and vulnerability, as illustrated in the figure.

In Aotearoa, flood risk is increasing due to climate change and increased population growth and assets in flood-prone regions. However, as noted in a recent global report on flooding: "the problem is compounded by policy failures, underinvestment in flood protection, and poor planning decisions."

Source: Carpenter, M., Wyman, O., & Marsh, G. (2021). *Sunk costs: The socioeconomic impacts of flooding.* Retrieved from Marsh McLennan

How flood protection has developed

Responsibility for flood protection has evolved over the decades.

Reforms in the late 1980s resulted in flood protection responsibilities transferred to regional councils, including a transition to exclusively local funding.

New Zealand's approach to river management and flood protection has undergone major transformations over the last century. Prior to the 1940s, there was a piecemeal approach to river management and land drainage activities which led to soil erosion issues impacting waterways.

The introduction of the Soil Conservation and Rivers Control Act 1941 saw New Zealand become a world leader in its recognition that land and water management practices for flood protection needed to be catchment based. Consequently, catchment boards were established to regulate and manage river functions, as well as design and implement the necessary flood protection infrastructure still in place today.

Catchment boards worked collaboratively with local communities and central government to implement schemes that provided safety and security for communities, as well as providing for the economic wellbeing of both rural and urban communities.

Central government contributed between 50-75% of capital expenditure and 33% of ongoing maintenance costs, equating to a $40 million per (the equivalent of $114 million in present day terms) annually.

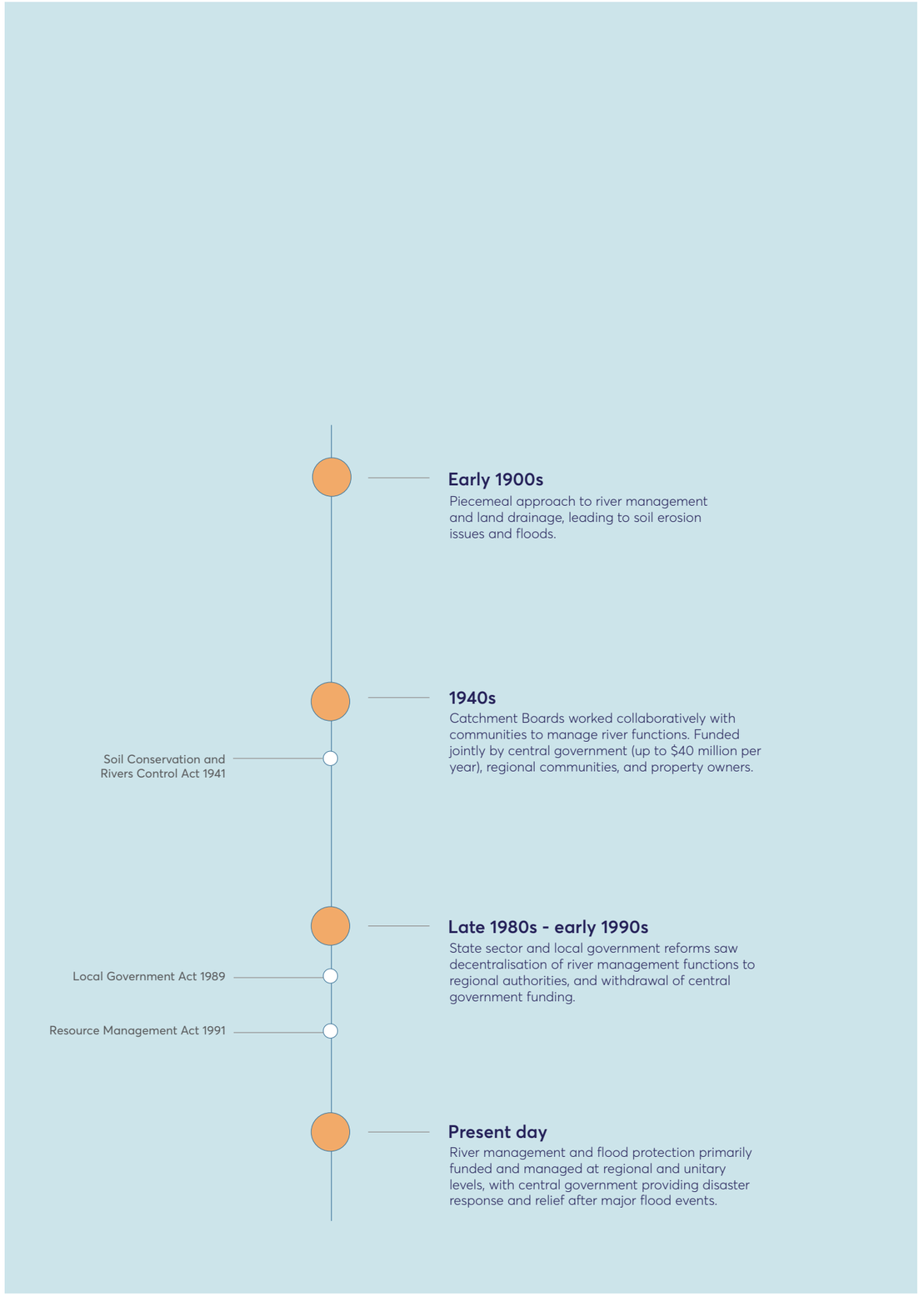
This funding acknowledged that Crown assets were directly benefiting from these schemes, while also recognising the wider national interests and government's responsibilities in being a joint investor. On the other hand, local contributions fostered a sense of ownership among communities that benefited.

However, as a result of the major state sector and local government reforms of the 1980s - including the Local Government Act 1989 and the Resource Management Act 1991 - river management and related soil conservation functions were transferred to regional authorities, eliminating central government funding simultaneously.

Since 1989, regional and unitary councils have been responsible for the construction, maintenance, and upgrades of river control, flood protection, and land drainage schemes. This work is funded almost entirely through regional rates and targeted levies on property owners.

Instead, for the last three decades central government's role in flood management has focused more so on disaster response and relief, rather than in preventing damage.

This contrasts with most international approaches to flood resilience - including in Europe, the United Kingdom, Australia, and the United States - where significant levels of central funding support flood protection and mitigation activities.



The current state of flood protection

There are 367 flood protection schemes protecting 1.5 million hectares of land across Aotearoa.

Current flood protection schemes offer a five-fold benefit, making them crucial to the wellbeing of Aotearoa.

With the decentralisation of flood management, flood protection schemes have been funded by ratepayers through targeted and/or general rates. There is variation in how this is managed, with some councils enabling communities to self-select into flood mitigation schemes, while others provide flood protection infrastructure more broadly across the region.

The map at right provides a snapshot of key flood-related metrics, including the estimated benefit value (in $billions) of these schemes for each region across the country.

Currently 367 flood protection schemes directly protect over 1.5 million hectares of land and capital across 100 towns and cities. These tend to be densely populated with the highest levels of economic activity and therefore central to the New Zealand economy, as well as areas of significant cultural and social value, such as marae and urupā.

In addition, they also provide wider benefits in protecting Crown assets on non-rateable land and critical national infrastructure such as three waters, transport networks, and energy and telecommunication links.

In this way, flood protection schemes comprise a core economic and social enabling infrastructure: providing a secure place for stable economic activity and for people to thrive and build cohesive communities. For these reasons, flood protection schemes remain crucial to the economic, social, cultural, and environmental wellbeing of Aotearoa.

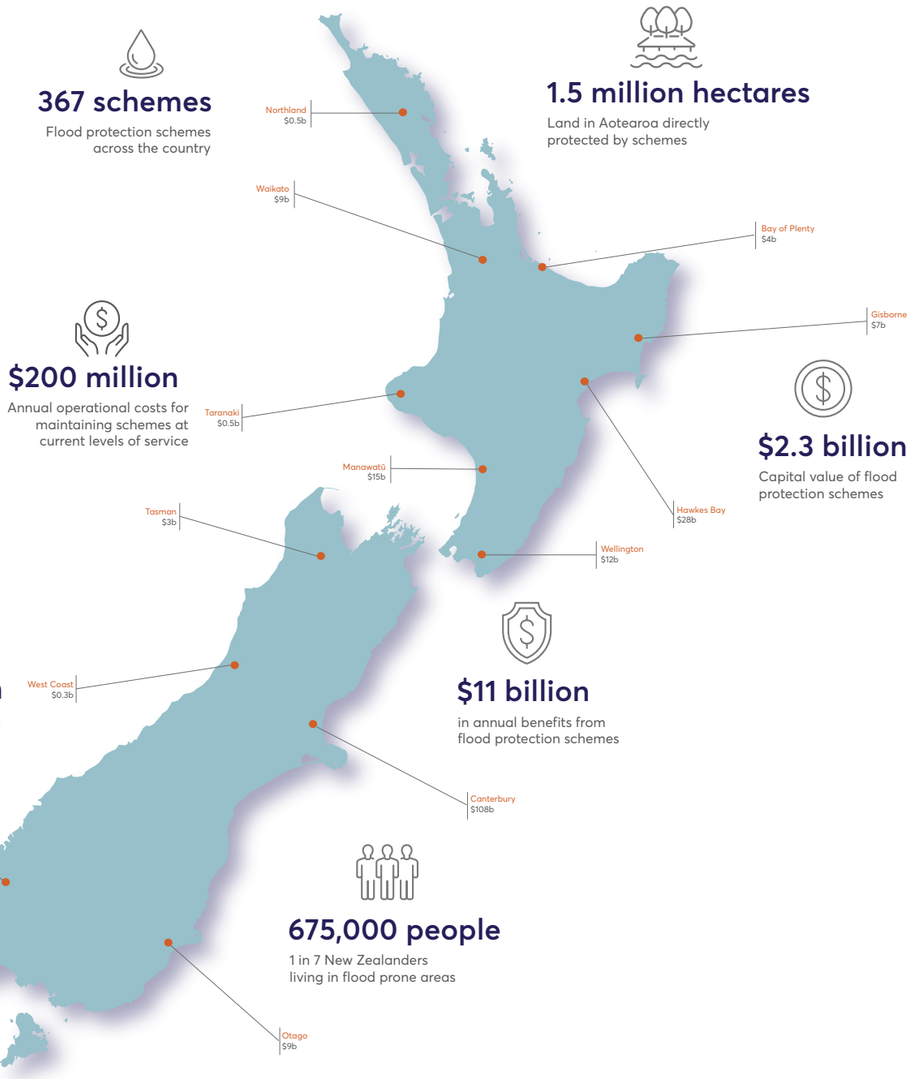
Combined, these schemes represent a total capital value of 2.3 billion, with $200 million in annual operational expenses. Yet, the total estimated value of their benefits is $11 billion each year.

Thus, flood protection schemes in their current state produce a benefit-to-cost ratio of around 5:1. For comparison, large economic infrastructure projects are considered economically viable if this ratio is greater than 1:1.

Despite the billions of dollars in benefits, river management and flood protection has been largely absent from conversations around water management and three waters.

These schemes have also received no direct central government funding over the last three decades despite Crown assets being protected. In the face of rising costs and growing challenges round local ratepayers' ability to fund the necessary level of investment, the current state is neither equitable nor sustainable.

Source: Tonkin & Taylor (2018). ***Hiding in plain sight: An overview of current practices, national benefits and future challenges of our flood protection, river control and land drainage schemes.*** Report for River Managers' SIG.



Key risks and challenges

A 2018 assessment identifies crucial risks and challenges for the sector.

In 2018, the River Managers' SIG commissioned a current state assessment of New Zealand's flood management system, which at the time comprised 364 schemes. This seminal report produced by Tonkin+Taylor has largely informed our understanding of the key risks and challenges with the current flood management system.

Key risks

A central finding was that most river management and flood protection schemes were constructed up to half a century ago; yet the value of the assets they protect - both directly and indirectly - has steadily increased. Adjacent urban development has also intensified.

In most cases the value of these protected assets is disproportionately higher than the value of schemes themselves. Consequently, schemes may be under-designed for what they protect and enable, creating risks of asset failure.

Our understanding and assessment of risk has also advanced since many of these schemes were first constructed. Resultantly, there are risks of some schemes being unfit for purpose and failing to deliver on expectations of performance or agreed levels of service.

Finally, these schemes were not designed for the accelerating climate change we are now experiencing and a step change is needed to ensure they provide fit-for-purpose safety and security for future generations.

Additional challenges

First, as mentioned earlier, a key challenge for the river management sector is the current funding model which creates financial pressures and forces staff to "make do" by cutting expenses to fund unplanned but necessary activities; counter to best practice. This also has implications for the future affordability of schemes, as ratepayers will be unable to shoulder increasing costs alone.

Second, integrated catchment management requires a high level of expertise as well as continuity of institutional knowledge to maintain and upgrade schemes. This specialised work is currently done by a small number of expert staff which further creates further pressure on river management activities and can constrain the delivery of successful community outcomes.

Finally, with the upcoming changes to the Resource Management Act and the work underway by NIWA to develop a national flood risk database, regional and local councils are operating in somewhat of a policy gap. In the absence of a systematic framework, councils have been forced to adopt a more pragmatic approach to river management and flood mitigation activities, with a focus on building protective infrastructure.

However, the growing impacts of climate change on flood risks necessitates drawing from a bigger toolkit in order to adapt to these impacts and develop more effective flood resilience strategies.

Together, this suggests that additional resourcing and detailed analysis will be required to develop a pragmatic roadmap for flood resilience over the coming decades. Te Uru Kahika is seeking co-investment to enable this programme of work.

Sources: Tonkin & Taylor (2018). ***Hiding in plain sight: An overview of current practices, national benefits and future challenges of our flood protection, river control and land drainage schemes.*** Report for River Managers' SIG; Walsh, P., Robertson, T., & Paulik, R. (2019). ***Flood Mitigation Schemes in New Zealand: How is Protection Distributed?.***

Image: Christchurch flooding (NIWA)

An integrated approach to flood protection

A multi-dimensional approach is needed to manage natural hazards in a climate changing world.

PARA offers an integrated suite of approaches for building community flood resilience.

Amongst the frameworks guiding flood management, PARA represents a comprehensive and internationally recognised model, used by NEMA, DIA, and the Ministry for the Environment. With its origins in climate change adaptation planning, PARA provides an effective framework for flood risk reduction and building community resilience.

This framework includes four approaches, as illustrated in the figure at right:

- **Protect**, which involves physical structures (e.g., sea walls, levees, dunes) and systems designed to keep flood waters away from homes, buildings, communities, and critical infrastructure. However, this can fail during larger-than-expected flood events and remains infeasible as a climate adaptation strategy.
- **Accommodate**, using strategies that allow for continued use of flood-prone areas through enhancing community preparedness and resilience and/or limit the extent of flood damage (e.g., elevating homes and buildings, flood-proofing, flood storage areas, and recent proposed changes to making flood risks clear in LIM reports).
- **Retreat**, or the permanent relocation of homes, buildings, and infrastructure in flood prone regions to safer areas. The evacuated land is then either restored to wetlands or re-purposed as recreational spaces.
- **Avoid**, which includes approaches that proactively prevent development (residential and commercial) in flood-prone areas through planning and policy controls.

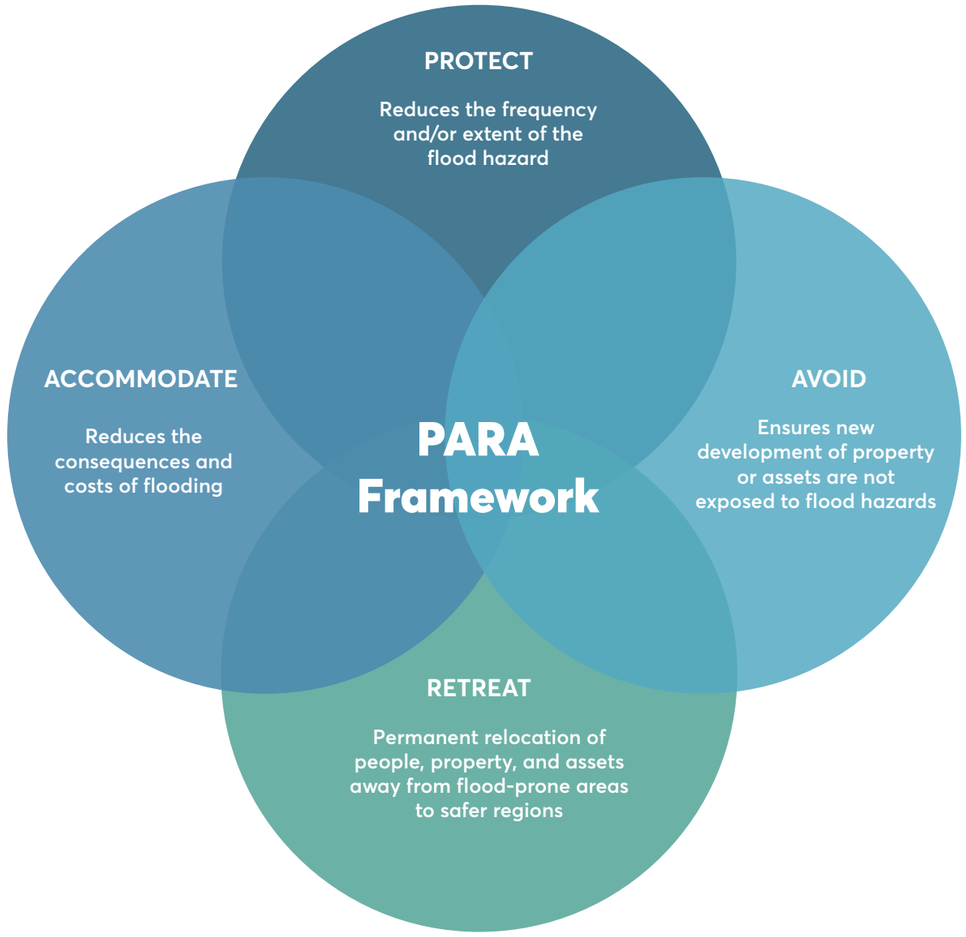
No single approach on its own can provide flood resilience. Instead, the framework is intended to guide the implementation of an integrated package of approaches, with considerations given to the local context as well as issues such as equity.

More recently, Te Uru Kahika have extended the application of the PARA framework to include a 'transfer of risk' option through insurance markets, creating in essence a 'multi tool' approach to meet increasingly complex challenges in a climate change world.

The effectiveness of PARA as a framework relies on accurate flood mapping and modelling. This work is currently in progress alongside other legislative and policy initiatives that recognise the need for a multi-tool approach to natural hazard management and climate change.

This proposal recognises that while a comprehensive multi-tool PARA approach is crucial to building long-term flood resilience in Aotearoa, further work, time, and partnership with mana whenua is needed before we can be confident in its effective implementation.

In the interim, protection does and always will play a critical role in flood risk management, especially for our most vulnerable communities - as identified in a recently released DIA report.



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.

Flooding and vulnerability

Flood resilience is shaped by community capacity and pre-existing vulnerabilities.

Framed through the lens of vulnerability, flooding is both a wellbeing and social justice issue.

Resilience is the ability to prepare for and absorb the impacts of floods and other natural hazards, at the individual, community, and state level. With the devolution of our flood management systems to regional and local councils, resilience tends to be discussed mainly at the community level.

Community resilience is determined by capacity to respond to hazards as well as pre-existing vulnerabilities. This capacity can take the form of knowledge and preparedness; protective infrastructure; economic resources, social networks and capital; as well as institutional arrangements.

Vulnerability, on the other hand, reflects a restricted ability for individuals or communities to respond to floods, resulting in harm to their wellbeing.

Reviewing the research, the following dimensions have consistently been linked with vulnerability:

- Socioeconomic deprivation including low income, limited financial resources, being a renter, poor housing conditions, and limited or no insurance coverage
- Geographic location through flood exposure in the first instance, with rural areas also facing access challenges during and post-floods
- Age, with children and older adults being most vulnerable to flood risk as they tend to be more reliant on caregivers, less mobile, and more susceptible to health impacts
- People with health needs and/or disability who may be susceptible to stress and the physical impact of floods, and may be adversely impacted by disruptions or lack of access to health and emergency services
- Social isolation or lack of social support
- Gender, with women in particular shouldering the brunt of care, domestic work, and experiencing a greater risk of domestic violence during and post-flooding
- Minority ethnicity and marginalised groups who may lack political power; social and economic capital; and experience racism

However, vulnerability is not simply the opposite of resilience: individuals can be vulnerable and still be resilient to the impacts of flooding through protective infrastructure and/or their ability to draw on other forms of capital. Income, for instance, consistently remains one of the most protective factors. Thus, factors interact to promote or erode resilience, with vulnerability being dynamic across time and contexts.

A recent report commissioned by the DIA provides preliminary insights on the state of vulnerable communities' exposure to flood hazard in New Zealand. Focusing on the socioeconomic aspect of vulnerability, the report looked at communities that are both exposed to flood hazard and have high levels of deprivation.

Of the 75 communities identified, 44 had no flood protection infrastructure planned and had limited financial capability to fund flood risk responses. They also tended to be small, mostly rural communities located on riverbanks or along the coast.

This report provides some insight into how vulnerability to flood risk may be layered by deprivation and geographic location in New Zealand. A more holistic examination, using a broader set of indicators and factoring in the impacts of climate change, will be able to shed light on how age, health status, gender, and ethnicity further compounds this vulnerability.

Vulnerability to natural hazards is therefore linked to underlying socioeconomic, health, and political inequalities. In Aotearoa, vulnerability is further underpinned by the history and ongoing impacts of colonisation, with Māori in particular experiencing ongoing social, economic, and health inequities.

Framed through the lens of vulnerability, it becomes evident that flooding is both a wellbeing and social justice issue. We therefore need flood resilience initiatives that account for existing community capacity and vulnerabilities, as well as how the impacts of climate change are likely to be felt across different groups and communities.

Resilience can also be reactive or proactive. The former is about resistance and a return to status quo post-disaster, whereas the latter is about finding ways to adapt to and change existing conditions in the face of future threats.

While our flood response and management has largely been focused on protection and reactive resilience, growing climate change-induced risks will necessitate a shift in our approach toward proactive resilience through use of a full spectrum of tools available within the PARA framework and Te Mana o Te Wai.

Sources: Twigger-Ross, C., Brooks, K., Papadopoulou, L., Orr, P., Sadauskis, R., Coke, A., ... & Walker, G. (2015). *Community resilience to climate change: an evidence review.*; Mason, K., Lindberg, K., Haenfling, C., Schori, A., Marsters, H., Read, D., & Borman, B. (2021). *Social vulnerability indicators for flooding in Aotearoa New Zealand.* International Journal of Environmental Research and Public Health, 18(8), 3952.; DIA. (2020). *Vulnerable communities exposed to flood hazard* report.

The wider context of Te Mana o Te Wai

Te Mana o Te Wai provides a set of principles for freshwater management in Aotearoa.

The interconnectedness of our taiao means our river management and land use practices need to be integrated into management of our freshwater ecosystems.

Alongside the PARA framework, our approach to flood management and resilience must also be informed by Te Mana o Te Wai: the first principle for freshwater management in Aotearoa.

Our National Policy Statement for Freshwater Management sets out principles for implementing Te Mana o Te Wai as well as a hierarchy of obligations, prioritising:

- first and foremost, the health and wellbeing of the water,
- next, the health needs of people, and
- finally, the use of water for other social, economic, and cultural purposes.

Since awa (river) and other water bodies sustain life they are central to our communities' the health and wellbeing, both now and in the future. This also positions awa as ancestral forces and their own entity rather than a resource to be used or a hazard to be controlled. Indeed, the granting of legal personhood to the Whanganui River in 2017 exemplifies this thinking.

Sustainable river management approaches therefore increasingly give consideration to working "with" nature rather than necessarily controlling it. This involves a delicate balance between letting the river flow freely while maximising public and economic benefits from protecting assets along river corridors.

Te Mana o Te Wai also recognises the particular significance of tangata whenua's relationship with water (and land). Regional councils therefore need to work in partnership with iwi and hapū on freshwater/river management in applying Te Mana o Te Wai at a local level, ensuring this is a Tiriti-based partnership.

This mātauranga Māori concept also recognises the interconnectedness of our taiao (environment). Thus, our river management and land use practices need to be integrated into management of our freshwater ecosystems, giving rise to the concept of healthy catchments that collectively improve our community resilience against flooding as well as climate change.

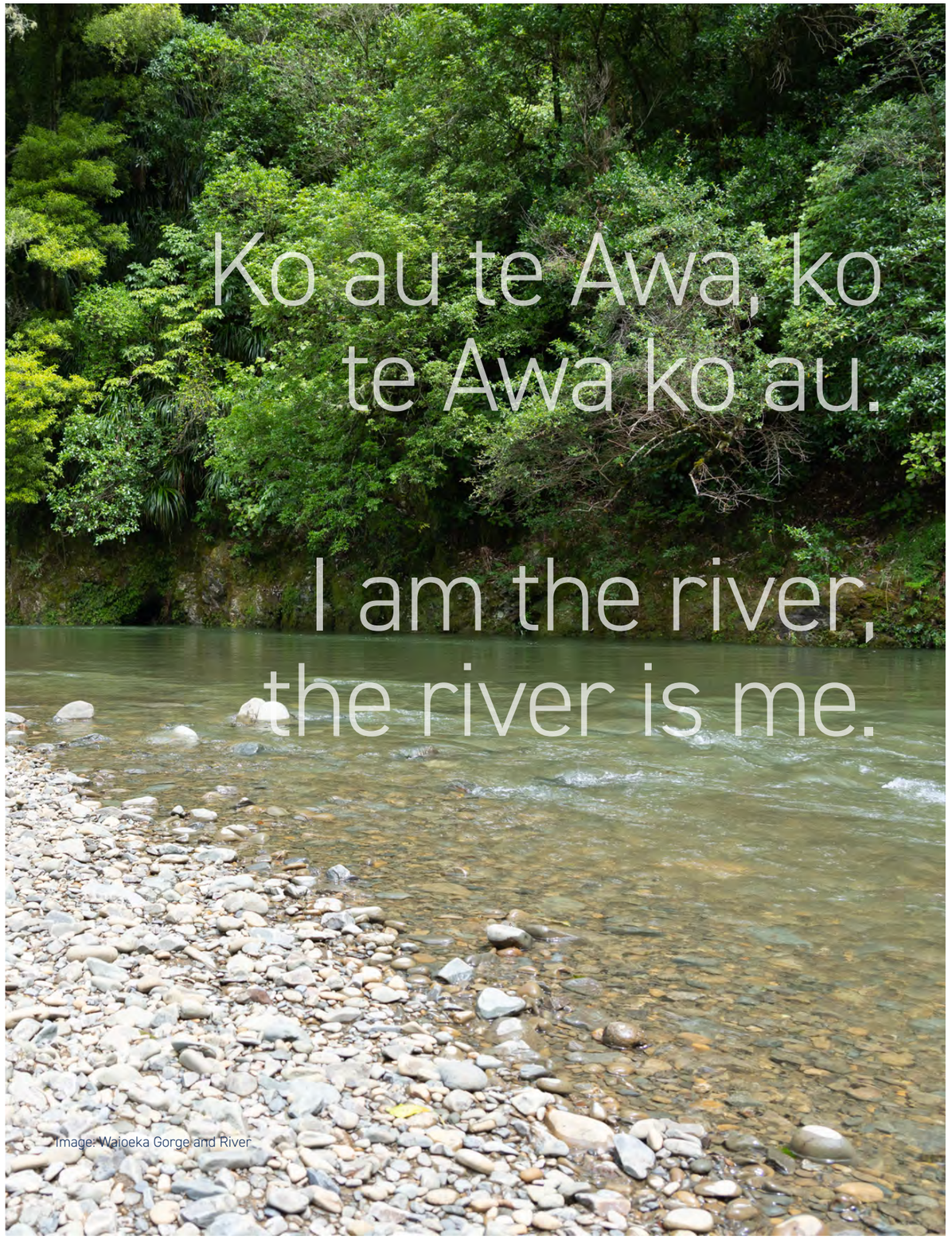


Image: Waioeka Gorge and River

Why flood resilience is critical to Aotearoa

Flooding impacts on cultural, economic, social, and environmental wellbeing.

Since flooding is a wellbeing issue, we need to look at its impacts holistically.

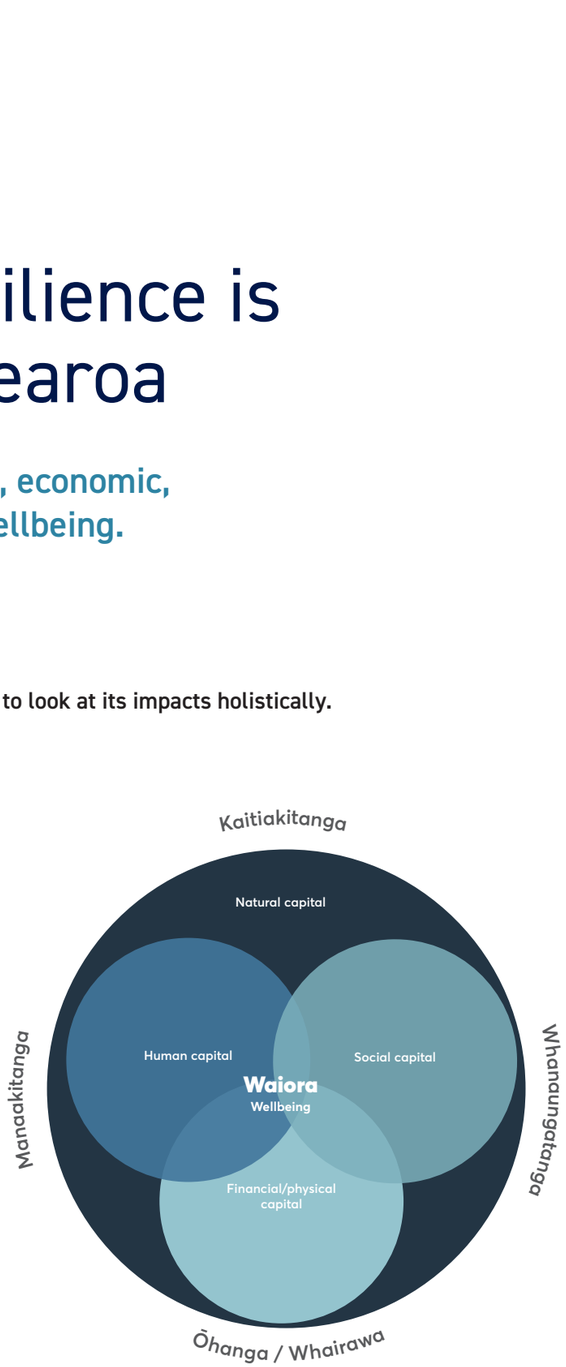
While analyses tend to focus mainly on the economic impacts of flooding - namely, the costs associated with damage and recovery - flooding also has impacts on our wellbeing as a society.

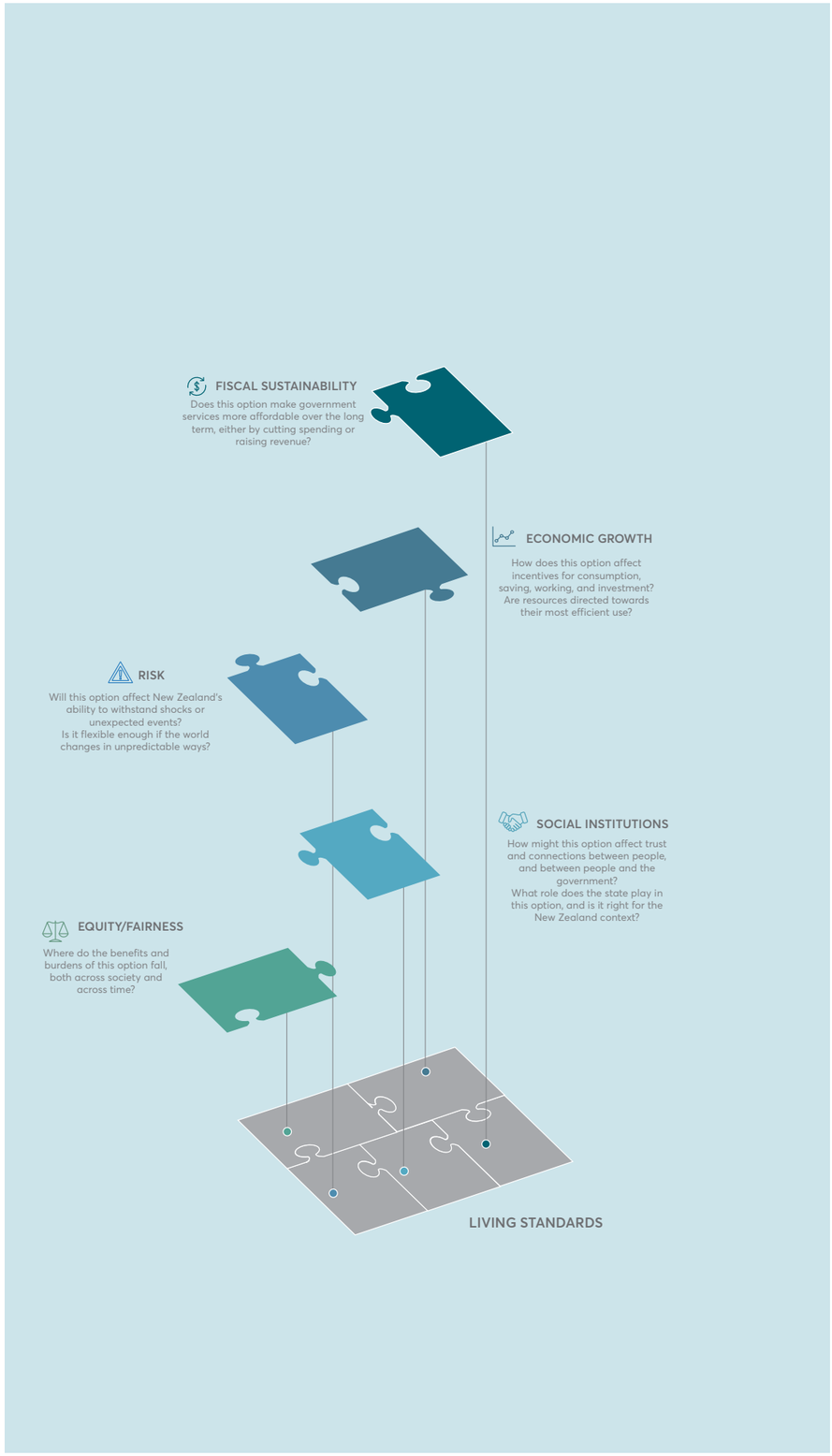
The diagram at right is the Productivity Commission's updated view of how the wellbeing domains interact. At the core of wellbeing is a liveable environment, preserved and enhanced through kaitiakitanga. Within this sphere the other wellbeings – human, social and economic – contribute to the waiora of Aotearoa.

These four domains directly map onto Treasury's multidimensional wellbeing (living standards) framework, and are interrelated. Indeed, many social, cultural, and environmental impacts themselves have economic implications.

It's also important to note that flooding impacts the wellbeing of individuals and whānau, communities, and the entire nation. These impacts can be enduring in the long term across several generations, and can compound intergenerational inequities - particularly for vulnerable groups.

Thus, in order to appreciate the magnitude and importance of flooding as a wellbeing issue we need to look at its impacts holistically.





The negative economic impacts of flooding

Flooding creates a significant economic burden, in terms of immediate and long-term costs, for the entire nation.

Flooding creates a significant and long-term economic burden on flood-impacted communities and the nation.

Costs of damage

First we consider the immediate costs incurred through damage to housing, buildings, farm lands and crops, and other major infrastructure. Some of these costs may be covered via property insurance plans, with selected flood damage costs also being covered by the Earthquake Commission.

However, insurance payouts may not fully cover rebuild and replacement costs, meaning those on lower incomes and/or renting are less able to rebuild post-flooding. Relocation for these households may also be too expensive or infeasible as it requires leaving jobs, schools, and support networks. Resultantly, these individuals may have to take on additional debt or in extreme cases, face homelessness.

Such impacts may be felt disproportionately by those in regions of socioeconomic deprivation or low household income - a phenomenon known as 'poverty exposure bias' where poor households are more likely to be exposed to natural hazards by living in the least resilient housing and in the areas at greater risk of floods, as determined by affordability.

Intersecting factors such as age, gender, ethnicity, migrant status, health, employment, and even geographic location can magnify these challenges, creating an enduring poverty trap.

Major flood events can also cut-off access to roads and transport networks as well as entire towns; impacting food supply, delaying first responders, affecting evacuation and recovery, disrupting employment and childcare, and reducing access to key amenities.

Power outages caused by floods can also create further challenges for the medically-dependent, young, and old. Those with disabilities may be prevented from being made aware of and/or responding to floods appropriately and in a timely manner, further impacting their ability to cope. Once again the brunt of these impacts are likely to be experienced by those with fewer financial and social resources.

There are also the costs associated with damage to high value Crown-owned assets such as airports, hospitals, schools, and other infrastructure, likely ranging in the billions.

Costs of response and recovery

While a significant portion of the costs of damage and recovery fall to the flood-affected communities, central government also typically plays a role in flood response through deploying the civil defence force, NEMA, and other relief agencies to assist with recovery.

Central government also meets up to 60% of the repair costs of critical infrastructure, beyond a certain threshold, although this level of assistance is currently under review. Recovery funding is also on a 'like for like' basis rather than for betterment; thus this investment is unlikely to result in future improvements.

Further, there are sizeable costs associated with injury, and in extreme cases fatalities, although the associated healthcare and social assistance costs - such as re-homing displaced residents, treatment, and rehabilitation - are accrued over the long term.

Indeed, the government's thirty year infrastructure plan estimates that the average annual cost of flooding exceeds $50 million. These costs also represent a significant liability for the government in terms of unplanned expenditure.

Broader economic costs

There are also broader economic costs associated with social and business disruption, such as losses in production from businesses being unable to operate, disruption to schooling, disruption to supply chains, and damage to natural and cultural heritage.

In the long run these costs are borne by the entire nation. The re-allocation of public funds to flood response and repair of infrastructure means taxpayers are paying twice for flood management.

Further, increasing flood risk will detrimentally impact property values while also resulting in increasing insurance premiums, with the looming threat of partial or full insurance retreat in high flood-prone regions over time.

Overall, the financial costs alone present a compelling case for investment in preventative action versus responding to floods.

Source: New Zealand Government. (2015). *The Thirty Year New Zealand Infrastructure Plan*. Retrieved from www.infrastructure.govt.nz

Social impacts from flooding events are significant

Flooding represents a social justice issue when we consider the ‘double whammy’ of economic and social harm experienced by vulnerable groups.

Floods can have significant and long-lasting social impacts on affected individuals and communities - often equalling or exceeding the direct damages from flooding - with spillover effects in adjacent non-flooded regions.

For one, there are the immediate stressors associated with damage to property and belongings, evacuation, disruption to daily life, and even loss of income or employment. Low income households particularly might experience a significant toll on their wellbeing since they may live in less resilient homes and regions, with fewer financial resources.

Flooding can also disrupt social connections and access to community networks and support, particularly when families have been displaced from their homes and communities. This can result in isolation and loss of social cohesion, and can have further ramifications for relocation and people’s willingness to live in certain areas.

The health impacts of flooding - both physical and mental - are also significant and can interact with pre-existing health status. These health risks can once again vary based on socioeconomic factors such as income, ethnicity, age, health status/ disabilities, and gender.

There are also more general health risks associated with water contamination and other water borne diseases spread through floods. Flood-impacted housing can retain moisture and in the long-term cause other health issues due to dampness and mould. Flooding itself can result in serious injuries and in extreme cases loss of life.

It can also take a significant toll on mental health, with anxiety and depression being the most commonly reported mental health issues post-flooding. More generally, there can be enduring psychosocial trauma from loss of loved ones, damage to property and personal belongings, displacement, and disruption to livelihoods and social functioning. The financial stress brought on by flooding, combined with reduced support, can further aggravate rates of domestic violence post-disaster.

It is also worth noting the broader political ramifications of flood events and the associated government responses. If the public perceive that recovery or relief responses were ineffective or disproportionate to the scale of the damage, or that the flood risk could have been better managed in the first instance, this can generate public discontent and loss of trust and confidence.

Considering the 'double whammy' of vulnerable groups experiencing both economic and social harm, we can see how flooding is a social justice issue that has the potential to exacerbate existing inequalities in society.

Isabella Ngawati evacuates her Otiria Rd home with six-month-old son Elijah. Flooding in Moerewa, 18 July 2020 (Northern Advocate photo by Peter de Graaf)

Our culture is adversely impacted by flooding

Flood damage to culturally significant sites can have intergenerational impacts on physical, mental, and spiritual wellbeing for tangata whenua.

Floods can cause significant damage to cultural heritage sites, although these impacts can be difficult to fully quantify. In Aotearoa there are numerous cultural and historic assets, including marae, urupā and indeed many Māori businesses, that are located directly in flood prone areas and along coastal margins.

Coastal regions in and of themselves are taonga as they provide a source of kaimoana; a means of access and communication for iwi and hapū; contain a number of culturally-significant archaeological sites and assets such as marae and urupā.

Around 80% of the 800 marae across the country are based in low-lying coastal areas and flood plains. These sites represent both a source of economic value and cultural identity.

Flooding and damage to culturally significant assets can therefore be detrimental to tangata whenua, resulting in a loss of connection to their land, identity, and sense of belonging. This can have flow-on impacts on physical, mental, and spiritual wellbeing, for generations to come.

Source: ICNZ. (2022). *ICNZ submission on the draft National Adaptation Plan including managed retreat.* Retrieved www.icnz.org.nz.

Image: Ōtūtaopuku Urupā, Ōpōtiki, adjacent to the Ōtara River

The environment suffers in flooding events

The true environmental impacts of flooding will be realised in the long term and for generations to come.

While floods are an essential natural renewal process and can benefit nature and society, they can also have detrimental environmental impacts. In light of growing climate change induced flood risks, this presents a significant cause for concern.

In addition to the impacts on human lives, flooding can disrupt entire ecosystems by destroying or displacing aquatic life and their habitats, creating toxic algal blooms, degrading water quality, depositing harmful sediments, and polluting bodies of water. Contaminated water also poses a threat to nearby industrial, agricultural, and residential areas.

Floods can also damage land through erosion of riverbanks and coastlines, causing them to collapse. This erosion can also create further risks to land used for primary sector productivity, especially farmland.

There is also the environmental harm from disposing large volumes of damaged building and household waste. The recent July 2021 flood in Westport alone resulted in more than 2,100 tonnes of flood-affected building and domestic waste being sent to landfills.

Chemicals, debris, and sewage can further pollute water quality and impact marine life if it enters the ocean, creating a further unquantified financial and environmental cost.

Source: *Buller Flood Recovery.* Retrieved www.bullerrecovery.org.nz

Ultimately, impacts on the environment cannot be separated from the social, cultural, and economic aspects of wellbeing. Indeed, a Te Ao Māori worldview recognises the interconnectedness amongst all living and non-living things, and of each generation to those before and after. In this way, the true environmental impacts of flooding will only be realised in the long term and will be felt for generations to come.

Case study: Westport

> We have been evacuated three times in four years. It's just awful and stressful. People are worried every time it rains. We love the house, we love the area but it looks like we are a bit doomed here... What's the point in living here any more?

Westport flooding (NZ Defence Force)

The back-to-back major flooding events in Westport have adversely impacted economic, social, and psychosocial wellbeing of the community.

Sitting on a floodplain, between two rivers and the sea, the town of Westport is one of the most flood prone regions in Aotearoa 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. Mining and agriculture are mainstays of the local economy.

From 15th to 18th July 2021, a major flooding event saw the Buller River reach a peak flow of 8900 cubic metres per second; the largest river flow ever recorded in New Zealand history. More than 2000 people were evacuated from over 826 properties as a result of the flooding, and nearly a quarter of the town's housing stock was damaged or deemed unsafe for occupation. The damage to housing alone represented an estimated $88 million in insurance claims that have been settled to date.

Unfortunately, while Westport 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.

Initial damage assessments carried out in late February estimated between $21.5 and $43 million in damages from the two severe weather events. This represents costs in damage to crucial infrastructure such as roading and water supply, removal of domestic waste, and damage to at least 70 farms district wide.

On top of the damage to housing and infrastructure, and disruption for business and the local economy, there are also the psychosocial impacts for residents who have been displaced by the flooding. More than a year on from the July floods, less than a fifth of the homes have been fully repaired and the community continues to face challenges with recovery with residents feeling anxious about the future.

A reliance on ratepayers rather to fund river management and flood protection schemes has seen decades of underinvestment from central government in flood protection in the region, as with the rest of Aotearoa.

Indeed, the River Managers' SIG has estimated that the scale of flood-related damage might have been prevented by a relatively modest earlier investment of between $10-20 million in flood protection work at Westport. In contrast, the costs of recovery are estimated at close to $100 million.

These damage and recovery costs will now fall to the community, representing a significant financial burden on a small ratepayer base in a region with high levels of socioeconomic deprivation. This approach to flood mitigation and response is therefore no longer tenable.

Sources:
Buller District Council. (30 June 2022). *Kawatiri Business Case.* Retrieved https://bullerdc.govt.nz/flood-resilience-package-signed-off-by-councils-and-iwi/; Buller District Council. (23 February 2022). *Cost of February flood events.* https://bullerdc.govt.nz/cost-of-february-flood-events/; Stuff.co.nz. (15 July 2022). *More than 400 homes still not repaired one year on from Westport floods.* Retrieved from https://www.stuff.co.nz/the-press/news/west-coast/300636197/more-than-400-homes-still-not-repaired-one-year-on-from-westport-floods; Te Uru Kahika River Managers SIG. (2022). *Central government co-investment in flood protection schemes.* Retrieved from lgnz.co.nz

Buller floods (NZ Defence Force)

Case study: Westport

Co-investment from central government will enable a long-term flood risk mitigation scheme that builds community resilience.

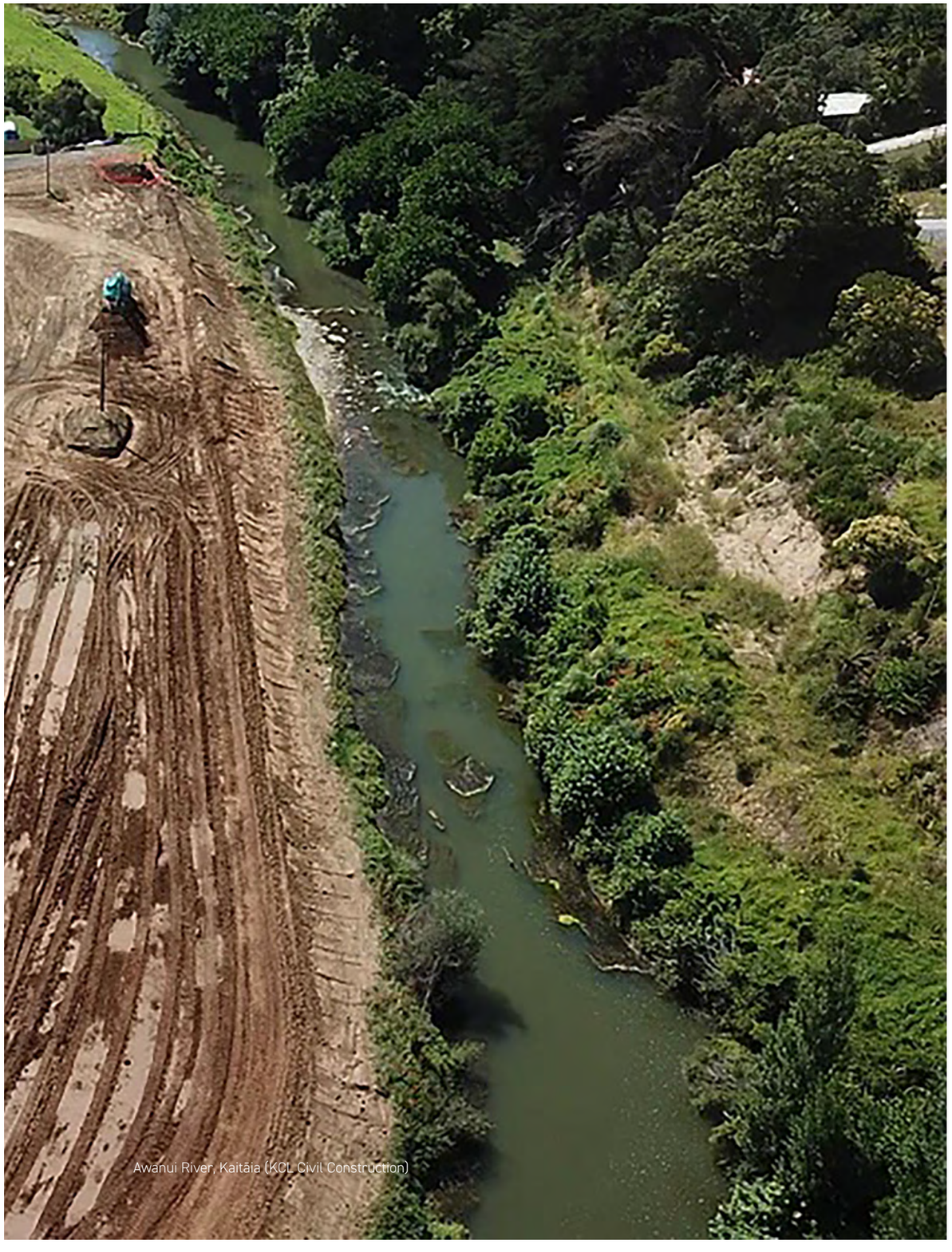
The $56 million Kawatiri business case will be a test case for future co-investment in flood protection schemes across Aotearoa.

The government responded rapidly to the flooding by providing support and recovery relief, through NEMA and other agencies. However, without ongoing central government co-investment, Westport remains unable to implement a flood risk mitigation scheme and develop community resilience against future flooding events and the impacts of climate change.

Recognising this, in February 2022 Hon Minister Mahuta jointly invited the West Coast Regional Council and Buller District Council to submit a proposal for central government co-investment that would support recovery and enable longer term flood resilience in the District.

The figure on right provides an overview of the Kawatiri business case process. This $56 million business case was developed based on the internationally recognised Protect, Avoid, Retreat/ Relocate, Accommodate (PARA) model. Each interdependent component represents a parallel work tranche of work, enabling a multi-tool, long term approach to building community resilience against flooding.

In many ways, the Westport business case will be viewed as a test case for more widespread central government co-investment in flood protection schemes across New Zealand.



Awanui River, Kaitāia (KCL Civil Construction)

Case study: Kaitāia

The Awanui River Flood Scheme has delivered a higher level of protection for Kaitāia and surrounding areas.

Co-investment from central government in the Awanui catchment works has already demonstrated considerable benefits during major flood events.

Similar to Westport most settlements in Northland are located on floodplains. This, coupled with the region's weather systems mean that many towns - including Kaitāia - are at a high risk of flooding.

Recognising the elevated risk to Kaitāia due to stopbanks that could be overtopped in large flood events, the Northland Regional Council (NRC) looked at upgrading existing flood protection schemes with a particular focus on the Awanui River Flood Scheme.

The scheme was reviewed and included in the council's Long Term Plan 2018-2028. In total, 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, a $8.5 million grant received through the government's Covid-19 recovery response funding has accelerated the Awanui catchment works by five years, with completion now anticipated in 2022.

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

The programme has already demonstrated considerable benefits to date. Work completed prior to the government funding meant that in the July 2020 storm there was very little flooding despite the significant volume of floodwaters.

More recently, the scheme has yet again demonstrated its efficacy and value in the 1:100 year storm event in August 2022 - Kaitāia's biggest weather event since 2007 - that saw the town's access cut off along with slips on road networks. Once again, despite heavy rains and power outages, no homes required evacuation and the town was spared from an estimated $50 million in potential damage as well as risk to people's lives.

Central government investment in the Awanui River Flood Scheme is an example of the excellent return on investment in flood protection and management with benefits already being evidenced even whilst the scheme is undergoing upgrades, including creating employment opportunities for 40 people.

This is a testament to the importance of central government co-investment in flood protection and resilience; both in terms of expediting crucial work needed to respond to growing flood risks and in terms of the value these investments produce for both communities and the wider nation.

Source: *Northland Regional Council.* Retrieved www.nrc.govt.nz

The impact of climate change

Flooding challenges are growing in magnitude as the climate crisis deepens.

Climate change acts as a risk multiplier further threatening our flood resilience.

International evidence shows increases in the frequency and severity of weather-related disasters such as floods; attributed largely to the impacts of climate change. Climate change is linked to flooding through two pathways.

First, sea levels rise is predicted to rise by up to 1.3m over the next 100 years, depending on future emissions reduction. Rising sea levels increase the impact of storm surges, exacerbate coastal erosion, and increase the likelihood of coastal inundation and flooding.

Second, climate change through temperature increase is predicted to impact precipitation patterns and river flows; up to 30% increase in peak river flows. This will lead to more frequent storms and extreme rainfall events. This increases the risk of pluvial and fluvial flooding through greater storm surges, eroding river banks, depositing of sediments, and widening rivers.

Importantly, Aotearoa's extended coastline and geographic location in the path of the 'roaring 40s' westerlies means that as a nation we are especially susceptible to experiencing climate-induced extreme weather events. This makes the challenge we face greater than many other countries, and places further strain on our existing flood protection schemes.

More frequent and intense floods will result in a greater magnitude of flood damage. Since most of New Zealand's towns and centres are located along the coast or on floodplains of major rivers, our coastal communities are likely to experience more damage to assets, property, and business as a result of increased flood risk.

The recently released National Adaptation Plan 2022-2028 also identifies Māori as particularly vulnerable to climate change impacts since they rely on the natural environment as a cultural, economic, social, and spiritual resource. This will further exacerbate existing health and socioeconomic inequities already being experienced by many Māori.

While some of the costs of flood damage are typically recouped through private insurance coverage, the insurance industry is recalibrating its calculation of predictable risks to adjust to climate change.

Increasing flood events will therefore lead to successive increases in insurance premiums as well as partial and full insurance retreat, as already seen in parts of the United States such as Louisiana.

In New Zealand research has conservatively predicted insurance premium hikes within the next ten years, with more than 10,000 houses across Wellington, Auckland, Christchurch, and Dunedin experiencing full insurance retreat by 2050. Higher insurance premiums and retreat will create lasting effects for vulnerable communities who will be unable to rebuild and fully recover before the next flood event, with enduring impacts on intergenerational wellbeing.

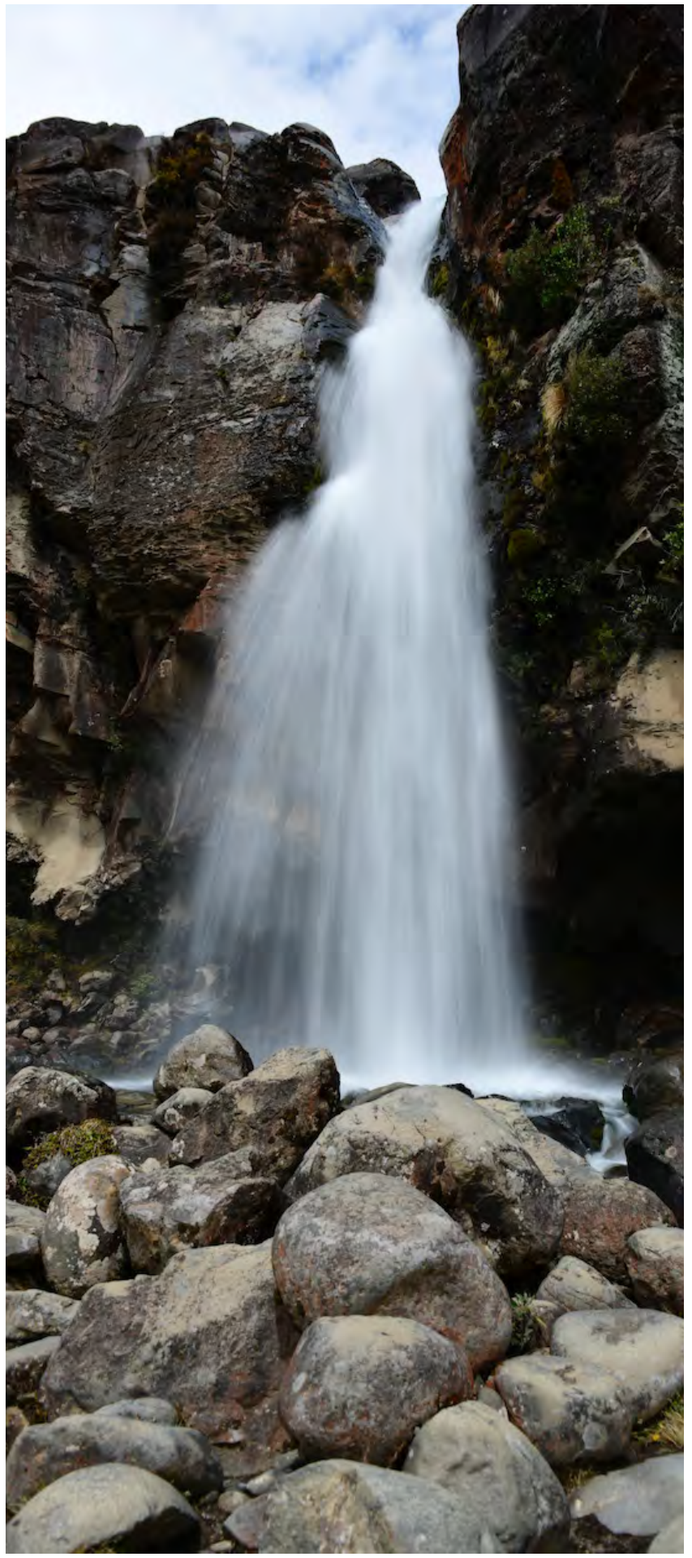
Additionally, the wider financial sector is also undertaking assessments with a view to improving their climate risk exposure and management. Recently released findings point to the potential for a significant proportion of homeowners seeing a decrease in their property value as our understanding of climate risk improves. Indeed, in Auckland more than a quarter of mortgage lending was for properties in a flood zone.

In this way, the impacts of climate change will be disproportionately felt by low-income households and vulnerable groups, including the elderly and those with disabilities. These impacts will be even more strongly felt by those communities exposed to multiple hazards beyond floods alone.

We can therefore see that climate change acts as a risk multiplier; in this instance, further threatening our nation's flood resilience. However, it is not just the occurrence of natural disasters, but how governments mitigate and respond to them, that contributes to growing inequality.

Improved flood resilience therefore remains a crucial first step in adapting to climate change.

Sources: Ministry for the Environment. (2017). *Coastal Hazards and Climate Change.* Retrieved https://environment.govt.nz/assets/Publications/Files/coastal-hazards-guide-final.pdf; Storey, B., Owen, S., Noy, I. & Zammit, C. (2020). *Insurance Retreat: Sea level rise and the withdrawal of residential insurance in Aotearoa New Zealand.* Report for the Deep South National Science Challenge, December 2020; Ministry for the Environment. 2022. *Aotearoa New Zealand's first national adaptation plan.* Wellington; Willis, G. (2014). *Managing natural hazard risk in New Zealand - toward more resilient communities,* a report for LGNZ.; Newman, R., Nicholls, K., & Adams-Kane, J. (2022). *Residential mortgage exposure to flooding risks.* Retrieved www.rbnz.govt.nz



The evolving scale of the challenge

Climate change impacts and our current funding approach are exacerbating our risks.

Flooding poses very significant risks to lives, livelihoods, communities and the economy, as we continue to see with every major flooding event. However, there are three main indicators that the situation is about to become worse.

First and foremost, existing flood protection schemes require ongoing maintenance and repair, with many needing major upgrades in order to continue functioning as intended. This does not include the implementation of new schemes and initiatives to meet current and future needs.

However, flood protection schemes are primarily funded through an already stretched-thin ratepayer base, and increasing rates to fund this necessary work is neither viable nor equitable. In the absence of any central government funding, the affordability and continuity of flood protection schemes – so crucial to protecting our nation's assets – remains under threat.

Second, the assets protected by these schemes have steadily increased in value over time. Adjacent urban development has also intensified. This means that the damage from a major flood event will incur significant wellbeing and economic costs, which are rising over time. Traditionally some of these costs have been recouped via insurance, although pay-outs do not cover the full extent of damage nor do they reduce the future risk of flooding.

Third, and relatedly, the impacts of climate change are creating further risks to our flood resilience. Both NIWA and international evidence indicates an increased frequency and severity of extreme flood events, alongside rising sea levels which pose threats to coastal communities.
Increasing flood events lead to successive increases in insurance premiums as well as the partial or full withdrawal of cover by insurance companies, as already seen in parts of the United States.

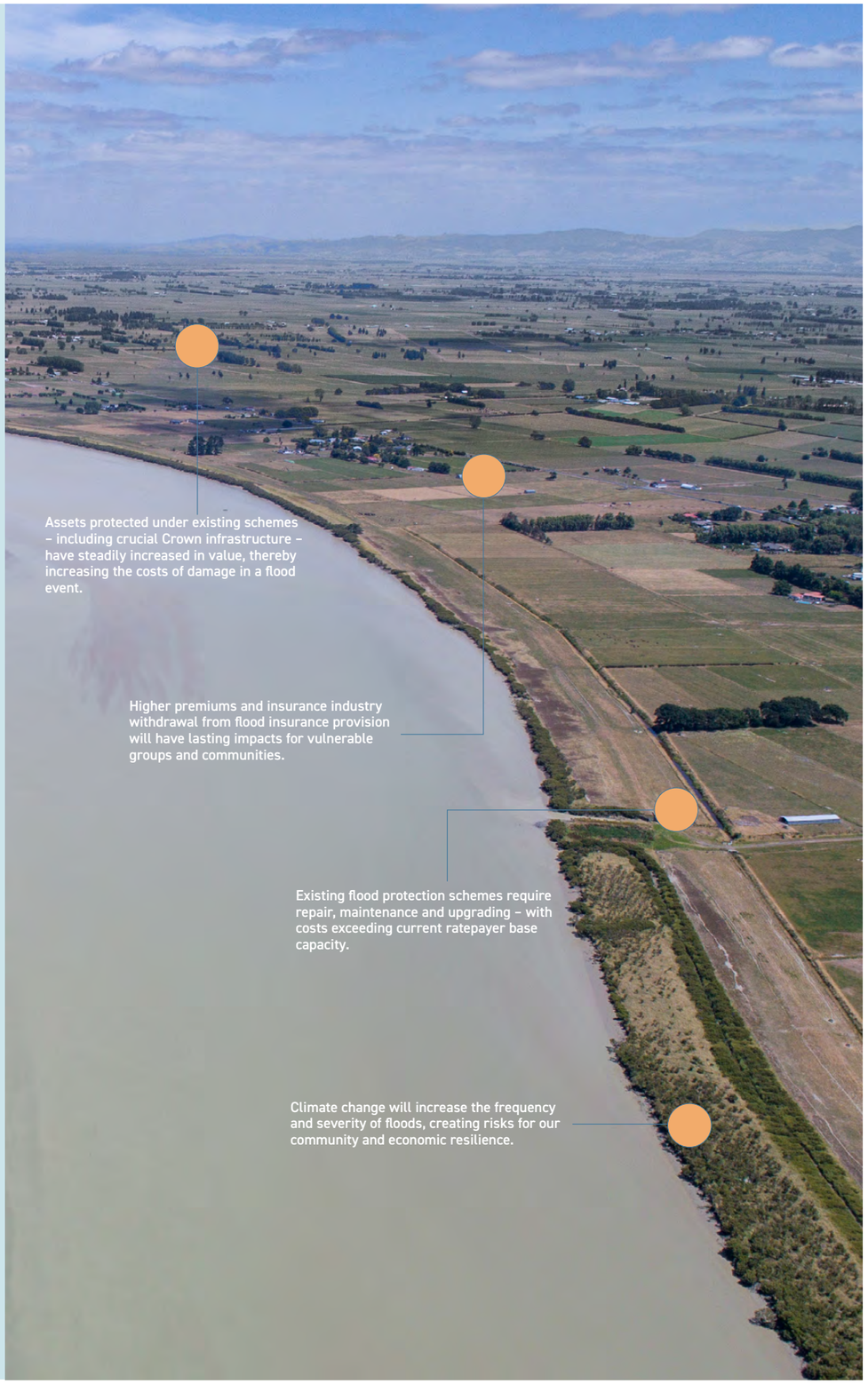
Indeed, recent research has conservatively estimated that New Zealand will see very significant insurance premium hikes within the next ten years, with more than 10,000 houses across Wellington, Auckland, Christchurch, and Dunedin experiencing full insurance withdrawal by 2050. While the Insurance Council of New Zealand has previously signalled their own commitment toward maintaining insurance support for high risk communities, this is contingent on broader national-level commitments toward flood risk mitigation.

Higher insurance premiums and retreat will create lasting impacts for vulnerable communities who will be unable to rebuild nor have the means to relocate after a flood. This is just one way climate change will disproportionately be felt those most vulnerable in society, with enduring impacts on intergenerational wellbeing.

Flooding also represents a significant liability for the government, with the projected costs of climate change on storms and flood liability alone is conservatively estimated to increase Crown liability to between $231 and $261 million per year by 2050.

Together, these lines of evidence suggest materially increased risks to Aotearoa's wellbeing and economy in coming years. Mitigating these foreseeable risks through central government co-investment will serve as the nation's first line of defence against climate change-induced flooding, with benefits for every New Zealander.

Sources: NZIER (2020). ***Investment in natural hazards mitigation: Forecasts and findings about mitigation investment***. Report to DIA; Storey, B., Owen, S., Noy, I. & Zammit, C. (2020). ***Insurance Retreat: Sea level rise and the withdrawal of residential insurance in Aotearoa New Zealand.*** Report for the Deep South National Science Challenge, December 2020.



There are strategic risks in our current approach

The business as usual approach to flood protection is creating significant strategic risk for the Crown.

Climate change will increase our flood risk of flood events, and if left unmitigated this will lead to partial or full insurance retreat.

Climate change increases flood risk and insurance retreat

Climate change has been identified as a threat to the re/insurance industry as early as 1979. The issue impacts insurance markets in two ways.

First, extreme weather events are increasing our underlying flood risk meaning insurance companies are also increasingly taking on a greater risk, along with potentially bigger financial losses. This requires a greater reliance on reinsurance to remain solvent.

Second, it means that flooding is no longer an unforeseeable or chance event, but is becoming an increasing reality for many regions. Indeed, the Insurance Council of New Zealand (ICNZ) notes that certain impacts of climate change such as sea level rise are neither unforeseen nor insurable.

As a result, insurers are more attuned to climate change in their actuarial analysis and pricing. Using sophisticated catastrophe and disaster modelling tools, insurers are now shifting toward risk-based pricing where individual flood risk ratings determine premiums.

In some cases, the level of flood risk may be too high or unprofitable for re/insurers to underwrite, making insurance unaffordable and/or restricted in certain regions (partial retreat) or creating 'no go' zones where insurance companies fully retreat from providing coverage.

Previous evidence suggests partial insurance retreat occurs when flood probabilities exceed the 2% Annual Exceedance Probability (AEP) threshold, and full retreat by 5%. In fact, we are already seeing insurance retreat play out in flood-prone areas such as Florida and Louisiana, in the United States.

The state of play in Aotearoa

According to a 2018 Lloyd's of London report, New Zealand is the second riskiest country, after Bangladesh, in terms of expected losses from natural disasters (as a proportion of GDP). We also have one of the highest levels of insurance penetration in the world - between 96 to 98% of homes being insured - with flood risk cross-subsidised over a wide base.

However, in late 2021 Tower Insurance shifted toward an individual risk based system for flood protection with approximately 10% of its customer base seeing an increase in premiums. Based on early indications we can expect the local insurance market to follow suit, especially since most insurance companies in Aotearoa are internationally based.

Other companies such as IAG have also signalled the impending impact of climate change on risk, while calling for urgent collaborative flood risk prevention and reduction.

These changes are likely to have implications for insurance availability and affordability, and central government is already considering options for home flood insurance as outlined in the National Adaptation Plan.

The ICNZ has also set out its views on the need for an urgent, proactive, and coordinated approach to flood risk mitigation and adaptation in Aotearoa. They have emphasised that the time for acting is now, while insurance is still largely accessible across the country, rather than relying on affordability issues as the trigger for action.

More recently IAG has echoed these sentiments and put forward a three-step plan for flood risk reduction, including:

(1) improved mapping of flood prone locations;

(2) implementing national policy to stop development in flood prone locations; and

(3) developing a business case for a national programme of investment in flood protection based on priority locations identified in step 1.

Thus, there is growing impetus from the insurance industry for more proactive risk reduction and adaptation in the lead up to its eventual shift toward risk-based pricing, alongside consistent signalling that the industry is committed to being part of the solution.

Sources: Bajrektarevic, A., & Baumer, C. (2012). *Climate change and reinsurance: The human security issue.* Economics, Management & Financial Markets, 7(4), 42-86; Surminski, S. (2017). *Fit for the future? The reform of flood insurance in Ireland: resoluing the data controversy and supporting climate change adaptation.* Policy paper, The Grantham Research Institute on Climate Change and the Environment; Storey, B., Owen, S., Noy, I. & Zammit, C. (2020). *Insurance Retreat: Sea level rise and the withdrawal of residential insurance in Aotearoa New Zealand.* Report for the Deep South National Science Challenge, December 2020; Llyod's of London. (2018). *A world at risk: Closing the insurance gap.*; Ministry for the Environment. 2022. *Aotearoa New Zealand's first national adaptation plan.* Wellington.; ICNZ. (2022). *ICNZ submission on the draft National Adaptation Plan including managed retreat.* Retrieved www.icnz.org.nz.

How the insurance of flood risk works

Insurance minimises the potential negative impacts of an event, but does not reduce the risk of the event itself.

Insurance is about risk management based on the probability of these risks and their likely negative consequences occurring.

As illustrated in the figure at right, insurers take on accepted levels of risk - calculated through risk modelling - on behalf of individuals or businesses, in exchange for a premium. Policy holders receive financial compensation should the risk eventuate, thereby limiting its negative impacts but not the risk itself.

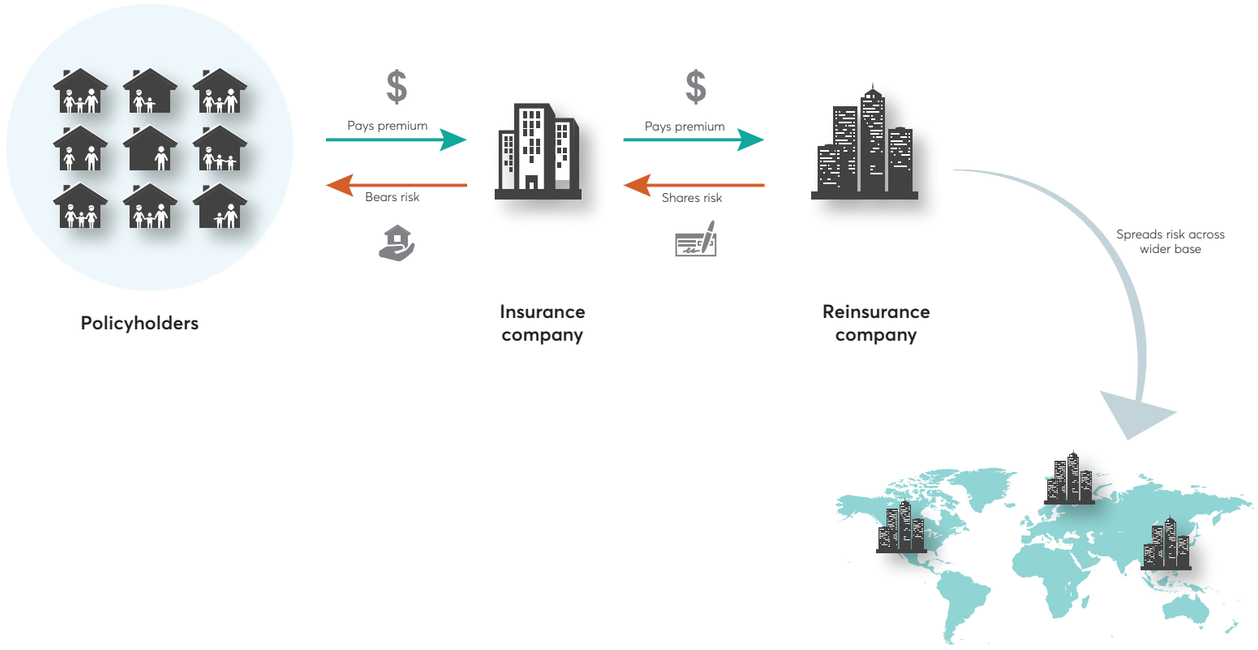
Since most risks are independent and affect only a small number of policy holders at any given time, insurance companies remain profitable by calculating premiums in a way that spreads risk across the group of policy holders.

However, in the case of natural disasters that affect large populations and require payouts en-masse, there is a high loss potential for insurance companies. Reinsurance then becomes critical in managing these risks.

Reinsurance allows another entity (the re-insurer) to take on a proportion of an insurance company's risk coverage in exchange for part of the insurance premium. Put simply, reinsurance is insurance of the insurers. This enables insurance companies to reduce their exposure to loss by spreading the risk amongst a wider pool globally.

Accurate assessment of flood risk and calculation of premiums through actuarial analysis is therefore crucial to the business of re/insurance.

From a flood risk perspective, insurance therefore represents a market-based approach to disaster management wherein risk is transferred from the public sector to the private insurance industry.



Source: Bajrektarevic, A., & Baumer, C. (2012). *Climate change and reinsurance: The human security issue.* Economics, Management & Financial Markets, 7(4), 42-86

The role of insurance in disaster (flood) risk

The success of flood insurance depends on how well flood risk itself is managed.

Where insurance can be helpful

Insurance transfers fiscal risk to another entity; allowing policyholders to recoup some - but not necessarily all - the costs of damage. Other social, cultural, and environmental costs may be both unquantifiable and excluded from cover.

In theory insurance can provide a degree of flood resilience by: (1) enabling households and communities to rebuild after a major flood, and (2) providing price signals and financial incentives for risk reduction prior to flood events occurring.

However, these benefits can only be fully realised when insurance is embedded in broader risk management efforts supported by government and other key stakeholders.

Where insurance can be detrimental

When the costs of flooding falls primarily to insurance companies, insurance can create a false sense of security and become a moral hazard that disincentivises risk reduction efforts. It can also create perverse incentives by encouraging development and living in flood-prone regions.

This will essentially 'lock in' maladaptive patterns, making adaptation and managed retreat difficult in the long-term. Thus, the short-term benefits of insurance can ultimately increase and cement our vulnerability to flood risk in the long term.

What's more, in the case of partial or full insurance retreat government intervention will be required to ensure affordability and access to flood protection.

Example of state intervention: the NFIP

State intervention overseas has typically been in the form of publicly-funded flood insurance schemes, such as the National Flood Insurance Program (NFIP) in the US.

The NFIP was established in 1968 and is managed by the Federal Emergency Management Agency (FEMA). Its main purpose is to offer flood insurance to high flood risk properties, as well as assess and manage flood risk through floodplain management standards. Communities can access federal flood insurance on an opt-in basis if they comply with the established minimum standards.

This scheme offers valuable insights on the pitfalls of state intervention in natural hazard insurance.

- In the absence of effective flood risk mitigation systems, the program has been critiqued for repeatedly subsidising ill-advised development in flood-prone regions.
- The data and flood maps used are also outdated and do not account for the impacts of climate change on flood risk, nor is this information necessarily made transparent for buyers and renters.
- In the face of growing flood risk, the program's move to an individual-based risk assessment system in 2021 was received unfavourably. This shift saw premiums increase for around 77% of customers, often at steep rates.
- Underwriting flood insurance also creates further liability at the state and federal level. In Florida, for example, the state-backed insurance company Citizens Property Insurance Corp. has been forced to underwrite more than 1,000,000 policies due to private insurers pulling out of the market.
- As of June 2022, the NFIP is also more than $20.5 billion in debt. This cost of debt as well as the rising cost of insurance will be passed on to residents and businesses through increased hurricane taxes.

Overall then, providing affordable insurance - through government subsidisation or underwriting - without addressing the underlying risk only creates further harm. Such schemes also significantly raise government liability and debt.

Publicly funded insurance can also create an expectation for government intervention in all hazards - including those related to climate change - which may not in fact be insurable.

The case for minimising flood risk

In short, insurance alone - whether private or publicly-funded - cannot be the only intervention in managing our flood risk. The ICNZ has also previously noted their support for "maintaining the affordability and availability of insurance [only if] there is a proactive focus on controlling, avoiding, and accepting some level of residual risk in the face of climate change."

Indeed, when compared to other hazards such as earthquakes, there is a strong argument for shifting away from a reliance on flood insurance as risk transfer since flood risk is more amenable to adaptation and mitigation measures. The success of flood insurance therefore depends on how well flood risk itself is managed.

Sources: *Congressional Research Service.* Available at sgp.fas.org/crs/; Surminski, S. (2018). *Fit for purpose and fit for the future? An evaluation of the UK's new flood reinsurance pool.* Risk Management and Insurance Review, 21(1), 33-72.; ICNZ. (2022). *ICNZ submission on the draft National Adaptation Plan including managed retreat.* Retrieved www.icnz.org.nz.

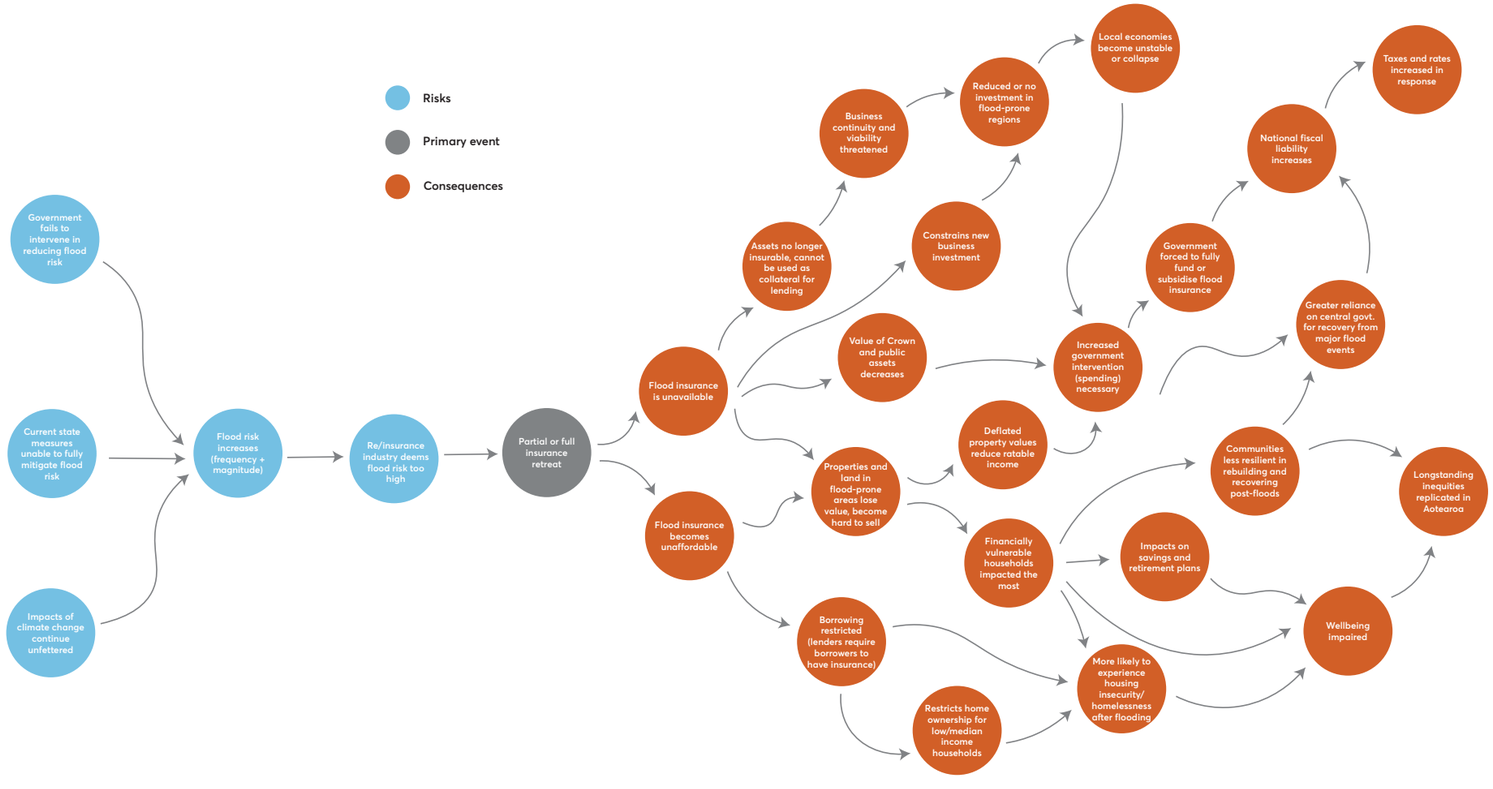
The risks of insurance retreat

Insurance retreat will have a wide range of impacts on homeowners, businesses, our communities, and our economy.

Without central government co-investment and a collaborative approach to flood risk mitigation, Aotearoa will experience a partial or full insurance retreat in the near future.

Insurance retreat will have a range of negative impacts for homeowners, businesses, local communities, central government, and the wider economy. These impacts are illustrated in the risk bowtie diagram, with the causal factors to the left in blue and the potential consequences to the right in orange.

Thus, there is significant economic risk if we continue on the current trajectory.



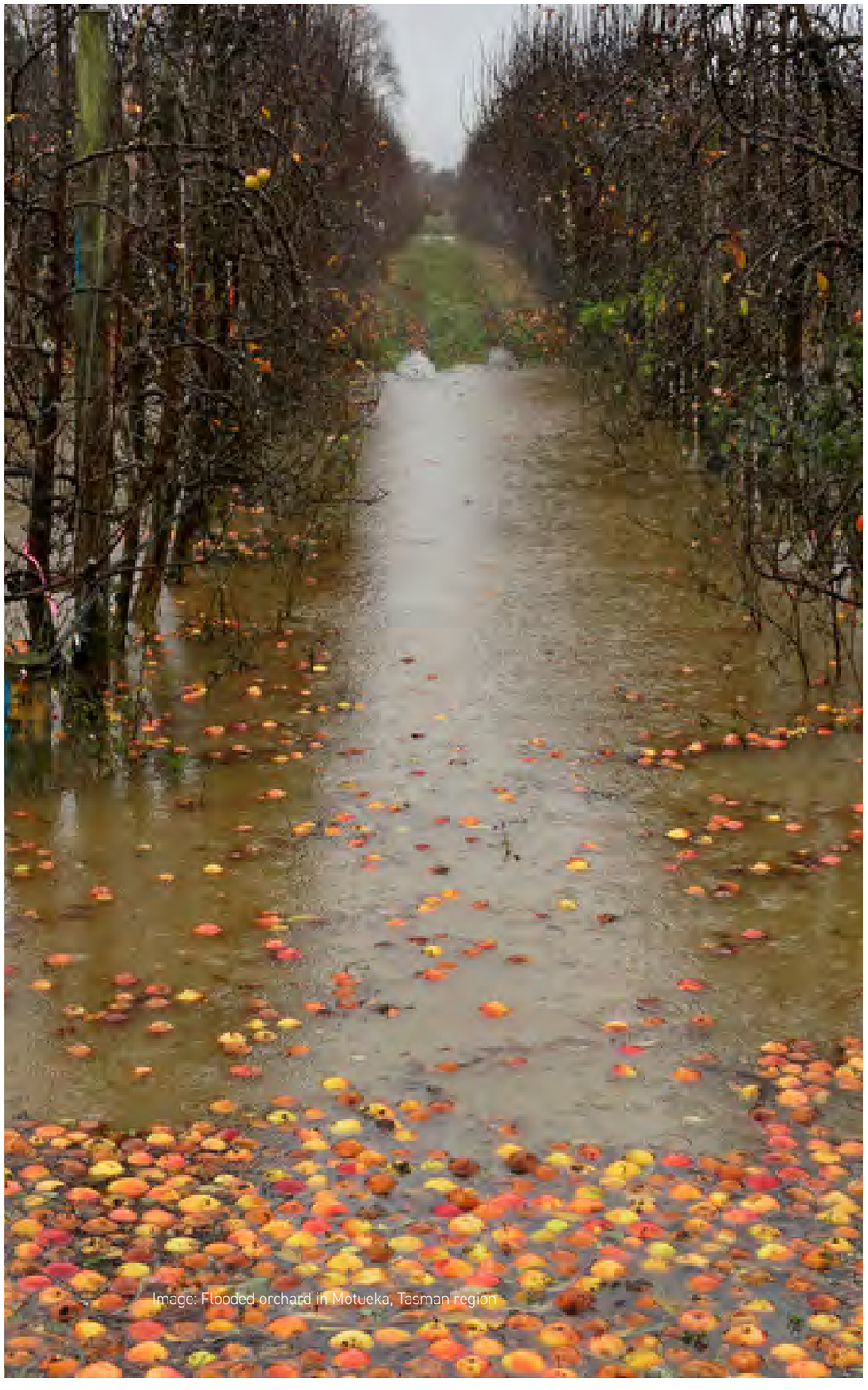


Image: Flooded orchard in Motueka, Tasman region

Exacerbating our flooding risks

In the midst of resource management reforms, we must ensure that we are not encouraging people to live in harm's way.

In tandem with our over-reliance on risk transfer through insurance, there is also the issue of new developments being permitted in high risk regions; i.e., those most threatened by climate change and/or flood risk.

Resource management policy is currently undergoing reforms with regulation around land use and development likely being covered by the new Strategic Planning and the Natural and Built Environments Acts. However, these laws are not set to come into play for another few years.

In fact, Minister of Climate Change James Shaw has previously indicated urgent environmental regulation can be difficult due to the slow pace of policy and legislation.

In the interim permitting risky development locks in maladaptive patterns that are likely to create further harm for communities in the long term. Establishing new developments will also limit future options for flood adaptation, including making managed retreat much more challenging.

With the reforms currently undergoing a transitional period, we are operating in a regulatory gap. The insurance industry, through ICNZ, have advocated for halting development in high-risk areas, with IAG echoing this as part of their three step plan. There is also growing public concern around this issue.

Failure to act will not only increase future flood risk and put more people in harm's way, but will also lead to loss in public trust and confidence. This will also inevitably result in increased taxes to fund future flood response and flood risk management over time.

Local Government has previously noted a similar stance, with LGNZ chief executive Susan Freeman-Greene arguing that "we need strong short- to medium-term measures backed by longer-term solutions as part of the resource management reform."

Thus there is significant political risk in continuing to permit investment in at-risk regions, requiring urgent action in the short- and medium-term.

Sources: Daalder, M. (2022). ***Slow lawmaking leaves gap for risky development.*** Retrieved https://www.newsroom.co.nz/slow-lawmaking-leaves-gap-for-risky-development; ICNZ. (2022). ***ICNZ's views on climate change and the role of local government***. Retrieved www.icnz.org.nz

There are shortfalls in our national response

There is a gap between what's needed and what's currently being done.

The traditional ways of funding flood protection are proving inadequate in a changing world.

The financial gap

Flood protection schemes remain our nation's first line of defence against major flood events, providing billions of dollars in benefits.

Some of these flood protection assets date back to the 1900s, with most being constructed up to half a century ago. Due to a combination of assets ageing and climate change-induced flooding becoming more frequent and intense, many existing schemes are increasingly unable to cope with extreme flooding events.

Significant maintenance, upgrade, and construction works are required in order for our flood protection and mitigation systems to meet future 'acceptable' levels of risk accelerated by climate change.

Regional council river engineers have calculated the overall cost of undertaking these works is likely to be in the range of $350 million per year. However, Regional Council Long Term Plans (2018-2028) account for a necessary capital and operating expenditure of $200 million annually, resulting in an shortfall of $150 million per year.

Why the current approach is not sustainable or equitable

The current funding approach would see this shortfall transferred to ratepayers through an increase in targeted and regional rates. However, there are at two key reasons why this is not viable.

First, these costs exceed the reasonable capacity of ratepayers to meet on their own, especially as flood risk continues to increase due to climate change and given rapidly rising construction costs. With rising living costs many households are struggling to pay current rates, let alone cope with an increase to sustain existing assets, and fund upgrades and new infrastructure.

This is particularly true of those regions and communities where high levels of socioeconomic deprivation intersect with flood risk. Anecdotal evidence from Westport highlights the struggles of low-income households, with many paying their rates at $5 per pay simply because they cannot afford to pay more than that.

Second, it is inherently unfair and inequitable for ratepayers to continue to fund the protection of high value Crown-owned and related assets, as has been the case for the past three decades. Flood schemes also enable communities and economies to continue functioning during major flood events, indirectly benefiting central government and the nation.

Where central government funding is received, this is largely directed toward response and recovery post-disaster; arguably an ineffective use of public spending, and one that increases Crown liability long term.

It is therefore evident that current arrangements to funding flood protection – established more than thirty years ago – are neither equitable nor sustainable to address present and emerging needs on their own.

There have been several bids to get central government co-investment contributions, beginning with a business case in 2019. This proposal had some impact on a July 2020 Cabinet paper that recognised the need for the current approach to evolve to meet existing and future challenges, and the need for greater central government involvement. However, it was subsequently noted that central government resources toward progressing this work would be suspended due to budget constraints in 2021. In the meantime, floods and other natural hazards have not been 'on pause'.

Central government needs to return to the table as co-investor

Aotearoa is running out of time. Climate change is at our doorstep and the risks and impacts of flooding for communities and the nation are greater than ever. Significant additional investment is required to deliver healthy catchments and resilient communities.

As identified in the aforementioned Cabinet paper, central government needs to return to the table as a co-investor, fulfilling its obligations to protect and improve community resilience against floods.

The time to act is now. Doing nothing is no longer a viable option.

Source: Cabinet paper. (2020). *Improving resilience to flood risk and supporting the COVID-19 recovery.*

> **There is an opportunity for central government to increase its stewardship of the overall system. This implies a more active role in supporting communities and local government to manage the risks. This is particularly the case where some functions are best performed or coordinated at a national level or where it is beyond the capability of local government and communities to manage effectively at local or regional levels.**
>
> - Cabinet Paper, 1 July 2020

The co-investment approach

Regional councils have demonstrated capability and capacity to deliver flood protection infrastructure.

Our co-investment proposal will enable essential infrastructure work to progress in some of our most vulnerable communities.

In 2021, Kānoa invested $217 million into 55 flood protection projects across Aotearoa as part of the government's COVID-19 recovery programme. This investment represents the most significant contribution from central government in over 30 years and has fast-tracked projects to improve long-term community flood resilience.

Regional councils prioritised 'shovel ready' projects that would accelerate existing or planned programmes of work for flood risk management. Kānoa and central government priorities for these projects were around climate resilience, with social procurement as an implementation requirement.

This funding was considered the first step in an establishing an effective ongoing co-investment partnership for flood resilience between central and local government.

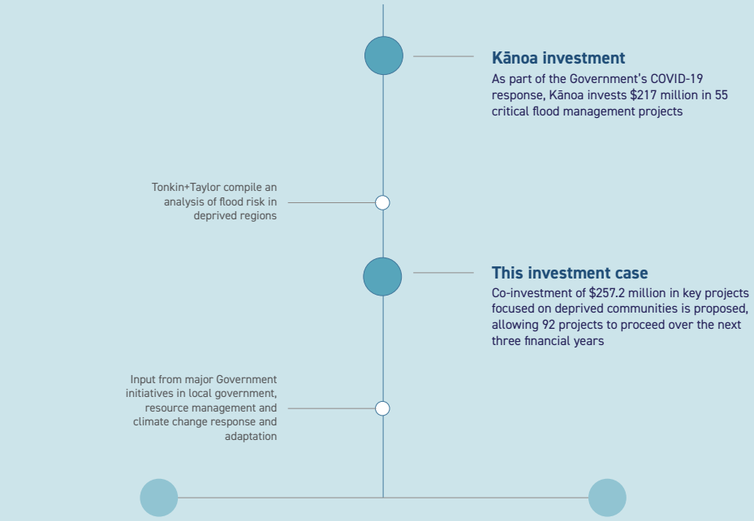
The midway progress report (included overleaf) evidences councils' capability and track record of delivery on projects funded through central government contributions. A selection of case studies also follow, demonstrating the wide range of social, economic, cultural, and environmental benefits arising from this investment.

The sector's delivery and execution of these 55 essential flood protection projects provides an important foundation for co-investment and developing genuine partnership with central government in improving community flood resilience and wellbeing outcomes.

Within this context, our request for co-investment of $257.2 million over three years represents the continuation of essential infrastructure work, allowing some of our most vulnerable communities to progress shovel-ready flood protection projects.

Central government has and continues to demonstrate a significant interest in improving our flood resilience in the face of climate change; as seen in the 2020 Cabinet Paper, the National Adaptation Plan 2022-2028, and the Resource Management Act reforms. This interest is also increasingly reflected in our communities' needs and expectations.

Two additional elements are required to ensure Aotearoa has a robust approach to flood protection that will respond effectively to the challenges of climate change. These are a sustainable co-investment model that brings together central and regional government, and a national PARA assessment model that enables informed decisions to be made about protection, mitigation and retreat on a community-by-community basis across Aotearoa. These elements are discussed later in our investment case.



Climate Resilience & Flood Protection Programme

PROGRESS REPORT

Our regions are proud to work shoulder-to-shoulder with Kānoa in adapting our communities to meet climate change challenges.

With these challenges come more extreme weather events and flooding. The impact of flooding is often devastating to our communities and our local economies, affecting critical road, rail, air and built infrastructure, productive agricultural land, as well as the lives and livelihoods of our whānau.

At this mid-way point of the Climate Resilience programme, we are pleased to reflect on the progress made thus far and to see the co-investment we have made into these 55 projects has resulted in the acceleration, or in some cases, has enabled altogether, these critical flood protection works which together provide resilience to our many river communities.

$312M HAS BEEN CO-INVESTED BY KĀNOA AND OUR REGIONAL AND UNITARY COUNCILS INTO **55 PROJECTS** ACROSS AOTEAROA

10 completed

13 more over the next 12 months

32 projects to be completed by 2024

Programme Achievements

catchments with protected fish-safe pathways created

5,297 ha*

wetlands created or enhanced

835 ha*

community resilience across

8,642 ha*

the equivalent land area of more than 10 Kaitāia's

653* local jobs created

$50.0m estimated flood damages saved in Kaitāia alone

Kānoa distributed funds***

$107.03m

$90.0m of Kānoa funds spent***

$47.1m council funding/ co-investment spent***

local business contract value

$117,184,773**

māori business contract value

$8,429,984**

other business contract value

$11,864,865**

* BASED ON PROJECTIONS ACROSS ALL PROJECTS TO COMPLETION ** AS OF AUGUST 2022 ***AS AT END-SEPT 2022.

WAIMAKARIRI RIVER, CANTERBURY - McIntoshs bend Flood Protection

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

FOR CONSIDERATION ➤ V1.0 ➤ 6 DECEMBER 2022

Resilient River Communities

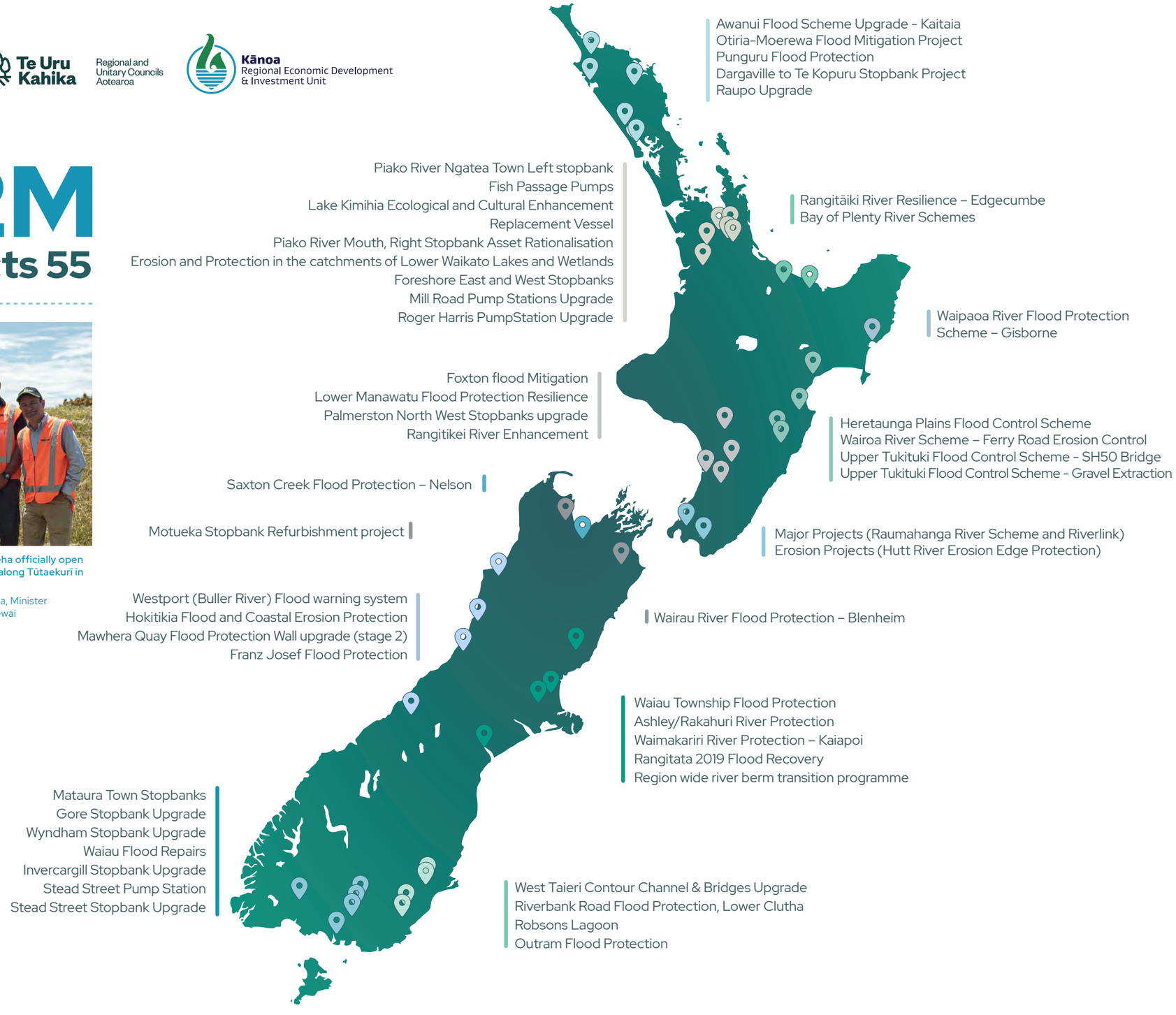
Te Uru Kahika
Regional and Unitary Councils Aotearoa

Kānoa
Regional Economic Development & Investment Unit

$312M
Total Projects 55

Minister Stuart Nash and Councillor Chad Tareha officially open stopbank work with a sod turning and karakia along Tūtaekurī in Taradale Napier.

Left to right: Napier City Councillor Chad Tareha, Minister Stuart Nash, Regional Councillor and Chair Hinewai Ormsby, Te Kaha Hawaikirangi, James Palmer



COMMUNITY PROTECTION ALSO RESTORING TE MANA O TE WAI

NORTHLAND REGIONAL COUNCIL

Otiria Spillway works will reduce flooding to Otiria and Moerewa by restoring the natural river flow path previously cut off by roads and rail.

The challenge

The communities of Moerewa and Otiria have suffered three major flooding events in the last decade. Local housing, Otiria Marae and Te Rito Marae, the local Otiria Rugby Club, a retirement village and both towns have been at risk.

The programme

Lower Spillway works: $400,000
Feb - Apr 2022

Construction of 60 metre-long bridge: $3,900,000
Jan 2023 to Dec 2023

Upper spillway and stopbank: $700,000
Dec 2022 to Dec 2023

Iwi partnership

- Working together - tangata whenua and local government agreeing solutions.
- Sharing kai, meeting in local venues, participating in tikanga.
- Karakia / blessing led by tangata whenua.
- Cultural induction – contractors to local whānau / hapū.

Restoring Te Mana o Te Wai

- Spillway to skim flood flow from Otiria Stream and restore the natural flow that has been blocked by roads and railroads.
- Replacing existing bridge with a new bridge to handle a 1:100 year and climate change flood event.

Local input and engagement

- Local knowledge integrated into project plan.
- 10 community roopu engaged and participating.

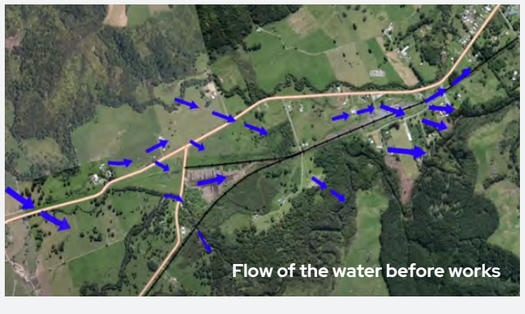
Collaboration

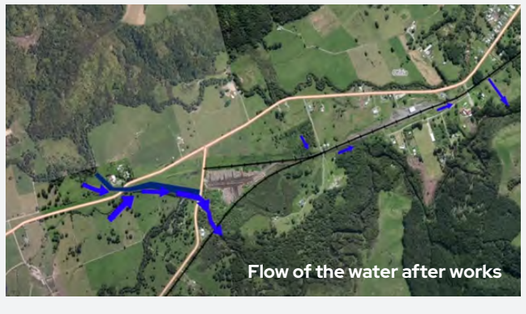
Successful collaboration between:

Tangata whenua, landowners, Kaitiaki, Willow Jean Prime, NRC Project Team, Councillors, Far North District Council, Haigh Workman Engineers, KiwiRail, KCL – Stage 1 contractors.

Project funding

Kānoa $2.8m | NRC $2.2m | Total $5m


Flow of the water before works


Flow of the water after works

OTIRIA SPILLWAY

Location: Otiria, Moerewa, Northland

Key Benefits

- ✓ **Protection:** reducing risk to flood-prone marae, local rugby club, local housing.
- ✓ **Reducing risk:** reducing severity of a typical flood by ~75%.
- ✓ **Collaboration:** collaborative and iwi partnership approach to mahi.
- ✓ **Social benefits:** employing local rangatahi, whānau/hapū.
- ✓ **Whakawhanaungatanga:** establishing relationships – council, whānau/hapū, contractors, wider community.
- ✓ **Cultural assessment:** taonga species monitored at local event with NRC freshwater scientists and whānau/hapū.
- ✓ **Events:** rubbish day, cultural assessment, diverse attendance at cultural induction days.
- ✓ **Education:** kaitiakitanga training, learning what makes the awa thrive, monitoring.
- ✓ **Enabling affordability:** many communities cannot absorb increased cost of rates to pay for new or upgraded flood protection schemes. Contribution by central government has enabled increased resilience to climate changes and protection against flooding.

the project has.... ***"shown us what a true partnership looks like from a hapū mana whenua point of view when referring to Te Wakaputanga 1835 & Te Tiriti o Waitangi 1840."***

- Local kaitiaki

Wiremu Keretene

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

FLOOD PROTECTION ACROSS ALL OF GISBORNE

GISBORNE DISTRICT COUNCIL

The challenge

Climate change is the most significant long-term issue facing the Gisborne region. In 2020 the government declared a climate change emergency, recognising the need for preparation for the impacts of a warming climate with more erosion, more flash floods and wildfires likely in the Gisborne region. Impacts include expecting sea level rise, coastal erosion and floods affecting homes and recreation.

Flood protection keeps Gisborne's people and community safe from its rivers breaking their banks in heavy rains and ensures that its important horticulture, viticulture and farming assets are protected from the effects of climate change.

Project summary

- Long term climate change resilience programme.
- Approx 64km of stopbanks being widened and heightened along the Waipaoa River.
- Work began in 2019 and is scheduled for completion in 2030/31.
- Some 10,000ha of fertile floodplain land and Gisborne City will be protected by this mahi.
- The Waipaoa Flood Control Scheme is deemed one of the council's most valuable assets.

The programme

Completed work

- **February 2019 to March 2022:** 19.6km stopbank construction.
- **March 2022:** 1km further stopbank construction and sheet piling for construction of the Spillway at Wi Pere Trust begins.
- **April 2022:** 3km further stopbank construction Whitmore Road and Kaitaratahi Hill.

Current and future work

- **September 2022 – January 2023:** complete flood mitigation work on Wi Pere Trust land at 864 – Lavenham Rd (western side) and further construction between Whitmore and Caesar Road – 1.2km (eastern side).
- **January 2023 - a significant milestone:** all stopbanks upgraded on eastern (city) side. 25km of stopbanks successfully upgraded.
- **September 2022 - June 2023:** construction between Waipaoa River mouth and Te Arai Stream (western side) and Te Arai Stream to just downstream of Matawhero SH2 Bridge (western side).
- **October 2023 onwards:** progressively upgrade the western side until complete – from Matawhero SH2 Bridge upstream.
- **2030/31:** Waipaoa Flood Control Scheme fully upgraded and operational on both sides.

Project funding 2020-2023

Kānoa $7.5m | GDC $6m | Total $13.5m

Planning, investigation and design is also continuing for future stopbank upgrade areas, all of which are located on the western side of the Waipaoa River.

Funding provided by Kānoa helped to accelerate this programme of work.

Total project likely cost 2019 - 2030/31: $32-35 million

WAIPAOA RIVER - *Credit: Ulrich Lange (CC BY-SA 3.0)*

WAIPAOA RIVER FLOOD CONTROL UPGRADE

Location: Waipaoa River, Gisborne

Key Benefits

- ✔ **Local employment boosted:** two local contractors have combined employed 12 new staff as a direct result of this project.
- ✔ **Climate change adaptation:** increasing the level of flood protection to the Poverty Bay floodplains and Gisborne City to a 100-year return period accounting for climate changes out to the year 2090.
- ✔ **Protection:** for housing, businesses, local and state highway roads, airport, hospital, horticulture, viticulture and farming assets.
- ✔ **Safeguarding:** economic development and wellbeing.
- ✔ **Contributing to community infrastructure:** 8km long cycle trail along Waipaoa River mouth to Matawhero SH2 Bridge. Cattle stop ramps, signage and squeeze gates installed.
- ✔ **Care for the environment:** borrow sites for stopbank fill have the least environmental impact on river ecology, fish passage and spawning. Cultural and archaeological discovery protocols in place.
- ✔ **Money flowing back into the local economy:** to businesses engaged for maintenance and mechanical work, steel work, engineering, tyres, right down to the helicopter company laying grass seed.
- ✔ **Enabling affordability:** many communities cannot absorb increased cost of rates to pay for new or upgraded flood protection schemes. Contribution by central government has enabled increased resilience to climate change and protection against flooding.

AVERTING $50M* DAMAGE TO KAITĀIA *estimated

NORTHLAND REGIONAL COUNCIL

The challenge

After the significant flood of 1958 (pictured below), a comprehensive upgrade to this flood protection scheme was undertaken, including the construction of stopbanks and the Whangatane Spillway enlargement. Further improvements have been required, including to meet the projected impacts of climate change.

The programme

- 8-year programme condensed to 3 years due to Kānoa funding support.
- $15.5m (total value) of spillways, stopbanks, floodwalls.
- Extensive improvements to stabilise stopbanks allow the river to safely carry 15% more floodwater.
- Emergency spillway greatly reduces risk to life, property.
- Protecting public safety though repairs and maintenance.
- Pictured below: collaboration with FNDC project where shared cycle/walkway was installed along the river as well as a play area and community BBQ with shade sails as part of a separate Kānoa-supported project.

Project funding

Kānoa $8.5m | NRC $4.5m
Local Community $2.5m

Project duration

3 years

Jobs

40

There is the potential for investment in further work to adapt to climate change in the lower reaches.

FNDC's new community BBQ area at Alan Bell Park is protected by the Awanui Scheme Upgrade.

Quite the contrast: In 1958, Kaitāia was inundated with floodwater and up to 1m standing waves. The August 2022 flood event which was 40% bigger than 1958 saw no flood water in Kaitāia.

FNDC's new cycle and walk path adjacent to Awanui scheme works.

AWANUI SCHEME UPGRADE

Location: Kaitāia, Northland

Key Benefits

- **$50m* in damages saved:** despite not yet being completed, works have already saved an *estimated $50m worth of damage to Kaitāia in a 1:100 year storm event on 18 August 2022.
- **Protection upgrade:** to urban Kaitāia in 1:100 year flood, the surrounding area from a 1:20 year flood, to adapt to projected impacts of climate change. Before Scheme upgrade LOS 1:30 Kaitaia and 1:10 rural.
- **Enabling affordability:** many communities cannot absorb increased cost of rates to pay for new or upgraded flood protection schemes. Contribution by central government has enabled increased resilience to climate change and protection against flooding.
- **Iwi partnership:** including planting days arranged by Oturu Marae with around 45 attendees over two days and arrangements for Oturu and Te Paatu Marae to maintain planting.
- **Council collaboration:** Northland Regional Council and Far North District Council working together, including planting collaboration and installation of community assets (part of another Kānoa-supported project). FNDC's assets include 2.2m wide shared cycle and walking loop along the awa, as well as play area and community BBQ nearby. Bench seats, outdoor exercise equipment and solar lighting also to be installed riverside, adjacent to current works - all protected by the Awanui Scheme Upgrade.
- **Community planting day:** marae-organised planting day with two local primary schools, over 45 attendees over two days and representation from Oturu, Te Paatu, Te Rarawa with NRC sponsoring trees, kai.
- **Social benefits:** employing 40 people including local rangatahi, whānau/hapū.

FOR CONSIDERATION ▼ V1.0 ▼ 6 DECEMBER 2022

The objectives of this investment

The scope of the co-investment is the continuation of essential projects over the next three years.

Significant work has been undertaken to reduce the vulnerability of communities to major flooding events. But as the Westport experience shows, more work is needed to ensure we are taking all reasonable steps to mitigate the worst impacts of climate change.

This investment case does not propose structural changes to how flood protection is planned, prioritised and funded in Aotearoa; rather, it proposes co-investment by the Crown of $257.2 million over the next three years to continue the work commenced by Kānoa, which will reduce the likelihood and impact of major flooding events in some of our most vulnerable communities.

The scope inclusions and exclusions for this investment are therefore shown in the table at right.

In scope

Crown co-investment of $257.2m in capex for 92 shovel-ready projects across 14 regional government areas

Regional Council investment of $171m in capex alongside the Crown to deliver the 92 identified projects

The delivery of the 92 projects by the end of the 2025/26 financial year

Crown co-investment of $1.8m in opex to co-develop the sustainable co-investment model with Te Uru Kahika by the end of the 2023/24 financial year

Crown co-investment of $3.1m in opex to co-develop the National PARA Assessment Tool alongside Te Uru Kahika, with input from the insurance sector

Out of scope

Investment of $627m by regional councils over the period to 2026 in flood management outside the 92 identified projects.

Image: Karamea River

The benefits of improving our flood resilience

There are many fiscal and non-fiscal benefits of improving our flood risk resilience in Aotearoa.

As has been noted earlier in the document, there are significant impacts in each of the wellbeing domains from major flooding events. Conversely, avoiding and mitigating these risks carries significant benefit to the people, the place and the economy.

Benefits are realised in both financial and non-financial terms; that is, some benefits accrue in the form of monetary impact such as costs avoided, whilst others are non-monetary in nature. A good example of a non-financial benefit is improved community cohesion.

The table at right provides a high-level view of both the financial and non-financial benefits in each of the wellbeing domains. Financial benefits are marked in **bold type.** Given the complexity and extent of the flood protection programme, it is out of scope for this investment case to quantify the benefits; however, the work to do so is planned for the National PARA Assessment Tool, discussed later in the document.

Environmental benefits

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

Economic benefits

- Provides secure places for stable economic activity
- Limits costs of damage to buildings, houses, and personal belongings
- Limits cost of damage to key Crown assets and infrastructure
- Minimises unplanned liability for Crown
- **Limits costs of emergency response and recovery**
- **Reduces the likelihood of insurance retreat, requiring government intervention/subsidy**
- **Market value of properties and assets retained or increased**
- Effective use of spending in minimising risk vs responding to it
- Minimises disruption to business, healthcare services, education, economy
- Restricts insurance premium hikes and partial retreat

Cultural benefits

In collaboration with mana whenua:

- Limits costs of damage and repair for invaluable cultural assets and sites (marae, urupā)
- Protects coastal 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

Social benefits

- **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 co-morbidities, disabilities, or elderly
- Limits housing conditions from deteriorating (dampness, mould)
- Trust and confidence in government, authorities, institutions retained or increased

Alignment with other strategies

Important linkages to existing and planned legislation and initiatives.

Several policy initiatives and laws will impact flood resilience outcomes, thorough the PARA framework.

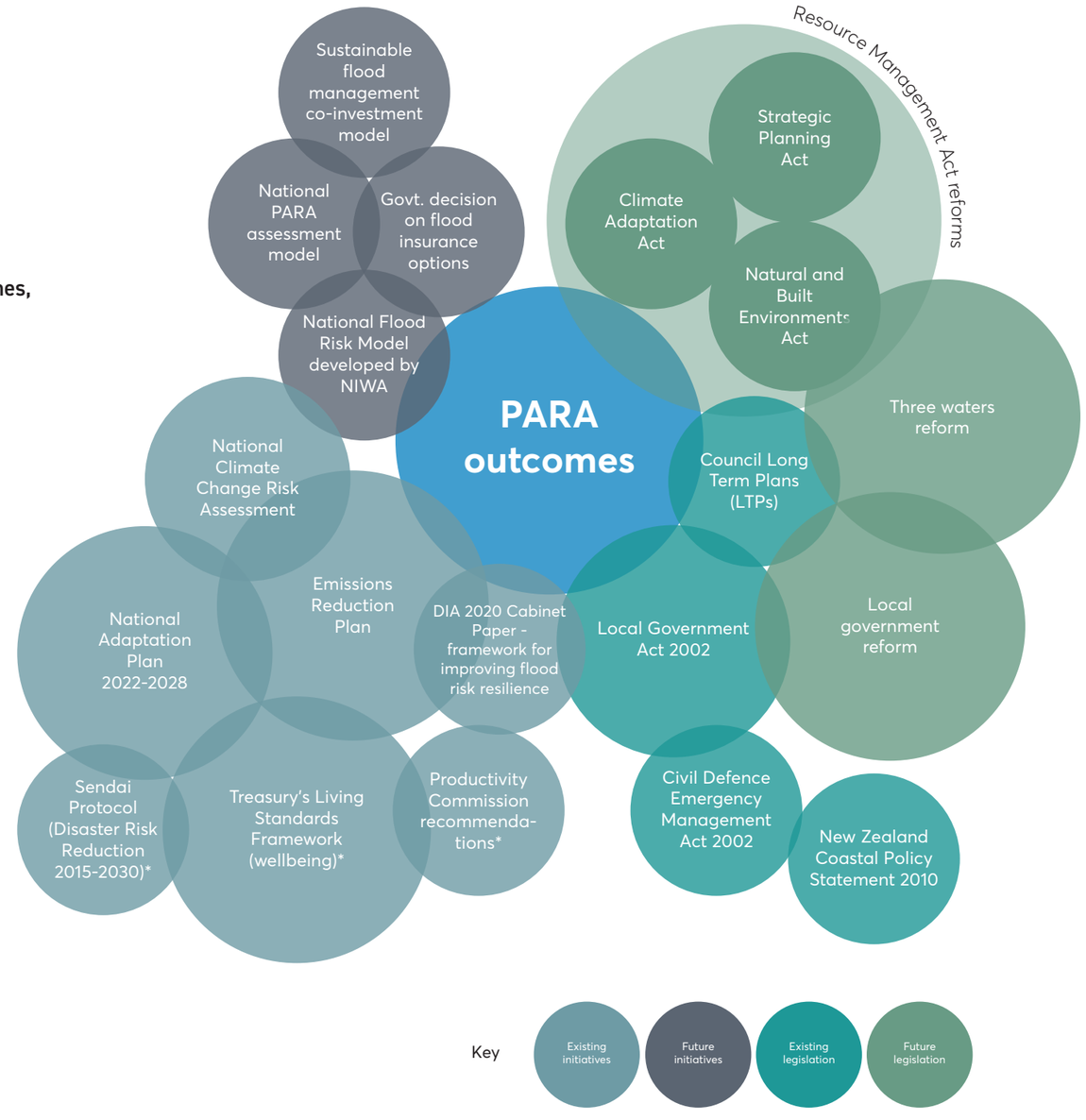
The figure at right provides an overview of the legislative and policy initiatives - both existing and upcoming - on the ability to achieve flood resilience and protection, through the PARA framework.

Proximity to the centre circle reflects a more direct means of impact, while distal initiatives and legislation are likely to have an indirect impact on achieving flood resilience.

As is evident, there is no single statute covering the management of natural hazards. Instead, there is a patchwork of legislation pertaining to flood risk management.

Most of this legislation is also enabling in nature rather than being prescriptive. While this empowers local government and authorities to act and enforce place-based solutions, the lack of a cohesive national framework guiding flood protection and management has resulted in a more pragmatic approach to flood risk management rather than organised cross-agency collaboration.

Local government and agencies are therefore currently operating in somewhat of a regulatory gap, albeit with relevant legislation and initiatives on the horizon.



Alignment with local government reforms

Our co-investment case is well-aligned with the shifts identified in the Review into the Future for Local Government.

Co-investment in flood resilience will represent a genuine and equitable partnership approach toward improving wellbeing outcomes.

As one example of alignment with broader initiatives underway, we look to the recently released Review into the Future for Local Government draft report.

While this is an interim report released as part of the consultation process, the findings provide a valuable steer in terms of the shifts needed for local government functioning, as well as the broader context within which it operates.

Of particular relevance here is the emphasis on wellbeing, genuine partnership between central and local government, and more equitable funding. These are detailed below in relation to the case for co-investment in flood resilience.

A focus on wellbeing

The report signals a greater focus on social, economic, cultural, and environmental wellbeing in the future of local government. It also acknowledges that while local government is well positioned to foster wellbeing, capacity and financial pressures constrain many councils' ability to deliver on these outcomes.

Floods - and climate change - can have significant long-term intergenerational impacts on the four wellbeings as well as equity. Thus, this focus on wellbeing will recognise that although local adaptation and mitigation efforts are critical in improving community flood resilience and wellbeing, local government cannot get there on their own, nor can any single central government lead agency.

Genuine partnership

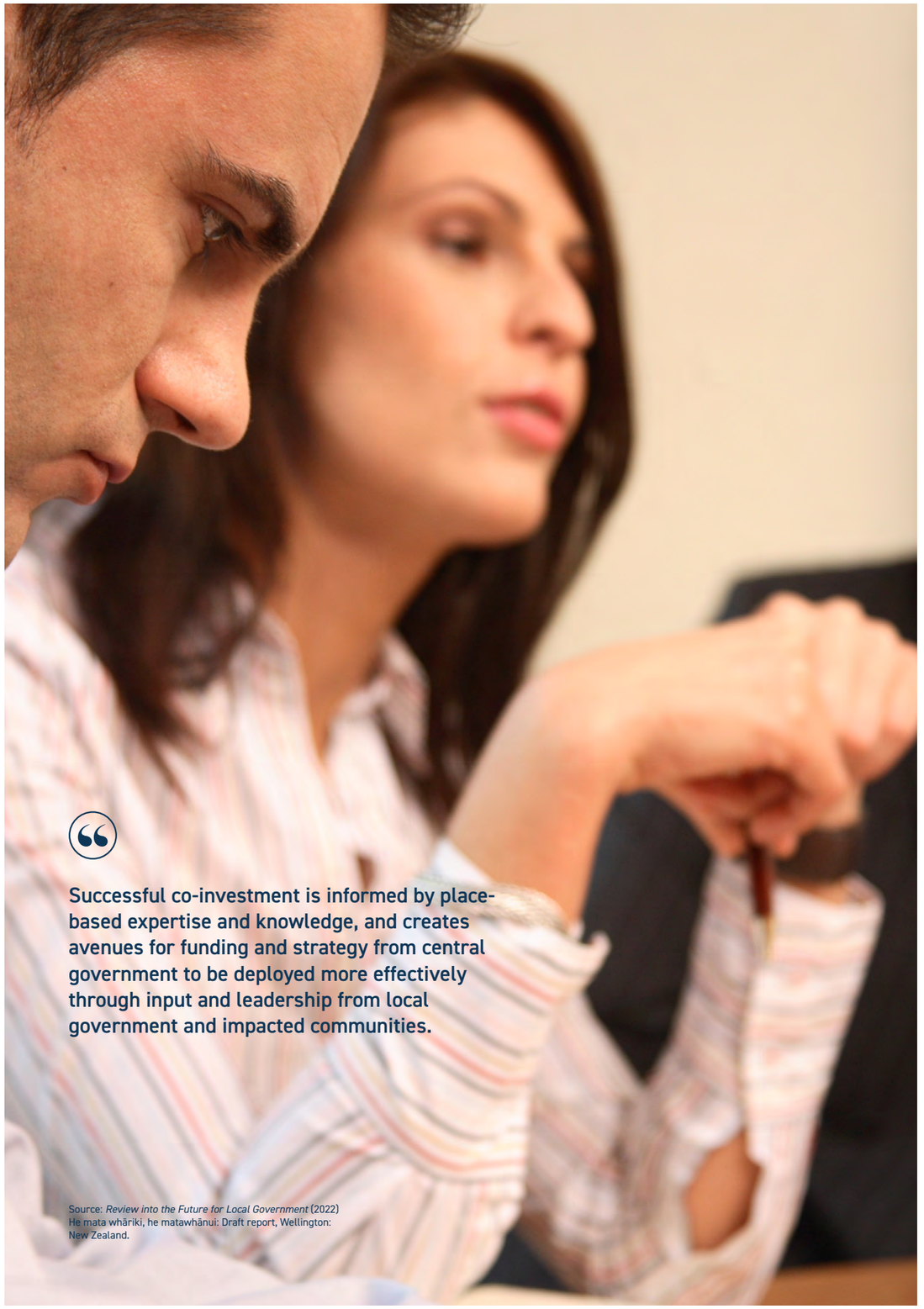
What is needed, therefore, is a genuine partnership between central and local government, along with an explicit role for Māori, in identifying shared priorities and commitments for co-investment to maximise wellbeing outcomes.

In particular, the report articulates that "successful co-investment is informed by place-based expertise and knowledge, and creates avenues for funding and strategy from central government to be deployed more effectively through input and leadership from local government and impacted communities."

Co-investing in flood resilience through a PARA approach, as proposed in this investment case, is in line with the ideals outlined in the report and will be an excellent exemplar of a coordinated and effective way of partnering to deliver on key community outcomes. Indeed, there are considerable advantages in sustaining the well-oiled delivery machine that has now been put in place.

More equitable funding

Finally, the review acknowledges the need to shift to a more sustainable funding approach - one which accounts for deprivation - in driving proactive responses to issues such as the climate change crisis. The concepts of vertical and horizontal equity discussed in the review are consistent with the outcomes envisioned in the current proposal.



Successful co-investment is informed by place-based expertise and knowledge, and creates avenues for funding and strategy from central government to be deployed more effectively through input and leadership from local government and impacted communities.

Source: *Review into the Future for Local Government* (2022) He mata whāriki, he matawhānui: Draft report, Wellington: New Zealand.

Constraints and dependencies

There are a number of constraining factors for this investment.

As noted earlier in the document, there are a significant number of other Government policy changes in train, all of which will influence how flood protection is delivered in the years ahead.

However, the need to take action is pressing; the increasing severity of the climate crisis is producing the requirement to take action sooner rather than later. The result is an interim set of projects to be delivered within the next three years, albeit with the constraints and dependencies listed at right.

Constraints

1. Each project represents an upgrade to a degraded or non-complying asset within a system that could potentially lead to protection failure under a design flood. Whilst options are constrained by the existing system design at this stage, future assessments will consider a wider range of options.
2. The 92 priority projects are constrained in their delivery timelines by the capacity of the construction sector within each region.
3. The timelines of some projects are constrained by consenting and consultation requirements in the context of the Local Government Act 2002.
4. While the projects will result in significant improvements in flood protection for vulnerable communities, engineering works alone are not enough to fully protect all homes and businesses from all adverse flooding events.
5. This investment will not address all flooding risks in all communities, as the focus is on the most vulnerable parts of Aotearoa.
6. Crown support for co-investment the priority projects will not result in long-term structural changes to the national funding mechanisms for flood protection, which will need to be addressed separately.
7. The priority projects are those identified by regional councils working with their communities through the development of LTPs, as there is no national approach to risk assessment and prioritisation, which will need to be addressed separately.
8. The identified projects have been prioritised as being shovel-ready and deliverable in the next three years, so some priority projects with high flooding risk have been excluded.

Dependencies

1. The investment is dependent on the commitments made in the regional council LTPs accompanying the Crown investment.
2. As noted in the assessment of strategic alignment, the flood protection interventions depend on a range of other Government policy changes, including reducing flooding exposure through planning controls and managed retreat in vulnerable areas.

3.0

Economic case

Developing the pathway forward

There are both immediate and long term issues to be addressed in our national approach to flood protection.

As the preceding section of this document shows, there are significant and structural issues in how flood protection is implemented in Aotearoa. These stem from the increased challenges of a rapidly-changing climate, coupled with a devolved funding mechanism that is reaching the limits of sustainability.

In order to address the root cause of the issues, steps must be taken to understand the scale and extent of the challenges, develop the correct policy responses and interventions, and agree a collective pathway forward. Given the nature of flood protection – affecting a huge number of communities, businesses and individuals – and the multi-dimensional threats and opportunities, this will be a complex process.

However, flood events are increasing in both frequency and severity. As the Westport and Kaitāia examples demonstrate, action must be taken sooner rather than later if the worst impacts of major events are to be mitigated in vulnerable communities. This produces an imperative for immediate action, which is at odds with a long-term and well considered national approach.

The case for taking immediate action is irrefutable. Both national and international studies show the return on investment from well-designed flood protection works is considerable: $1 spent protecting a community avoids $5-$8 in clean-up costs afterwards, before the intangible benefits – in health, social, cultural and environmental impacts – are considered.

The immediate projects

The purpose of this proposal is by necessity limited: it makes the case for the continuation of the shovel-ready funding made available via Kānoa as part of the Government's COVID-19 recovery programme. Continuation funding allows the momentum developed over the last few years to be maintained, for more communities to be protected, and for the fiscal impacts of more frequent and severe floods to be avoided.

Te Uru Kahika has worked with all 14 regional councils to develop a roadmap for flood protection across Aotearoa, in light of the evolving challenges from climate change. Many but not all of the identified projects are at least partly funded through Long Term Plans; some projects can be commenced quickly, whilst others are only in their early assessment and design phases; some projects are in highly vulnerable communities.

A series of prioritisation criteria have then been applied to the project roadmap, which has resulted in 92 projects requiring an investment of around $426 million, matched to a co-investment request to the Crown of $250 million. The prioritisation framework and the results on a region-by-region basis are discussed on the following pages.

However, there is very little investment optionality in the resultant project listing. In the context of a traditional business case, a range of options would be assessed, ranging from doing nothing to aspirational approaches. In this case; the project list is largely immutable and thus the optionality is extremely limited.

The role of optionality

Within the wider policy and intervention debates there is a very significant role for assessing and evaluating a wide range of options. These will include the scope of flood protection within the PARA framework, the roles of various agencies within the machinery of government, the various co-investment models, how governance is to be managed and much more.

These discussions will need to occur within a complex and changing policy environment, where national mitigation and adaptation strategies, the role of local government, and resource management and planning controls are all evolving. And as the previous section has highlighted, the role and intentions of the insurance sector will also be highly relevant.

In order to inform the options analysis, good data about the state of flood protection, the vulnerability of communities and the viability of different responses – from engineering works to managed retreat – will be essential. While all regional councils have elements of this data, it has yet to be integrated into a national view in a consistent way, which is preventing a joined-up view of the challenges and possibilities to be developed.

The pathway forward

While the scope of this proposal is limited to the immediate projects – which have prioritisation choices but limited optionality – it is important to identify the pathway for developing a new national approach for flood resilience.

The diagram on the following page provides an overview of how these steps fit together, and the decisions and options at each step.

This section of the document is therefore in two parts:

Immediate projects

This section defines the prioritisation methodology and applies it to the current regional council projects, to arrive at a list of 92 projects with a total investment value of $426 million.

53 > this discussion starts on page 53

Long term interventions

This section discusses the way forward for developing a long-term national approach to flood protection, underpinned by robust data.

64 > this discussion starts on page 64

The project prioritisation approach we've used

A multi-stage assessment approach has been used to identify high-priority projects.

The diagram below shows the multi-stage process used to identify the priority projects across all 16 councils, noting that only 14 offered projects.

The resulting list of 92 projects meet the criteria of: accelerating climate change protection; incorporating environmental sensitivity/Te Mana o Te Wai considerations; able to be delivered within the next three years, and requiring funding assistance due to the limited resources and material deprivation of the communities.

These 92 projects were then prioritised based on deprivation (IMD) at the Territorial Authority (TA) level and this was used as a mechanism to apportion cost share between either 75% or 60%.

The following pages provide details of the individual projects.

1 Initial assessment

River Managers from all 16 regional councils were engaged through Te Uru Kahika 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, Te Mana o Te Wai considerations, and the ability of councils to obtain the necessary consents to proceed with the work.

92 projects identified

The output from this work is a listing of 92 priority projects that are both urgent and deliverable by the end of FY25/26, from across Aotearoa. These are the projects detailed on the following pages.

3 Priority test

Te Uru Kahika 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.

The Index of Multiple Deprivation (IMD)

The 2018 New Zealand Index of Multiple Deprivation (IMD18) is a set of tools for identifying concentrations of deprivation in New Zealand. The IMD18 comprises 29 indicators grouped into seven domains of deprivation: Employment, Income, Crime, Housing, Health, Education and Access to services. IMD18 is the combination of these seven domains, which may be used individually or combined.

IMD18 measures deprivation at the neighbourhood level in custom-designed 2018 data zones that have an average population of 761. Data zones are designed to produce better small area information without losing their contents to suppression or confidentiality.

The IMD provides a richer, more nuanced view of area level deprivation in New Zealand. Our vision is for the IMD and the data zones to be widely used for community advocacy, research, policy and resource allocation, providing a better measurement of area deprivation in New Zealand, improved outcomes for Māori, equity of service provision, and a more consistent approach to reporting and monitoring the social climate of New Zealand.

The 2018 Index of Multiple Deprivation is a project of the School of Population Health at the University of Auckland, and was developed by the IMD team: Dr Daniel John Exeter, Dr Arier Chi Lun Lee, Dr Jinfeng Zhao, Dr Sue Crengle, Annie Chiang and Michael Browne, with help and support from numerous individuals and organisations.

Source: *Index of Multiple Depriuation*. Retrieved https://imdmap.auckland.ac.nz/

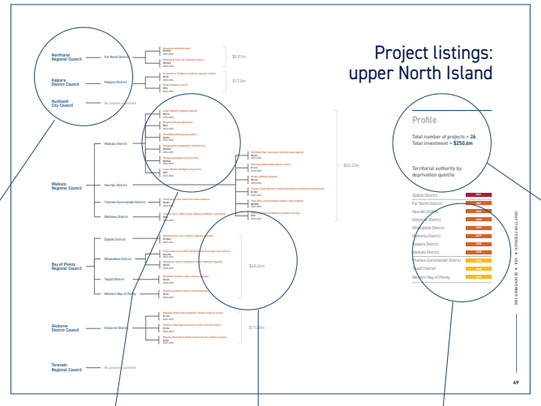
How to read the analysis

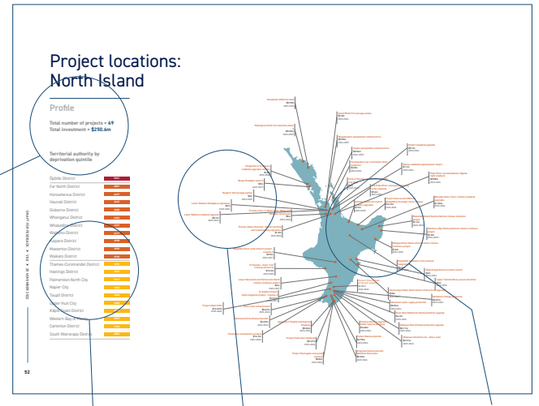
The project listings are presented in a number of different ways on the following pages in order to inform decision makers.

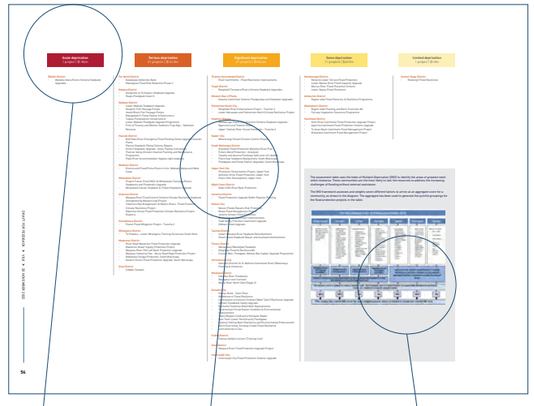
1 **Projects by Council**

2 **Projects by location**

3 **Projects by deprivation**







Regional Council and TA area
The projects are grouped by the responsible Regional Council and sub-grouped into territorial authority areas for geolocation and deprivation assessment.

Project listing
The name, total value and the start and finish dates of each project are listed. Full details of projects including more detailed descriptions are contained in the tables in the Appendix.

Regional Council investment
The total investment being made by each Regional Council is shown next to the project listings.

Summary profile
The summary table contains the total number of projects and their total value for the grouping on the page.

Deprivation status
The summary deprivation index for each territorial authority is shown, in order to provide some context for the need for investment assistance.

Project listing
The name, total value and the start and finish dates of each project are listed. Full details of projects including more detailed descriptions are contained in the tables in the Appendix.

Geographic location
The approximate geographic location of each project is shown on the relevant map.

Deprivation level
The summary of the deprivation level based on the territorial authority is used to categorise the projects into quintiles.

Project listing
The name, total value and the start and finish dates of each project are listed. Full details of projects including more detailed descriptions are contained in the tables in the Appendix.

IMD methodology
The weighted approach to how the deprivation score has been derived from the seven source domains is shown for reference.

Project listings: upper North Island

Northland Regional Council

- Far North District — $0.91m
  - Kawakawa deflection bank — $0.55m — 2024-2026
  - Matangirau flood risk reduction phase 2 — $0.36m — 2023-2025

Kaipara District Council

- Kaipara District — $17.0m
  - Dargaville to Te Kōpuru stopbank upgrades scheme — $12m — 2023-2026
  - Raupo floodgate canal K — $5m — 2023-2025

Auckland City Council

No projects submitted

Waikato Regional Council

- Waikato District
  - Lower Waikato stopbank upgrade — $8.7m — 2023-2026
  - Rangiriri fish passage pumps — $4m — 2023-2025
  - Island Block fish passage pumps — $2.8m — 2024-2026
  - Mangatawhiri pumpstation infrastructure — $0.54m — 2024-2025
  - Tuakau pumpstation infrastructure — $0.54m — 2024-2025
  - Lower Waikato floodgate programme — $2m — 2023-2026
- Hauraki District — $43.22m
  - Mid Piako River emergency ponding zones upgrade — $5.4m — 2023-2026
  - Pipiroa stopbank piping failure repairs — $1.1m — 2023-2026
  - Kirikiri stopbank upgrade — $5.1m — 2023-2026
  - Thames Valley diversion channel planting and maintenance programme — $1.8m — 2023-2026
  - Piako River accommodation: Ngatea right stopbank — $0.58m — 2023-2026
  - Firth of Thames and Waihou sediment trap digs — $3m — 2023-2026
- Thames-Coromandel District
  - Coromandel river catchments flood resilience — $2.8m — 2023-2026
- Waitomo District
  - Priority rivers in West Coast, Waipa and Waikato catchments — $5m — 2023-2026

Bay of Plenty Regional Council — $40.64m

- Ōpōtiki District
  - Waioeka Otara rivers scheme stopbank upgrades — $1.84m — 2023-2024
- Whakatāne District
  - Project future proof 2023-26 Whakatāne-Tauranga rivers scheme — $16.5m — 2023-2026
  - Whakatane Canals Stopbank & Trident Stopbank Upgrade — $5.9m — 2023-2025
- Taupō District
  - Rangitāiki Tarawera rivers scheme upgrades — $3.4m — 2023-2026
- Western Bay of Plenty
  - Kaituna catchment control scheme upgrades — $13m — 2023-2025

Gisborne District Council

- Gisborne District — $17.60m
  - Makarika School flood protection climate resilience project — $1.2m — 2023-2025
  - Tokomaru Bay flood protection climate resilience project — $1.8m — 2023-2025+
  - Waipaoa River flood control scheme climate resilience project — $12m — 2023-2026

Taranaki Regional Council

No projects submitted

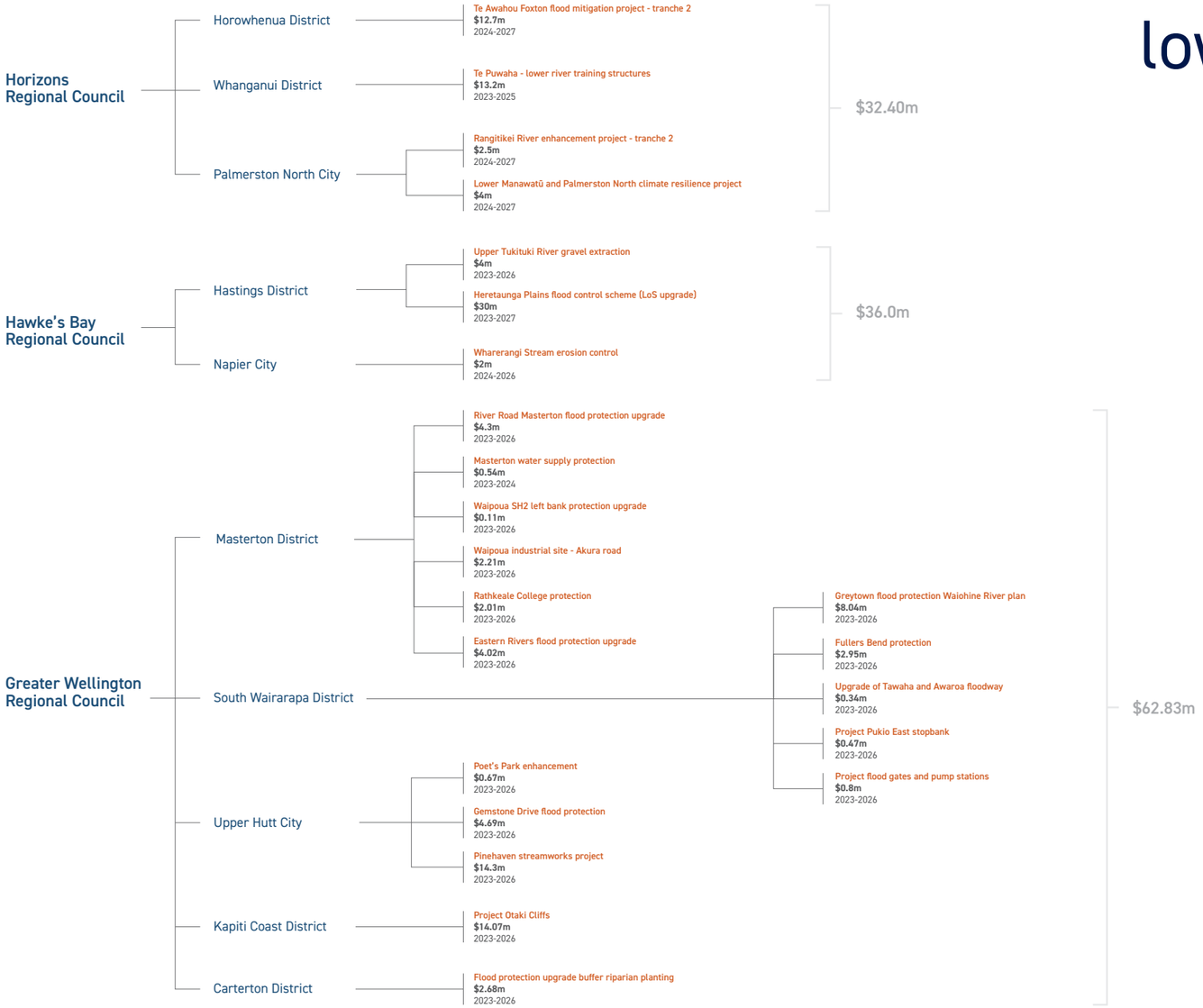
Profile

Total number of projects = 26
Total investment = $119.37m

Territorial authority by deprivation quintile

Ōpōtiki District	5321
Far North District	4801
Hauraki District	4622
Gisborne District	4480
Whakatāne District	4322
Waitomo District	4219
Kaipara District	3998
Waikato District	3725
Thames-Coromandel District	3593
Taupō District	3248
Western Bay of Plenty	2933

Project listings: lower North Island

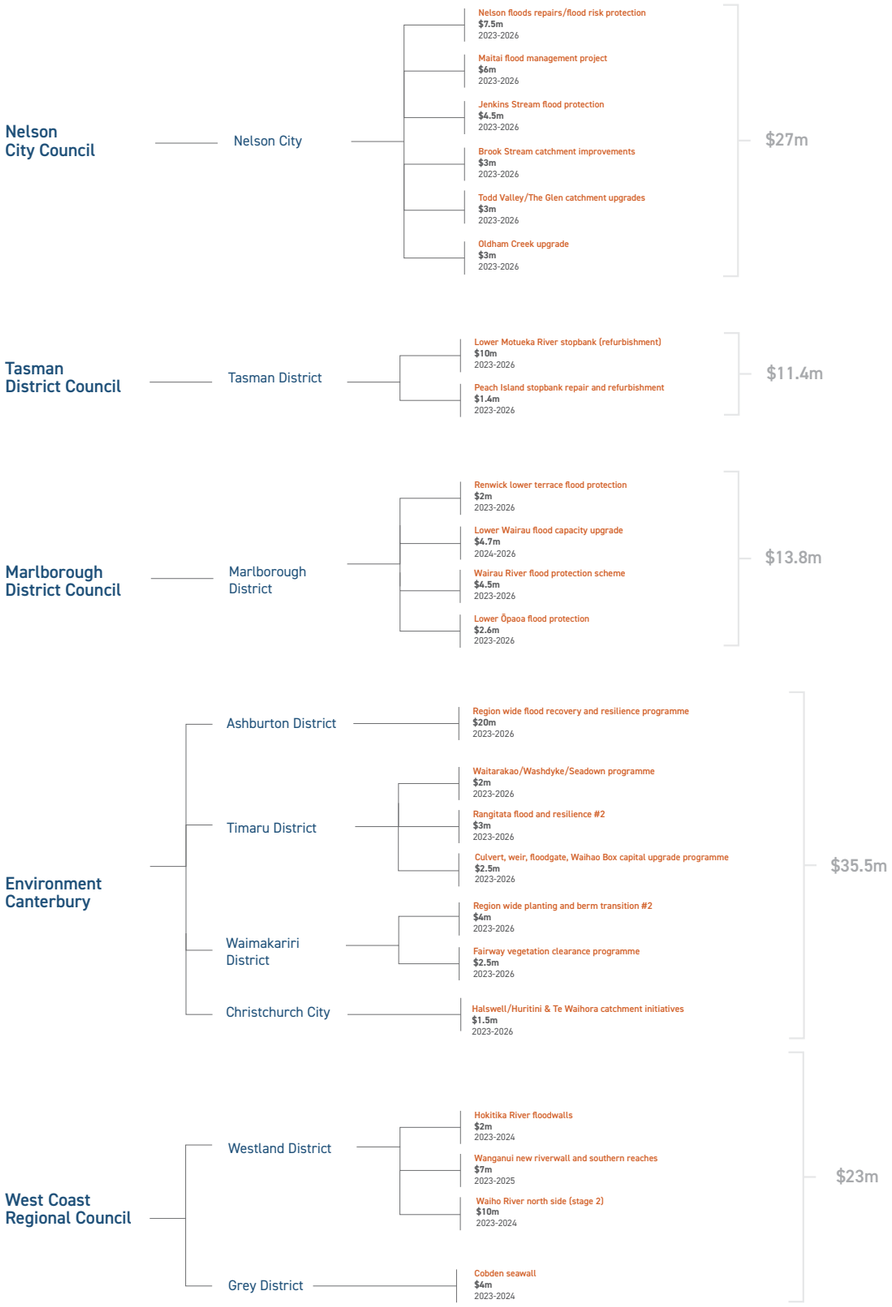


Profile

Total number of projects = 23
Total investment = $131.2m

Territorial authority by deprivation quintile

Horowhenua District	4627
Whanganui District	4383
Masterton District	3939
Hastings District	3535
Palmerston North City	3519
Napier City	3390
Upper Hutt City	3200
Kāpiti Coast District	3095
Carterton District	2728
South Wairarapa District	2565



Project listings: upper South Island

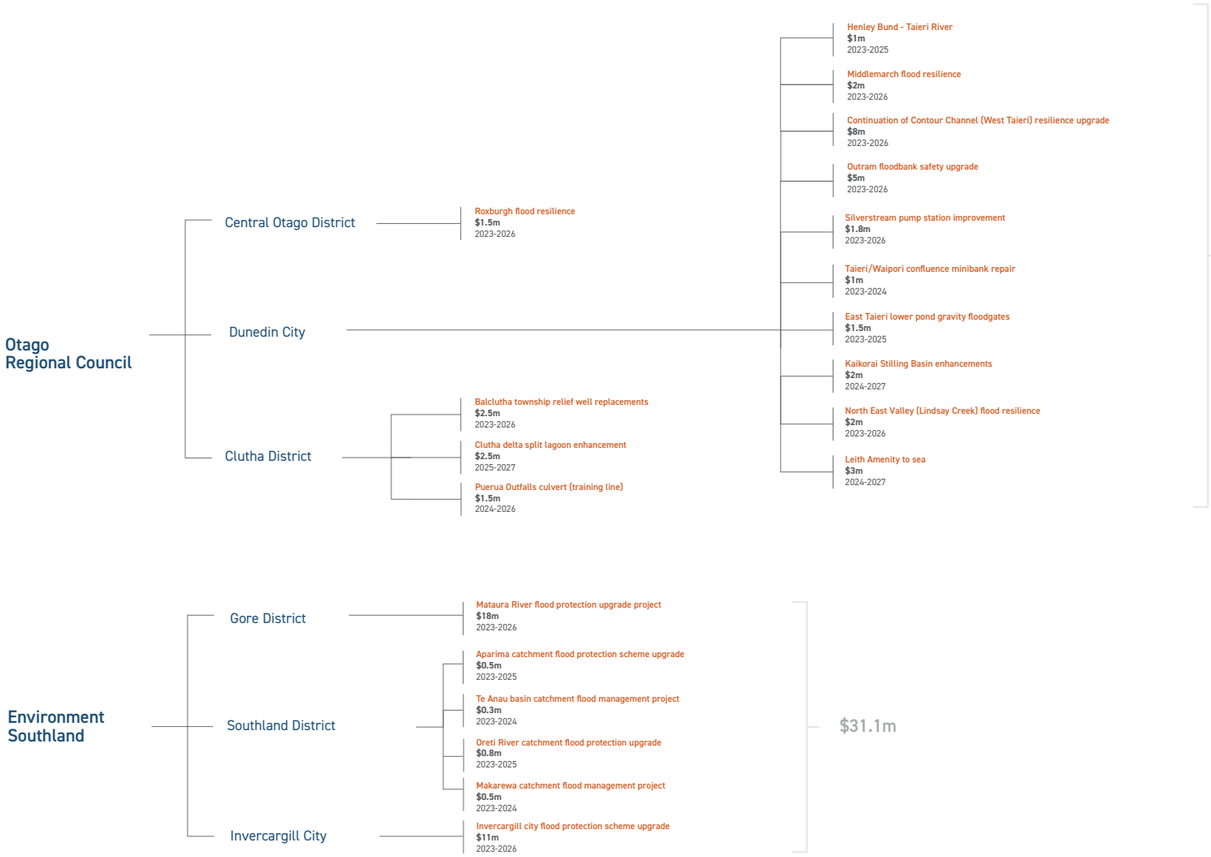
Profile

Total number of projects = 23
Total investment = $110.7m

Territorial authority by deprivation quintile

Grey District	3896
Westland District	3032
Nelson City	2911
Christchurch City	2831
Timaru District	2641
Tasman District	2517
Marlborough District	2449
Ashburton District	2314
Waimakariri District	2204

Project listings: lower South Island



Profile

Total number of projects = 20
Total investment = 66.9m

Territorial authority by deprivation quintile

Invercargill City	3395
Gore District	3044
Clutha District	2813
Dunedin City	2791
Southland District	1879
Central Otago District	1217

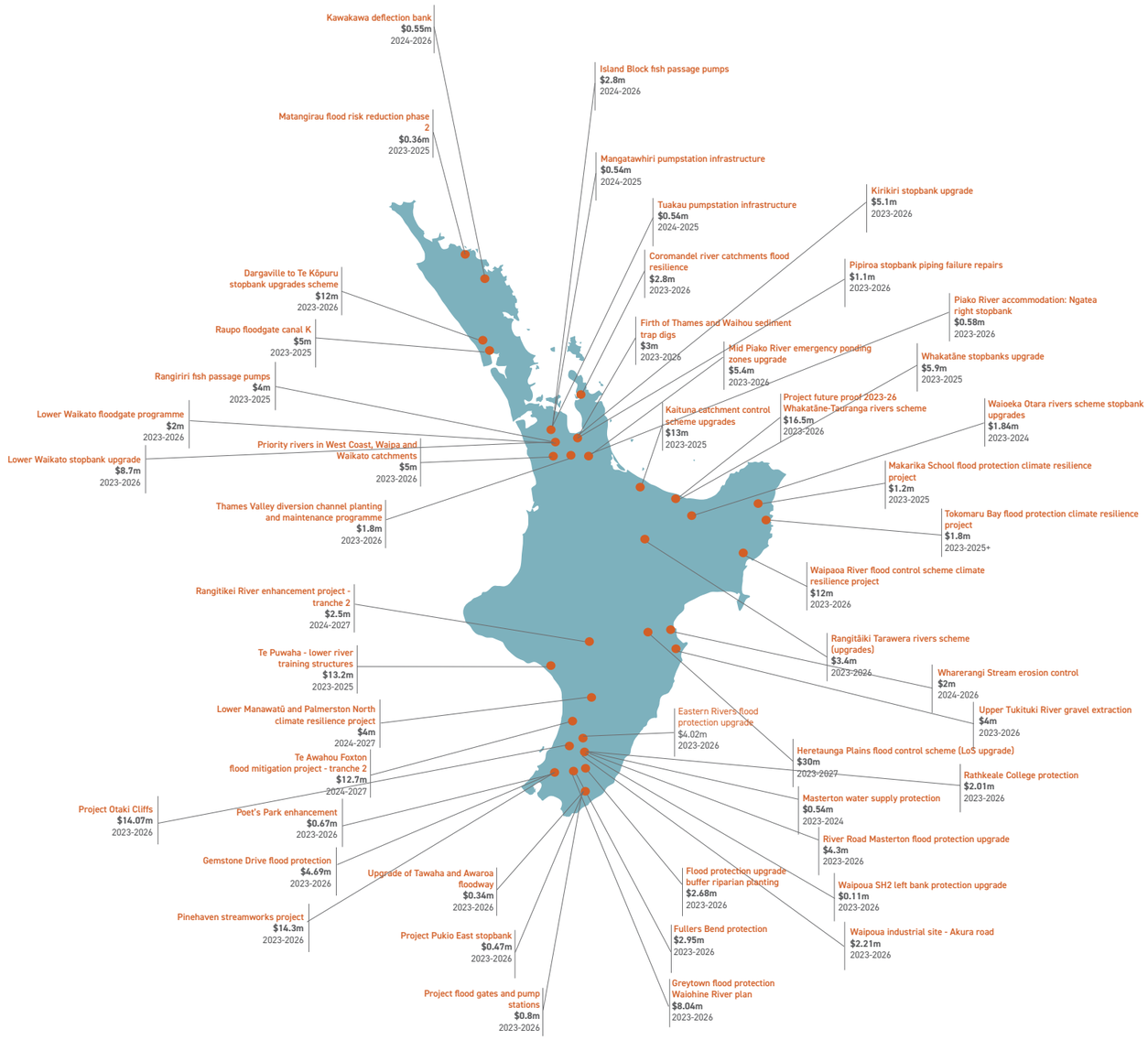
Project locations: North Island

Profile

Total number of projects = 49
Total investment = $250.6m

Territorial authority by deprivation quintile

Ōpōtiki District	5321
Far North District	4801
Horowhenua District	4627
Hauraki District	4622
Gisborne District	4480
Whanganui District	4383
Whakatāne District	4322
Waitomo District	4219
Kaipara District	3998
Masterton District	3939
Waikato District	3725
Thames-Coromandel District	3593
Hastings District	3535
Palmerston North City	3519
Napier City	3390
Taupō District	3248
Upper Hutt City	3200
Kāpiti Coast District	3095
Western Bay of Plenty	2933
Carterton District	2728
South Wairarapa District	2565



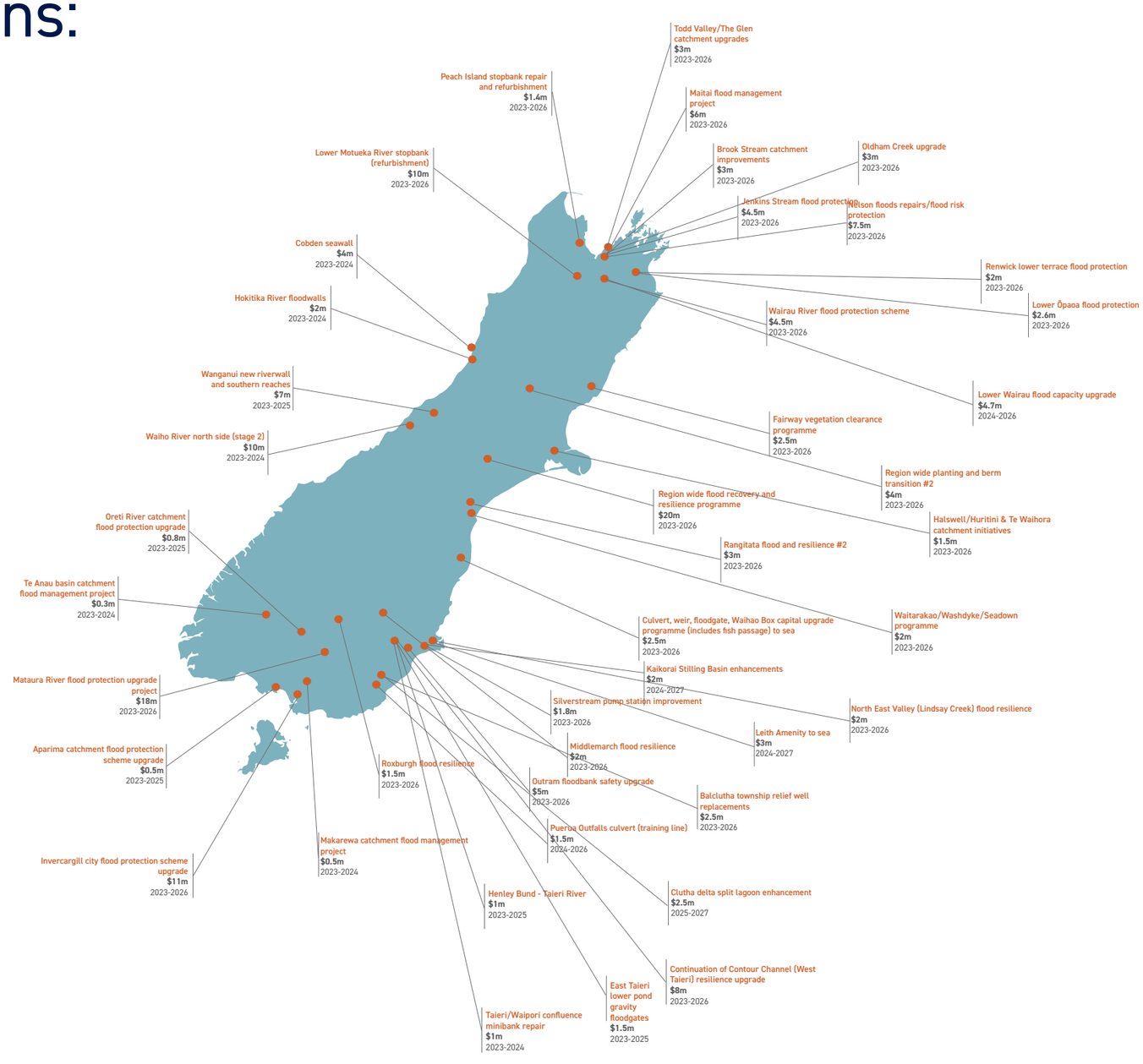
Project locations: South Island

Profile

Total number of projects = 43
Total investment = $177.6m

Territorial authority by deprivation quintile

Grey District	3896
Invercargill City	3395
Gore District	3044
Westland District	3032
Nelson City	2911
Christchurch City	2831
Clutha District	2813
Dunedin City	2791
Timaru District	2641
Tasman District	2517
Marlborough District	2449
Ashburton District	2314
Waimakariri District	2204
Southland District	1879
Central Otago District	1217



Acute deprivation
1 project | $1.84m

Ōpōtiki District
- Waioeka Otara Rivers Scheme Stopbank Upgrades

Serious deprivation
31 projects | $141.5m

Far North District
- Kawakawa Deflection Bank
- Matangirau Flood Risk Reduction Phase 2

Kaipara District
- Dargaville to Te Kopuru Stopbank Upgrade
- Raupo Floodgate Canal K

Waikato District
- Lower Waikato Stopbank Upgrade
- Rangiriri Fish Passage Pumps
- Island Block Fish Passage Pumps
- Mangatawhiri Pump Station Infrastructure
- Tuakau Pumpstation Infrastructure
- Lower Waikato Floodgate Upgrade Programme
- Firth of Thames and Waihou Sediment Trap Digs - Sediment Removal

Hauraki District
- Mid Piako River Emergency Flood Ponding Zones Upgrade Hauraki Plains
- Pipiroa Stopbank Piping Failures Repairs
- Kirikiri Stopbank Upgrade - Kopu Thames Connection
- Thames Valley Division Channel Planting and Maintenance Programme
- Piako River Accommodation: Ngatea right stopbank

Waitomo District
- Erosion and Flood Prone Rivers in the Waikato, Waipa and West Coast

Whakatāne District
- Project Future Proof 2023-26 Whakatane-Tauranga Rivers Stopbanks and Floodwalls Upgrade
- Whakatane Canals Stopbank & Trident Stopbank Upgrade

Gisborne District
- Waipaoa River Flood Control Scheme Climate Resilience Stopbank Strengthening Western side Project
- Tokomaru Bay Mangahauini & Waiotu Rivers Flood Proection Climate Resilience Project
- Makarika School Flood Protection Climate Resilience Project - Ruatoria

Horowhenua District
- Foxton Flood Mitigation Project - Tranche 2

Whanganui District
- Te Puwaha - Lower Whanganui Training Structures South Mole

Masterton District
- River Road Masterton Flood Protection Upgrade
- Masterton Water Supply Protection Project
- Waipoua River SH2 Left Bank Protection Upgrade
- Waipoua Industrial Site - Akura Road Edge Protection Project
- Rathkeale College Protection, South Wairarapa
- Eastern Rivers Flood Protection Upgrade, South Wairarapa

Grey District
- Cobden Seawall

Significant deprivation
47 projects | $240.4m

Thames-Coromandel District
- River Catchments - Flood Resilience Improvements

Taupō District
- Rangitaiki Tarawera Rivers Scheme Stopbank Upgrades

Western Bay of Plenty
- Kaituna Catchment Scheme Floodpumps and Stopbank Upgrades

Palmerston North City
- Rangitikei River Enhancement Project - Tranche 2
- Lower Manawatu and Palmerston North Climate Resilience Project

Hastings District
- Heretaunga Plains Flood Control Scheme Stopbank Upgrade - Ngaruroro and Tukituki Rivers
- Upper Tukituki River Gravel Extraction - Tranche 2

Napier City
- Whararangi Stream Erosion Control Project

South Wairarapa District
- Greytown Flood Protection Waiohine River Plan
- Fullers Bend Protection - Greytown
- Tawaha and Awaroa Floodway Spill-over-sill Update
- Pukio East Stopbank Realignment, South Wairarapa
- Floodgates and Pump Station Upgrades, South Wairarapa

Upper Hutt City
- Pinehaven Streamworks Project, Upper Hutt
- Gemston Drive Flood Protection, Upper Hutt
- Poet's Park Development, Upper Hutt

Kāpiti Coast District
- Otaki Cliffs River Bank Protection

Carterton District
- Flood Protection Upgrade Buffer Riparian Planting

Nelson City
- Nelson Floods Repairs Risk Protection
- Maitai Flood Management Project
- Jenkins Stream Flood Protection
- Brook Stream Catchment Improvements
- Todd Valley/The Glen Catchment Upgrade
- Oldham Creek Upgrade

Tasman District
- Lower Motueka River Stopbank Refurbishment
- Peach Island Stopbank Repair and localised refurbishment

Timaru District
- Waitarakao/Washdyke/Seadown
- Rangitata Flood & Resilience #2
- Culvert Weir, Floodgate, Waihao Box Capital Upgrade Programme

Christchurch City
- Halswell/Huritini & Te Waihora Catchment Drain/Waterways Planting & Initiatives

Westland District
- Hokitika River Floodwalls
- Wanganui new riverwall
- Waiho River North Side (Stage 2)

Dunedin City
- Henley Bund - Taieri River
- Middlemarch Flood Resilience
- Continuation of Contour Channel (West Taieri) Resilience Upgrade
- Outram Floodbank Safety Upgrade
- Balclutha Township Relief Wall Replacements
- Silverstream Pump Station Condition & Environmental Improvement
- Taieri/Waipori Confluence Minibank Repair
- East Taieri Lower Pond Gravity Floodgates
- Kaikorai Stilling Basin Resilience and Environmental Enhancement
- North East Valley (Lindsay Creek) Flood Resilience
- Leith Amenity to Sea

Clutha District
- Puerua Outfalls Culvert (Training Line)

Gore District
- Mataura River Flood Protection Upgrade Project

Invercargill City
- Invercargill City Flood Protection Scheme Upgrade

Some deprivation
11 projects | $43.9m

Marlborough District
- Renwick Lower Terrace Flood Protection
- Lower Wairau River Flood Capacity Upgrade
- Wairau River Flood Protection Scheme
- Lower Opaoa Flood Protection

Ashburton District
- Region wide Flood Recovery & Resilience Programme

Waimakariri District
- Region wide Planting and Berm Transition #2
- Fairway Vegetation Clearance Programme

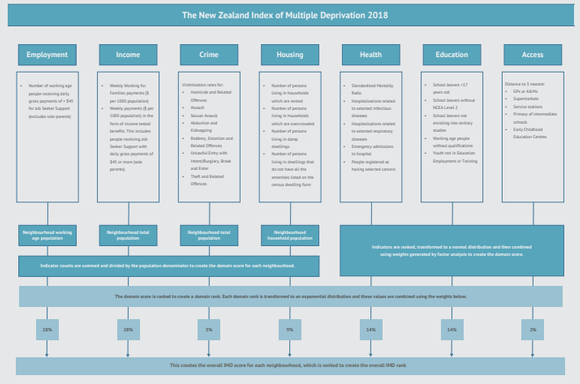
Southland District
- Oreti River Catchment Flood Protection Upgrade Project
- Aparima Catchment Flood Protection Scheme Upgrade
- Te Anau Basin Catchment Flood Management Project
- Makarewa Catchment Flood Management Project

Limited deprivation
1 project | $1.5m

Central Otago District
- Roxburgh Flood Resilience

The assessment table uses the Index of Multiple Deprivation (IMD) to identify the areas of greatest need within Aotearoa. These communities are the most likely to lack the resources to address the increasing challenges of flooding without external assistance.

The IMD framework assesses and weights seven different factors to arrive at an aggregate score for a community, as shown in the diagram. The aggregate has been used to generate the quintile groupings for the flood protection projects in the table.



Funding and deprivation

A deprivation-based approach has been used to allocate national funding, using a 75/60 model.

Following the recent steer by DIA as well as the focus on deprived communities in the 2020 Cabinet Paper, we have used deprivation as both a prioritisation tool for the most vulnerable region, as well as a suggested mechanism for apportioning cost share across projects.

The methodology is based on a region - here, we refer to the Territorial Authority (TA) level - being allocated a co-investment contribution based on ability to fund the flood protection measures from the regional ratepayer base.

Thus, majority of regions are allocated a co-investment contribution of 60%, with the most deprived territorial authority - Ōpōtiki District - getting a higher rate of 75%. This higher deprivation

The table at right summarises the funding breakdown across projects and shows what the allocation of investment between central government and regional councils might look like with this approach.

As indicated, the central government investment is $257.2m and the regional council investment is $171m.

Territorial Authority (TA)	IMD (Total)	Level of assistance	Total Project Cost	Crown	Regional
Ōpōtiki District	5321	75%	$1.84	$1.38	$0.46
Far North District (2)	4801	60%	$0.91	$0.55	$0.36
Horowhenua District	4627	60%	$12.70	$7.62	$5.08
Hauraki District (6)	4622	60%	$16.98	$10.19	$6.79
Gisborne District (3)	4480	60%	$17.60	$10.56	$7.04
Whanganui District	4383	60%	$13.20	$7.92	$5.28
Whakatane District (2)	4322	60%	$22.40	$13.44	$8.96
Waitomo District	4219	60%	$5.00	$3.00	$2.00
Kaipara District (2)	3998	60%	$17.00	$10.20	$6.80
Masterton District (6)	3939	60%	$13.19	$7.91	$5.28
Grey District	3896	60%	$4.00	$2.40	$1.60
Waikato District (6)	3725	60%	$18.44	$11.06	$7.38
Thames-Coromandel District	3593	60%	$2.80	$1.68	$1.12
Hastings District (2)	3535	60%	$34.00	$20.40	$13.60
Palmerston North City (2)	3519	60%	$6.50	$3.90	$2.60
Invercargill City	3395	60%	$11.00	$6.60	$4.40
Napier City	3390	60%	$2.00	$1.20	$0.80
Taupo District	3248	60%	$3.40	$2.04	$1.36
Upper Hutt City (3)	3200	60%	$19.66	$11.80	$7.86
Kapiti Coast District	3095	60%	$14.70	$8.82	$5.88
Gore District	3044	60%	$18.00	$10.80	$7.20
Westland District (3)	3032	60%	$19.00	$11.40	$7.60
Western Bay of Plenty	2933	60%	$13.00	$7.80	$5.20
Nelson City (6)	2911	60%	$27.00	$16.20	$10.80
Christchurch City	2831	60%	$1.50	$0.90	$0.60
Clutha District (3)	2813	60%	$6.50	$3.90	$2.60
Dunedin City (10)	2791	60%	$27.80	$16.68	$11.12
Carterton District	2728	60%	$2.68	$1.61	$1.07
Timaru District (3)	2641	60%	$7.50	$4.50	$3.00
South Wairarapa District (5)	2565	60%	$12.60	$7.56	$5.04
Tasman District (2)	2517	60%	$11.40	$6.84	$4.56
Marlborough District (4)	2449	60%	$13.80	$8.28	$5.52
Ashburton District	2314	60%	$20.00	$12.00	$8.00
Waimakariri District (2)	2204	60%	$6.50	$3.90	$2.60
Southland District (4)	1879	60%	$2.10	$1.26	$0.84
Central Otago District	1217	60%	$1.50	$0.90	$0.60
Total investment			**$428.20**	**$257.20**	**$171.00**

Project information: additional detail

Financial summary

More information about the financial aspects of the investment, including the proposed co-investment model and cashflows are contained in the Financial Case.

72 > this discussion starts on page 72

Delivery timelines

More information about the delivery sequencing for the projects, including a summary GANTT chart for each Regional Council, is contained in the Implementation Approach section.

75 > this discussion starts on page 75

Project details

The Appendix contains the detailed tables, including a high level description of each project as provided by the responsible Regional Council.

xx > this discussion starts on page 99

Image: Kuaotunu Estuary, Coromandel

Developing a long-term approach

The 92 projects identified in the analysis will enable immediate action to be taken in some of the most flood-prone areas of Aotearoa, focused on the most vulnerable communities. Work on essential projects can commence at the beginning of FY23/24 and will largely be completed within three years, to the benefit of communities and the economy.

However, the continuation of the shovel-ready funding provided by the Government is not a long-term solution to the national challenges presented by climate change. Building resilience as climate disruption grows will require a concerted and joined-up approach across national and regional government, working from effective policy focused on the full range of PARA interventions.

To enable long-term solutions to be developed, two components are required:

- The policy, funding and implementation frameworks required to bridge the gap between national strategies and local projects
- Accurate and thorough national data on flooding risk, vulnerability and options, to enable effective prioritisation of projects and interventions within the PARA framework.

Aotearoa is not the first nation to grapple with the complexities of flood protection, co-investment and potential insurance withdrawal. The UK has made changes to its approach based on the assessment of major events, so a case study is presented as a starting point for how we may wish to think about long-term options.

These three elements – policy, a national data model and the experiences of the UK – are discussed on the following pages.

Policy and implementation

The proposed approach to developing and implementing a new national framework for flood protection, creating the link from evolving central government policy to local projects and interventions.

65 > this discussion starts on page 65

The UK case study

Major flooding in 2007 led the UK to review and overhaul its national approach to flood protection, and there may be useful lessons for how the challenges were addressed.

68 > this discussion starts on page 68

National data modelling

Making informed and consistent decisions about local-level interventions within a PARA framework will require consistent and accurate data from across the country, and an integrated model is required.

70 > this discussion starts on page 70

The options for longer term intervention

There are a range of options for central government intervention varying in terms of costs and risk profiles.

Investing in flood resilience through PARA represents the least risky and most cost-effective and equitable option forward.

The figure at right illustrates the range of central government intervention options in flood risk. These options range from preventative spending through to dealing with the consequences post-flooding.

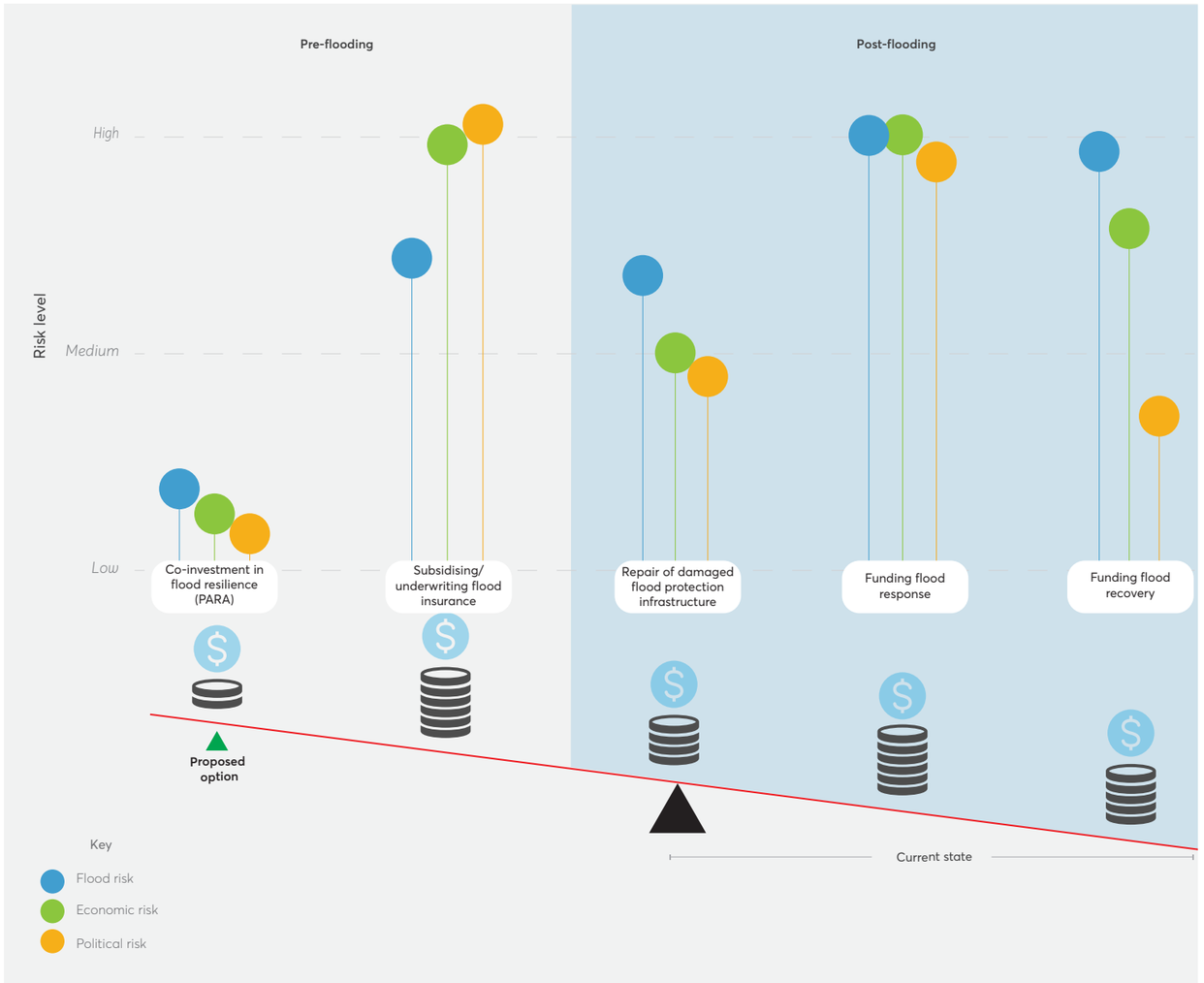
The risk profile for each option is depicted. This includes:

- Economic risks such as increased Crown liability or debt as well as increased future spending due to climate change impacts,
- Political risks such as incentivising risk-taking, creating unrealistic or impractical public expectations for intervention, and erosion of public trust and confidence, and
- The likelihood of spending reducing future flood risk.

The relative financial costs of each option is also indicated.

In weighing both risks and costs, it becomes evident that co-investment in flood resilience through the PARA framework is the most cost-effective option.

It is also the pathway that most equitably allows for sharing the costs of climate change across government, industry, and the public. This is our proposed option.



Developing a sustainable flood management co-investment model

Agreeing a new national approach will need input from national and regional government, as well as the perspectives of the insurance industry.

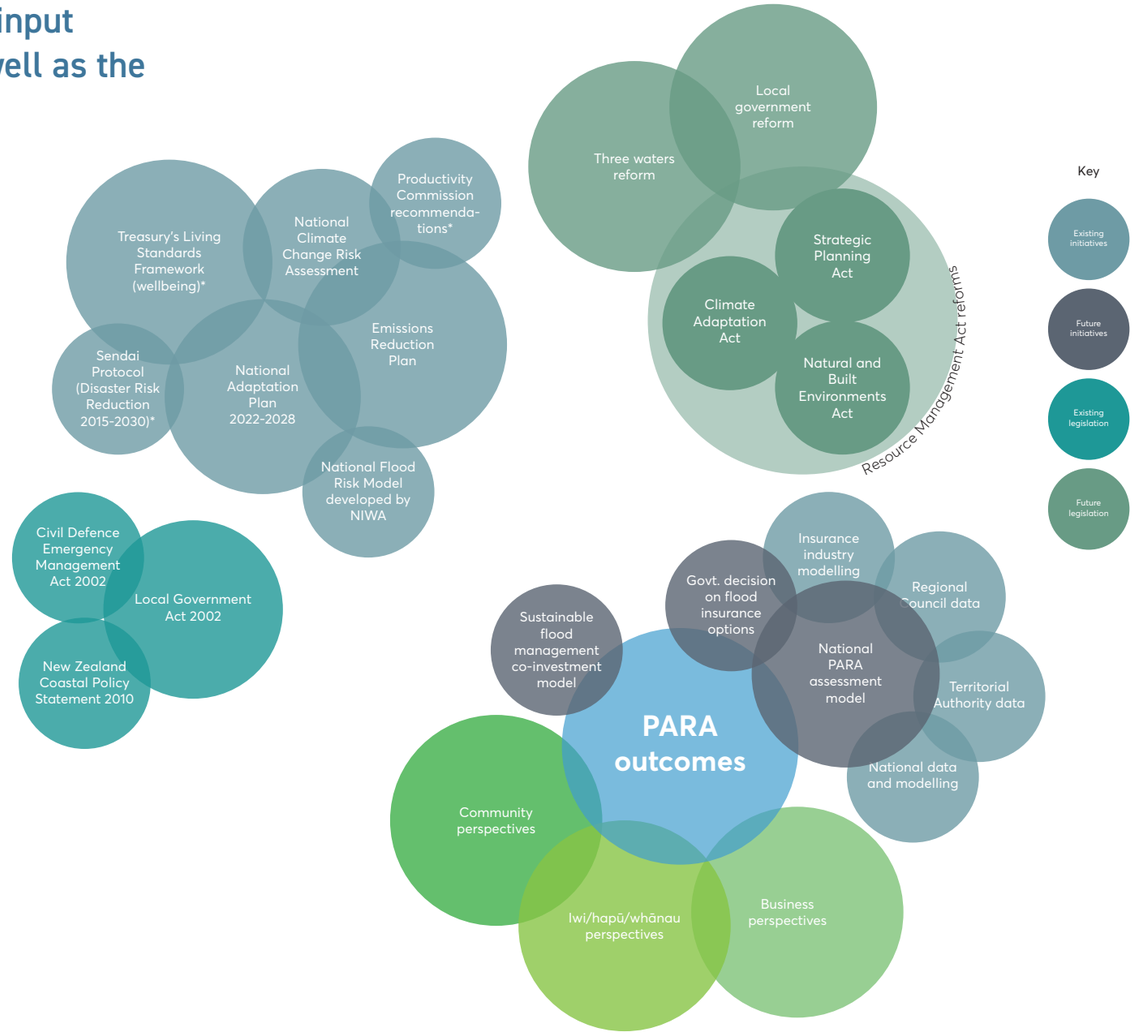
Getting beyond the current project-based approach requires the development of a sustainable model for co-investment. This model will require a range of inputs, as the diagram at right notes:

- The planned changes to the legislative and regulatory frameworks in a range of areas – from climate change to local government – will need to be taken into account as both enabling and constraining factors
- In particular, there is a need for legislation to consider flood protection projects within the context of climate change adaptation as a matter of national interest
- Existing legislation will likewise form part of the foundation for how and why governance, implementation and funding is apportioned between different agencies and tiers of government
- The perspectives of the community, iwi and the business sector need to be taken into account.

There are a number of matters that need to be addressed as part of the work, notably:

- The governance, authority and responsibility of the various entities and agencies responsible for national flood protection
- The intersection between flood protection and other PARA-related factors, such as planning controls in flood-prone areas
- The equitable share of funding between central regional and local government, and the participation of the insurance industry in helping develop solutions
- The processes and decision points used to make investment decisions about flood protection initiatives within the PARA framework.

Developing the co-investment model will require a range of agencies to be involved alongside Te Uru Kahika. The proposed work plan for how this will be achieved is shown on subsequent pages.



Developing a sustainable flood management co-investment model

Agreeing a new national approach will also require further work to determine an equitable long-term co-investment commitment.

Based on the current Regional Council funding in the current LTPs the total investment in the 10 year LTP horizon out to 2032 is $3.1B. In the 3 years out to 2026 the sum outside the scope of this co-funding request is $627m.

However, as experience across the country shows, even this level of self-funding and investment from communities is insufficient in the face of the evolving climate change challenges. A more sustainable co-investment model – reflecting a genuine partnership between central and local government – is required to address our future flood resilience needs.

Previous work by Te Uru Kahika has estimated the likely cost of this work at around $350 million pa. Regional councils have recently committed their investment at $200 million pa; an increase from the previous $175 million pa. This leaves an annual shortfall of $150 million - the suggested co-investment amount from central government long-term.

However, additional work is needed to confirm whether this amount will be sufficient. This work would clarify the:

- Preferred level of service for all 367 flood protection schemes in Aotearoa (at a level of 1:100 or better)
- Cost required to achieve expected service levels
- Prioritisation of projects across the country
- Cost share between central and regional councils, and how this is apportioned across different regions
- Intended benefits, including cost savings, from flood damage or harm averted
- How these investments relate to the different PARA measures; Te Mana o Te Wai considerations; as well as environmental and considerations
- Relationship between flood protection investment and Waka Kotahi and/or Kiwi Rail infrastructure improvement plans.

The likely investment for this work is indicated in the work plan on p71. The primary outcome of this work will be to determine a long-term and equitable co-investment amount that can be agreed upon with central government – as a budgetary allocation for an agency such as DIA – toward improving our communities' resilience against flood risk and related climate change effects.

> **The equitable funding of essential flood protection infrastructure in a world increasingly challenged by climate change is an issue for many governments. After extensive flooding in 2007, the UK government reviewed its national strategy – and there are potential learnings for Aotearoa New Zealand in their findings and their path forwards.**

Case study: the UK model

The 2007 floods in the UK and the subsequent review triggered an overhaul of the country's flood management approach.

In the summer of 2007 a series of major food events in the UK resulted in devastating impacts on lives, homes, infrastructure, and businesses.

Thirteen people lost their lives while around 7,000 were rescued by emergency services; representing one of the biggest rescue efforts in peacetime Britain. More than 55,000 properties were damaged along with essential water, electricity, and transport services.

Against a backdrop of over 200 major floods worldwide in the same year, the floods in England were ranked most expensive at an estimated £3 billion.

The magnitude of impact as well as criticism over the government's response prompted a review of existing flood management practices, resulting in one of the widest ranging policy reviews conducted in the UK: the Pitt review.

The review found that the existing approach to flood management lacked coordination and structure, and that "responses to local flood risk are piecemeal and not necessarily prioritised ... This results in investment decisions being made in isolation, which at best leads to inefficiencies and at worst actually increases the risk of flooding."

The findings of the Pitt review were translated into 92 recommendations, including setting out a long-term approach to funding flood risk management supported within a policy framework. Essentially, this review triggered an overhaul of the UK's approach to flood management, including the introduction of the Flood and Water Management Act (2010).

> Responses to local flood risk are piecemeal and not necessarily prioritised ... This result in investment decisions being made in isolation, which at best leads to inefficiencies and at worst actually increases the risk of flooding.

Source: Pitt, M. (2008). *Learning lessons from the 2007 floods: The Pitt Review.* Cabinet Office, London.

Image: UK floods in 2007 on the River Ouse, York

Case study: the UK model

The Grant in Aid co-investment mechanism calculates the proportion of a flood scheme eligible for central government funding.

The Flood and Water Management Act (2010) guides the management of flood and coastal erosion risk in most of the UK.

Under the Act local risk management authorities (primarily Lead Local Flood Authority) and the Environment Agency (EA) were delegated responsibilities for flood management, and a framework for funding flood resilience measures was developed. Within this context, the EA initiated the Grant in Aid (GiA) process to fund flood resilience schemes.

The GiA process assesses and quantifies the benefits of flood schemes, ranging in scale from the individual property to city level, in a nationally consistent manner. Benefits are quantified in terms of both scale and duration, and any type of flood scheme - not just structural - can be assessed.

This is done through the Partnership Funding (PF) calculator, which determines how much central government funding a proposed scheme is eligible for. The PF calculator precedes the submission of a more formal business case.

As illustrated in the infographic below, investment decisions are prioritised against four basic outcome measures or criteria:

1. Benefit: Cost Ratio (BCRs), including whole of life benefits

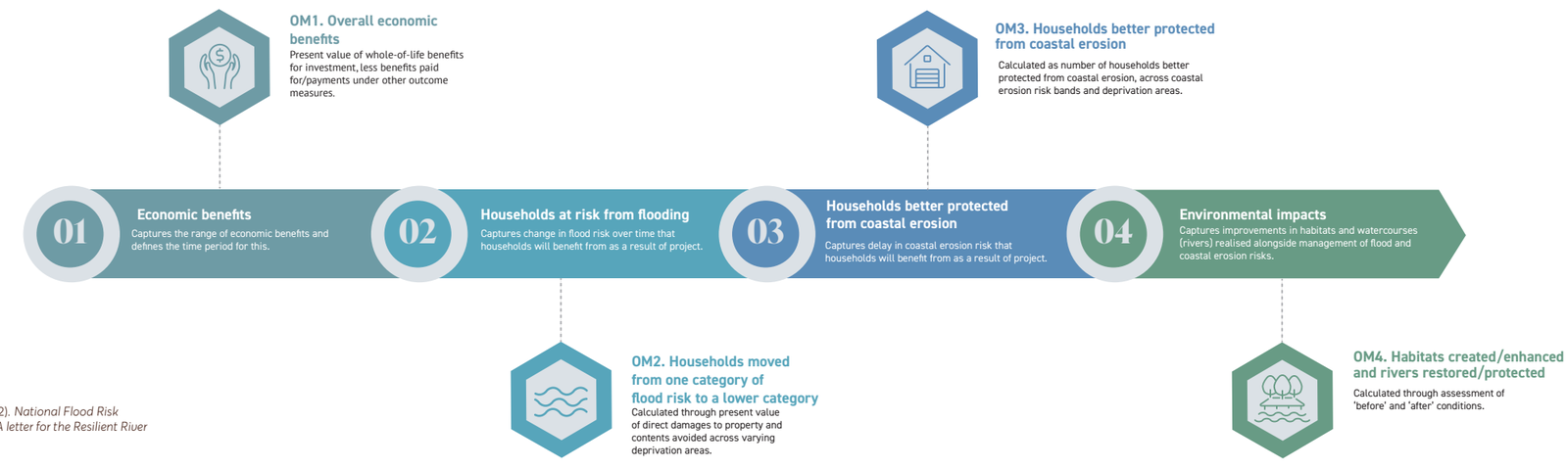
2. Lowering flood risk for deprived communities

3. Level of service/standard of protection

4. Environmental obligations and benefits

An outcome measure score is then calculated. The threshold for receiving central government funding is a typically an outcome measure score with a BCR of 18:1 (£18 of benefits for every £ spent), although schemes with lower BCRs may still receive funding with other contributions required to bridge the gap.

This is an example of a co-investment mechanism that enables funding from multiple (local government, central government, private, insurance, and non-governmental) sources.



Source: Tonkin & Taylor. (2022). *National Flood Risk Management Funding Model: A letter for the Resilient River Communities.*

Accurate data is the key to good decisions

Effective national prioritisation can only be conducted once there is an accurate model of flooding risk and possible interventions.

At the heart of the PARA model is the need to decide which interventions make the best sense for individual communities facing increased risk from flooding. PARA assumes the various options – from engineering to risk acceptance, and from managed retreat to increased resilience – have been considered and weighed, and an informed decision made. It further assumes these decisions are made in a consistent and equitable way across Aotearoa and national priorities assigned.

While much of the data about flood risk and engineering mitigations exists, it does so within the 16 Regional Councils. As the process of identifying and prioritising the 55 shovel-ready Kānoa projects and this subsequent request for 92 urgent projects shows, it is currently difficult to bring together, integrate and compare the data across the country.

Further, there is currently no agreed approach to how the different aspects of the PARA framework – from building resilience to managed retreat – are valued and evaluated. The current approach is very much case-by-case and place-by-place; and while this suffices for individual communities, it makes it difficult to obtain a national picture and develop national priorities.

The intention is therefore to develop a national PARA assessment model, under the auspices of Te Uru Kahika. The purpose of this model is to:

- Integrate the data held by Regional Councils about flooding risk and mitigation approaches across Aotearoa
- Integrate the national modelling about climate and flooding risk held by NIWA and other organisations
- Integrate the Regional Council flood protection projects into a single view of all planned and proposed interventions
- Implement a PARA valuation methodology for all planned and proposed interventions, grounded in sound economic analysis and informed by the Living Standards Framework
- Provide a prioritisation and decision support tool for agencies and Regional Councils to make investment decisions about specific projects and initiatives, and to provide a national view of activity, investment flows and benefits.

While the model will be developed and managed by Te Uru Kahika, the underlying data – about regions, flooding risk, interventions and projects – will continue to be controlled and managed by the responsible Regional Council or other organisation (such as NIWA). The purpose of the model is integration, valuation, benefits assessment and decision support, so it does not supplant any of the existing systems or processes across the Regional Council sector.

As is the case with all sectoral data projects, one of the workstreams within the data modelling project will focus on data sovereignty, data governance and privacy compliance. Guidance from Statistics NZ may also be sought to assess the possibility of integration with or incorporation into the national Integrated Data Infrastructure (IDI).

PARA, investment and benefits analysis

While the data will be sourced from – and remain under the control of – the Regional Councils, the model will contain the elements necessary to make informed decisions about flood protection under the PARA framework. This will include:

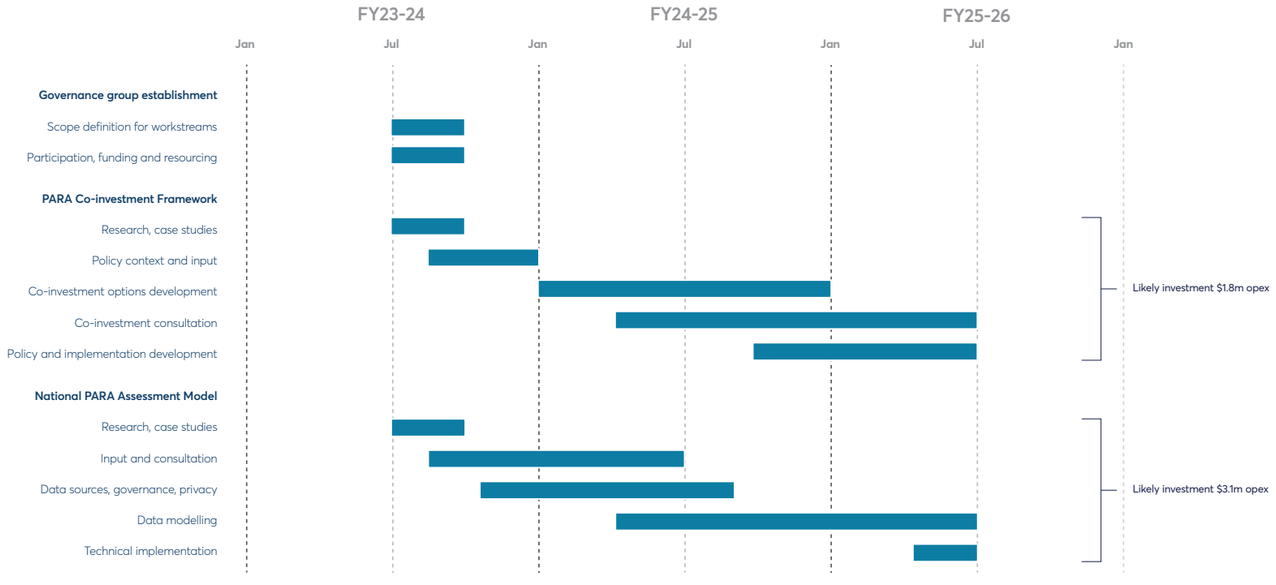
- The investment requirements for each project and each option being assessed (such as resilience investment or managed retreat)
- The wellbeing valuations for each option, including both the financial and non-financial costs and benefits, based on sound economic analysis grounded in the Living Standards Framework
- A prioritisation framework, which will allow different projects with quite different PARA approaches to be compared on a like-for-like basis, in order to aid informed decision making
- A benefits tracking model, which will allow the outcomes to be evaluated against the original investment criteria to ensure investment accountability.

The model will require significant development and ongoing management to ensure it operates in the way intended. The process for developing the model is described on the following page.

The sustainable co-investment work plan

Work on both the policy aspects and the national model can commence in FY23/24.

Developing the correct PARA policy frameworks and supporting data model will require a separate project, with an agreed governance structure, participating councils and agencies, and input from iwi, the insurance sector and other key stakeholders. Initial opex funding for this work has been included within the bid for Budget 23, and an initial high-level project plan with resourcing estimates is shown below.



Coordinating across the sector

Given the nature and implications of flood protection, it is likely that a range of agencies will wish to contribute to the development of the sustainable co-investment approach, and may wish to either provide data to or receive information from the national PARA assessment model. In addition, a range of interested parties will also wish to participate in both the policy development and the data modelling, including iwi and the insurance industry.

And in order for the theory of PARA to be translated into effective policy, operational initiatives and on-the-ground activities, it will be necessary for the work to be anchored in the reality of what can be achieved for and with communities across Aotearoa. For this reason, it is proposed that Te Uru Kahika act as the coordinating body for the policy work and the data modelling, using a shared governance model with appropriate central government agencies.

Undertaking this work will require resourcing and funding on behalf of Te Uru Kahika and agencies. The budgets at left represent the commitments of time and resource over the next three years required to achieve the policy outcomes and data model, over and above existing baselines. In practice, it is anticipated that some existing baseline resource will also be contributed from regional councils and participating agencies.

It is proposed that these further areas of work are developed into a separate business case, under the auspices of the proposed governance entity, in order to define the scope and outcomes expected and confirm the resourcing and budget for the activity.

4.0

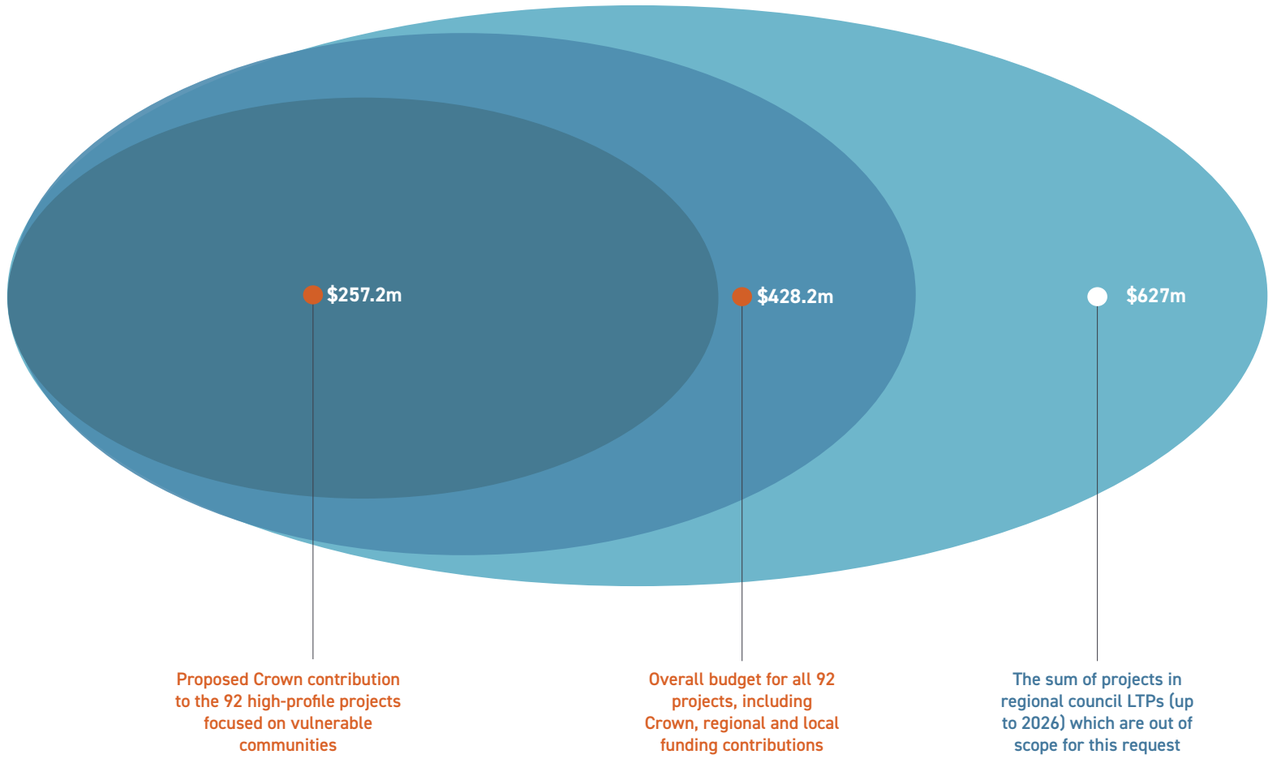
Financial case

Investment summary

As noted earlier in the document, our suggested co-investment allocation rate of 75%/60% is based on deprivation and the TA's ability to fund flood protection measures from the regional ratepayer base.

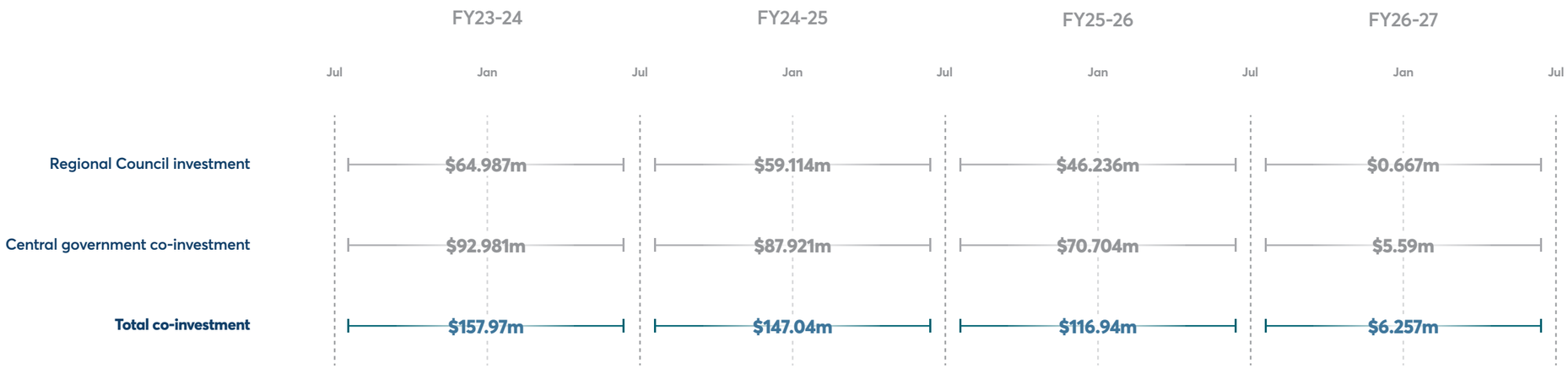
The $428.2m of capital investment is therefore shared 60% central government and 40% regional councils. As the figure at right shows, the central government investment is $257.2m (with regional council investment being $171m). Detailed project-level breakdowns are available in the Appendix.

This is a capex investment. The following pages provide the co-investment rationale and the projected cashflow for the package of projects.



Summary investment cashflow

The table below shows the capex co-investment for the 92 projects.



- As can be seen, the cashflow is heaviest in the first two financial years and then tapers to a small residual in the fourth year. This reflects the fact that the 92 projects are shovel-ready and can be commenced quickly, with the constraining factor being 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. The ability of regional councils to deliver quickly and effectively was demonstrated by the successful completion of the 55 projects funded as part of the post-COVID recovery.

5.0

Implementation approach

Regional construction pipeline

The construction pipeline report shows continued strong demand.

The National Construction Pipeline Report 2021 reports that New Zealand's total construction value decreased by 5.7% in 2020 to $42.6b, showing the impacts from the COVID-19 pandemic. This year's forecast is for construction activity to grow steadily to about $48.3b in 2024, driven largely by the continued strength of the residential sector. Residential buildings contributed 58% of total construction value in 2020.

Non-residential building value nationally peaked in 2019 at $10.2b. However, strong project intentions in the sector remain. The report forecasts activity to reach the 2019 levels towards the end of the research period, with a forecast of $10.2b in 2025 and $10.3b in 2026.

Commercial buildings are the most prominent non-residential building work expected to start in the year to December 2021, contributing 47% of the total number of projects and 47% of total value. This is a higher proportion by number than in the 2020 report when many planned visitor accommodation and office building projects were being delayed. These are now being progressed. Education has many projects (24% of the total number of projects) but only accounts for 13% of the total value.

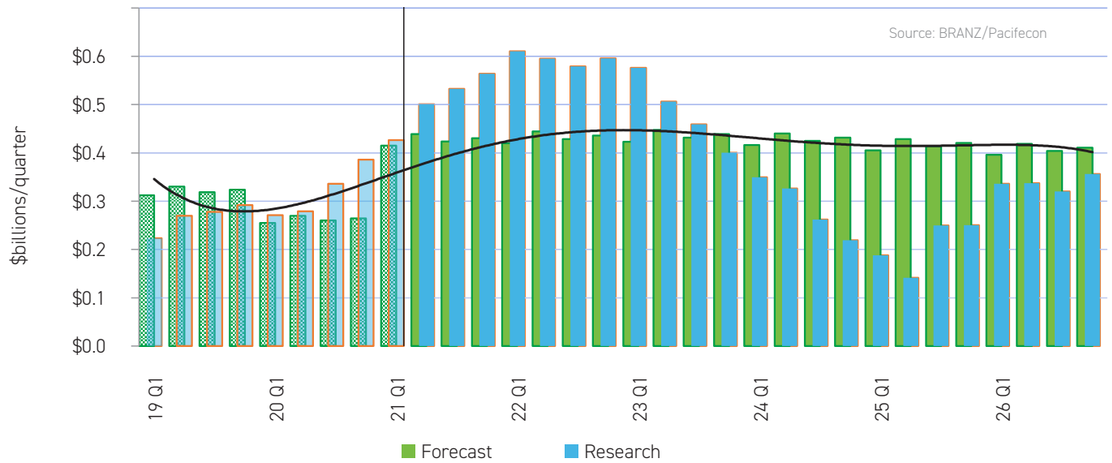
The private sector is the largest initiator of non-residential building, contributing 66% of the value of researched intentions over 2021 to 2026, while central and local government make up 21% and 13% respectively. Compared to last year, central government has decreased its overall share slightly, whilst local government has maintained and the private sector has increased marginally. New non- residential building intentions for all sectors are forecast to peak through 2022.

Central and local government-initiated projects continue to benefit from having good long-term visibility of funding, which means intentions tend to remain strong throughout the forecast period.

The Rest of New Zealand section of the report contains 10 regions – Gisborne, Hawke's Bay, Manawatu-Whanganui, Marlborough, Nelson, Northland, Southland, Taranaki, Tasman and West Coast. These regions individually all have a lower value of total construction activity and populations than the other regions, but are regarded as an accurate predictor for the likely construction sector capability for the flood protection projects.

For Rest of New Zealand, total construction value reduced by 4% to $6.4b in 2020, following 10% growth in 2019. Slight growth in residential building of 0.3% was mitigated by an 18% decrease in non-residential building and 2% in infrastructure.

Total construction value for Rest of New Zealand is forecast to increase by 15% to $7.3b in 2021 and then remain close to that level until 2024, decreasing to $6.8b in 2026.



The graph above shows the forecast and researched predictions for the growth in non-residential construction in the ten aggregated regions. With construction volumes predicted to continue at robust levels over the next five years, it is likely the flood protection projects will be of interest to engineering and construction companies, based on their likely pipelines.

Construction cost inflation pressures

Costs are escalating due to supply chain and logistical issues.

In late 2021 EBOSS undertook a supply chain report for the construction sector, in conjunction with BRANZ. The intention of the report was to quantify the anecdotal supply chain issues being experienced by construction companies, which are in turn impacting projects across the country.

As the report notes, 90% of all construction products sold in NZ are either imported or contain imported components not easily replaced by domestic supply. In this context, logistics and supply chain issues are major determinants of both materials availability and construction costs, particularly given that international shipping costs have risen up to 100% for some categories of product in the last 12 months.

The diagram at right shows the extent of the challenges in key construction product categories, ranging from structural components to interior and finishing items. There are a number of impacts identified in the EBOSS report:

Structural products are suffering from the greatest supply and logistical challenges, increasing costs and lead times for practically all significant projects

Lead times have lengthened significantly since 2019 and are expected to continue to do so, with flow-on effects for project delivery.

In this environment, early decision making on whether or not to proceed with a project and early planning for major construction components is key to working around the ongoing logistical and supply challenges in the industry.

Average price increases by category

Structure: Aluminium, Composite Panels for Floors and Walls, Concrete, Fasteners and Connectors, Masonry, Plastics, Site Safety and Roof Access Equipment, Stainless Steel, Steel, Structural Systems, Structural Timber

Enclosure: Awnings and Canopies, Enclosure Adhesives, Sealants and Fasteners, Enclosure Balustrades and Stairs, Exterior Decorative Items, Flashings and Expansion Joints, Glazing, Insulation, Roofifng and Decking, Tanking and Pre-Cladding, Wall Cladding, Windows, and Doors

Interior: Ceiling Systems, Floors, Furniture, Hardware, Joinery Fixtures and Appliances, Partitions and Interior Doors, Signs and Features, Wall, and Ceiling Linings

Finish: Applied Coatings, Carpeting, Flooring Ancillaries, Flooring Underlays, Overlay Flooring and Wall Panels, Painting, Decoration and Coating, Resilient Surfacing, Tiling

External: Engineering Works, External Heating, Landscaping, Roads and Paving, Stretched Fabric Systems

Other: Services, Central Vacuum Systems, Communications and Controls, Fire Safety, Heating and Cooling, Lighting and Electrical, Plumbing and Drainage, Sanitaryware, Tapware, Transport, Ventilation and Air Conditioning

Project delivery methodology

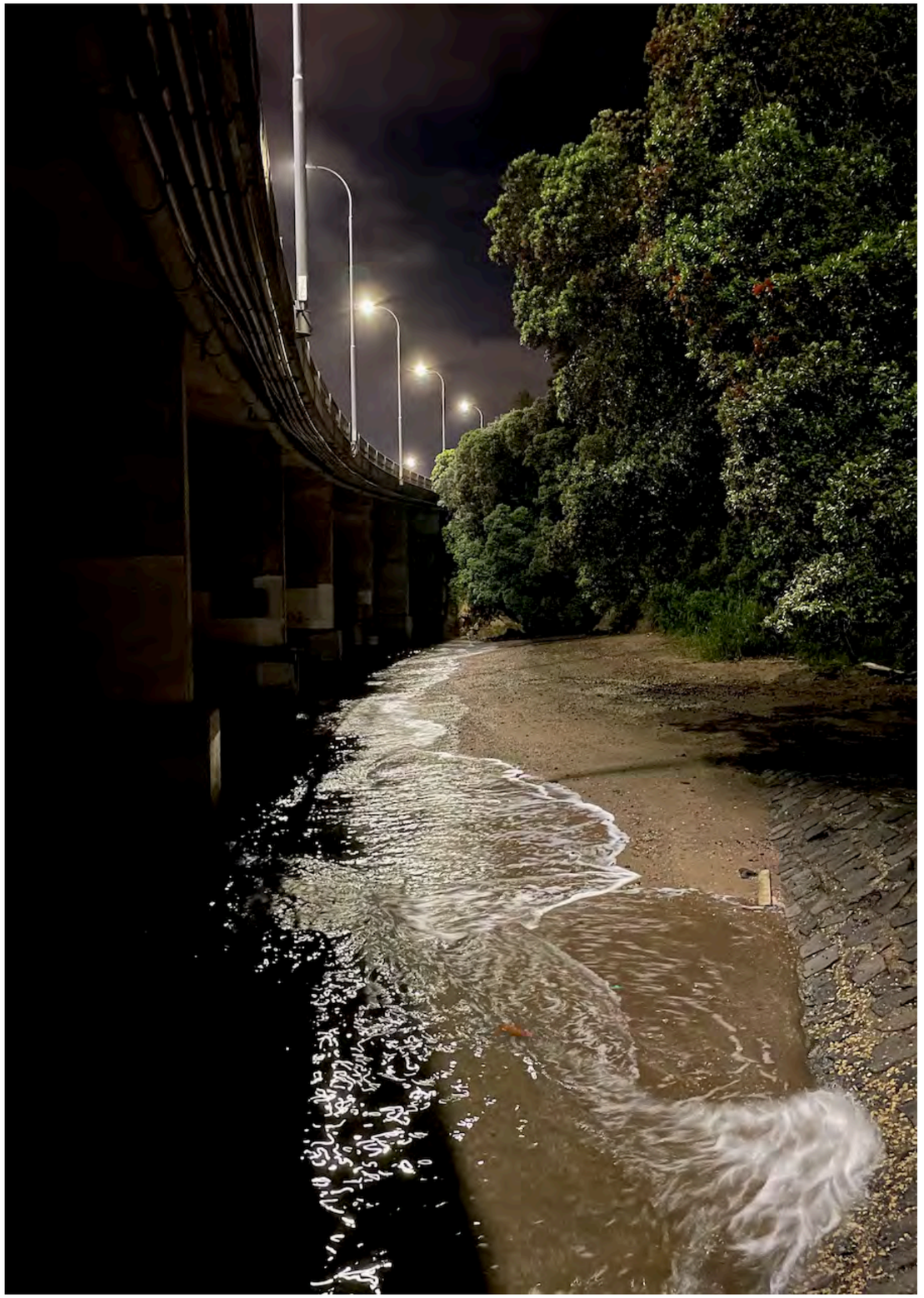
Robust project management methodologies are used throughout the Regional Council sector.

As evidenced by the progress reporting on the 55 projects funded previously through Kānoa, regional and unitary councils have demonstrated 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 Regional Government sector over the last few decades. While there is variation in some of the specifics, all Regional Councils underpin their ways of planning and delivering projects using standard project management methodologies such as PMI and PRINCE2.

One of the key learnings from the first tranche of projects was the value in building and sustaining specialist teams across the Regional Government sector, focused on flood protection. In establishing these teams, key project delivery, commercial and risk management methodologies were developed and promulgated across the sector. These methodologies – in project delivery, construction pipelining, commercial engagement and negotiation, risk mitigation and others – are serving to de-risk the subsequent tranche of projects detailed in this proposal.

For example, part of the first tranche of delivery involved procuring and establishing a pipeline of construction, engineering, contractor, and other council works for the timely completion of projects. Co-investment in this second tranche of projects will enable us to sustain and capitalise on existing arrangements, and to minimise risks while maximising construction efficiencies.



The collaborative approach we have taken

A collaborative partnership with central government is necessary for delivering improved community flood resilience.

Te Uru Kahika is committed to engaging in a collaborative partnership with central government for the delivery of successful community flood resilience and wellbeing outcomes.

The previous co-investment from Kānoa provided the foundation for central and regional government to collaborate and jointly deliver on a range of wide range of benefits beyond flood protection. In particular, the governance mechanisms established through the Advisory Board has thus far proven an effective means of collaborating.

Additionally, the multi-party DIA-supported Community Resilience Steering Group, operating between 2019-2020 provided leadership and set a precedent for a genuine collaborative approach in improving community resilience and adaptation to natural hazard risks and climate change. This group comprised senior central and local government representatives, as well as iwi/mana whenua representatives.

This second tranche of proposed projects will allow us to continue to build on existing collaborative frameworks and work toward instituting a genuine partnership for the essential longer-term programme of work needed.

We will continue to work with central government in collaboratively reaching agreement about the cost apportionment of the co-investment across projects, based on prioritisation of comparative deprivation.

We see significant benefits in continuing the existing governance and oversight structures for the projects outlined in the current proposal.

It is our intention that a leadership platform for all relevant parties - including regional councils and central government agencies - can be convened for our longer term programme of work. Here, we see significant value in reconstituting the Community Resilience Steering Group, and this forms one of the recommendations of our proposal.

We look forward to working with central Government within the framework of the Steering Group.

The existing governance arrangements are well placed to provide oversight of projects and benefit realisation.

The governance structures already in place for the Kānoa Climate Resilience programme remain fit-for-purpose in providing oversight for this current programme of work. Specifically, the Climate Resilience Advisory Board was established by the Provincial Development Unit in early 2021 to provide oversight of investment and ensure accountability on behalf of the funders.

Its members comprise a Chairperson, as well as a representative each from the DIA, Kānoa, and River Managers' SIG. In this way, the group represents genuine collaboration between central and regional government; reflecting the aim and intent of the co-investment.

Alongside regular reports provided to the Advisory Board, a review process is also conducted for each council's programme to ensure continuous improvement and successful delivery of outcomes. Progress of project tasks and milestones, as well as other environmental and social procurement outcomes were also tracked.

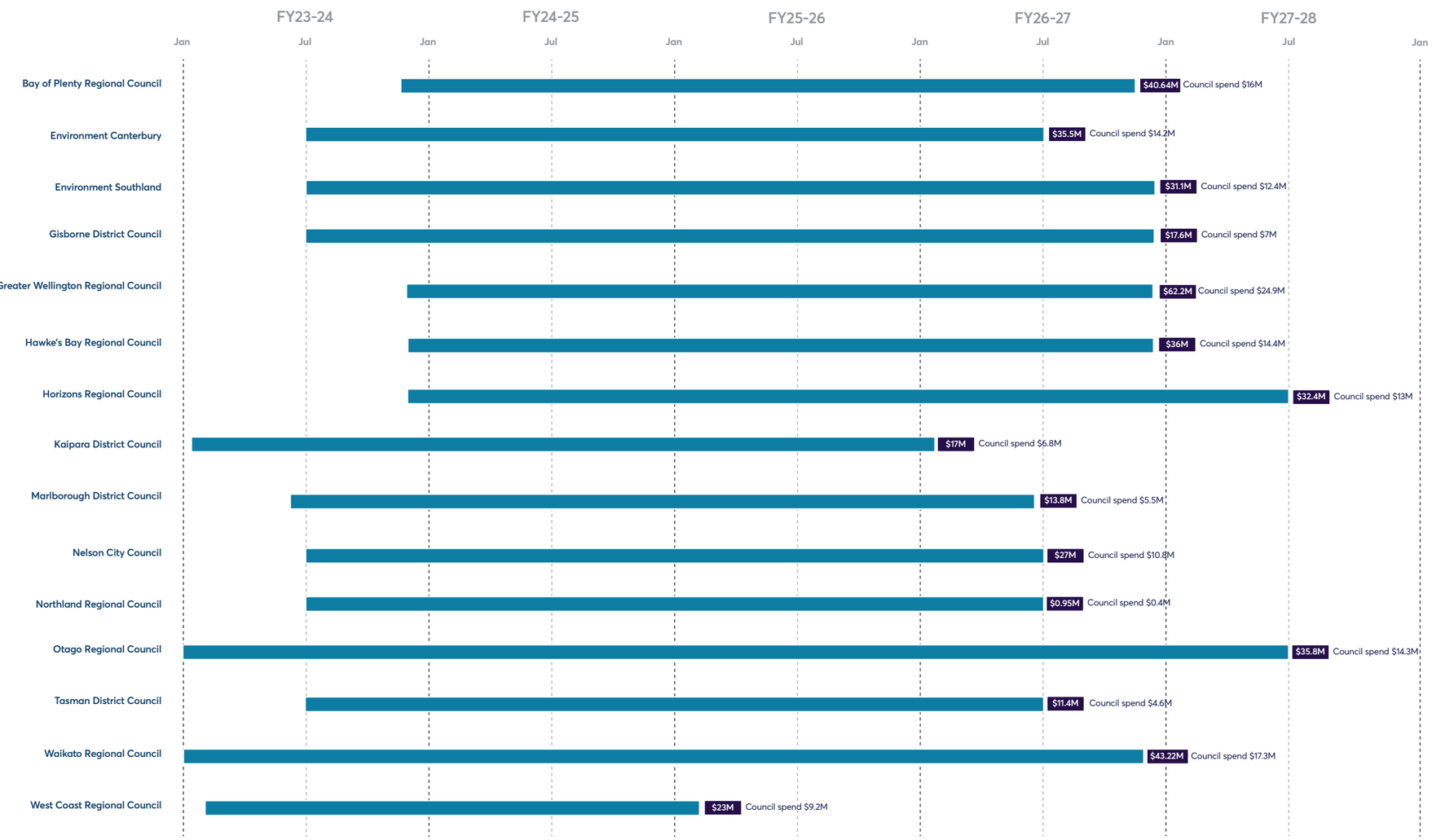
The expertise and institutional knowledge within the Board, along with established risk assessment and reporting frameworks, mean the Advisory Board is best placed to provide oversight of the proposed tranche of projects and their benefit realisation.

Te Uru Kahika is therefore recommending the continuation of the established governance structure for the projects outlined in this proposal.

The delivery roadmap

An overview of the delivery timeline and spend by Regional Council.

Consolidated overview of Regional Council spend



Risk management approach

Project delivery risks will be managed by Regional Councils using their proven methodologies.

As noted above, Regional Councils have an extensive and proven track record of delivering flood protection projects on time and within budget. This was demonstrated anew over the course of the 55 shovel-ready projects approved as part of the Government's post-COVID recovery.

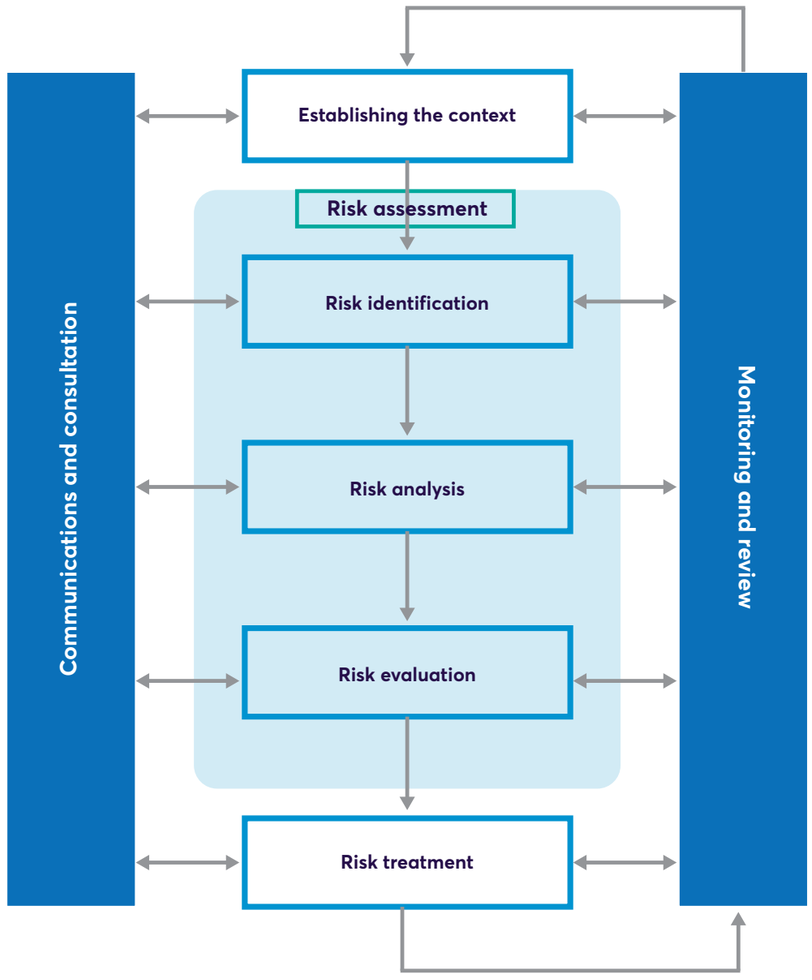
Earlier in the business case the outcome risks were identified; these are the risks that could prevent or reduce the benefits expected from the investment being achieved. At a project level, it is the delivery risks that must be closely managed; these are the risks that can prevent individual projects being delivered on time, within budget, and to the correct scope.

In the current environment, the most significant risks are:

- **Cost escalation pressures**, as noted earlier in this section. Managing project delivery within budget in an environment of high construction cost inflation is challenging and will require careful management by Regional Council teams.
- **Construction capacity constraints**, which are particularly acute in some regions and specific sectors. These constraints are likely to be a primary driver of delays to projects, but have only a limited number of mitigations.
- Capability shortfalls can be a challenge in specific projects where highly specialised skills are necessary, which can in turn lead to bottlenecks in delivery.

Successful project delivery is closely linked to effective risk management, and Regional Councils have proven methodologies and robust processes for risk assessment, mitigation and management. While the detail of the processes varies across the country, a consistent approach to risk management is used, as illustrated in the diagram at right.

Risk management is a core component of standard Regional Council project management methodologies, and risks are routinely assessed at project, programme and governance levels, and appropriate actions taken. Based on the extensive track record across the shovel ready projects, there is every reason to expect Regional Councils to manage risks effectively for this programme of work.



6.0

Recommendations and next steps

Recommendations

It is recommended that government proceed with co-investment as a matter of national interest.

As evidenced throughout business case, considerable work has been done over the last few years to assess and quantify the risks across our current flood protection schemes, as well as the investment approaches needed to address these.

In particular, we have highlighted the inequities in the current funding approach and its inability to remain a sustainable funding model in the long-term. We have also demonstrated there is significant national interest in flood protection and resilience - in terms of its wellbeing and fiscal impacts, as well as through the protection of vital Crown assets and infrastructure.

The current proposal builds on the analysis and co-investment pathways already established between central government and Te Uru Kahika. It sets out an immediate prioritisation of flood protection works, along with a pragmatic roadmap for flood resilience over the next few decades.

We therefore recommend that central government:

1. Approve the $257.2 million request for co-investment in a three-year delivery programme for 92 additional flood protection projects, and
2. Sustain the existing governance arrangements (Advisory Board) under the Resilient River Communities banner for the proposed tranche of projects

The indicative co-investment rates and amount are consistent with what has been funded through the previous Kānoa Covid Recovery Programme, albeit with local government contributing at a higher rate. However, the continuation of shovel-ready funding is unsustainable for developing our flood resilience long-term.

In order to develop a comprehensive national model of flood resilience, we recommend that central government:

3. 4. Work with Te Uru Kahika to invest in and implement a longer-term programme of work including developing a sustainable co-investment model and a national PARA (multi-tool) assessment model
4. 5. Re-convene the Community Resilience Steering Group to provide leadership and a consolidated steer on future community flood resilience recommendations.

7.0

Appendix

Detailed project listings

Council	Territorial Authority (TA)	Project Name	Project Description	Project Total Cost ($m)	Project Start Date	Project duration	IMD Rank
Northland Regional Council	Far North District	Kawakawa Deflection Bank	Deflection Bank and raising bridge deck to spill water on flood plain	0.55	2024	2	4801
	Far North District	Matangirau Flood Risk Reduction Phase 2	Restoring the flow of the Towai Stream that has been blocked by Wainui Road Causeway	0.36	2023	2	4801
Kaipara District Council	Kaipara District	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	12.00	2023	3	3998
	Kaipara District	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 resilient program	5.00	2023	2	3998
Auckland City Council		No projects put forward					
Waikato Regional Council	Waikato District	Lower Waikato Stopbank Upgrade	Work involves stopbank renewal, through increasing crest level height to design standard across Lower Waikato zone	8.70	2023	3	3725
	Hauraki District	Mid Piako River Emergency Flood Ponding Zones Upgrade Hauraki Plains	Part of a multi-year overall package including 26km of stopbank upgrade. Includes earthworks construction of stopbanks back to design height as part of normal stopbank lifecycle maintenance.	5.40	2023	3	4622
	Waikato District	Rangiriri Fish Passage Pumps	Replacement of the existing flood protection pump station (including pumps) to maintain the required level of flood protection. This is a continuation of the MBIE funded Shovel Ready Fish Passage Project.	4.00	2023	2	3725
	Waikato District	Island Block Fish Passage Pumps	Replacement of the existing flood protection pump station (including pumps), an aged asset and within a priority catchment for tuna. This is a continuation of the MBIE funded Shovel Ready Fish Passage Project.	2.80	2024	2	3725
	Hauraki District	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.	1.10	2023	3	4622
	Hauraki District	Kirikiri Stopbank Upgrade - Kopu Thames Connection	"Upgrade of stopbanks to 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. "	5.10	2023	3	4622
	Hauraki District	Thames Valley Division Channel Planting and Maintenance Programme	Flood mitigation channel planting promoting sustainable asset management and diversion channel management practices. Programme includes fencing, drain shaping, and planting of smaller drainage channels to reduce maintenance requirements and enhance instream and riparian ecological values.	1.80	2023	3	4622
	Hauraki District	Piako River Accommodation: Ngatea right stopbank	Improving the capacity of the highest risk stopbank in the Piako River Scheme and lowering the need for future stopbank upgrades because of decreased pressure on the remaining assets space for the river. Final piece of work continuing on from the successful upgrade part of the MBIE funded Ngatea Left Stopbank Shovel Ready project and connects with the MBIE funded Johnstone's Fish Passage Pump upgrade.	0.58	2023	3	4622
	Thames-Coromandel District	Erosion and Flood Prone Rivers Streams and Stream Mouths Coromandel River Catchments - Flood Resilience Improvements	Removing obstructions and reducing sediment loss from eroding banks to minimise the flood risk to properties and infrastucture to the benefit of the river catchment	2.80	2023	3	3593

Detailed project listings

Council	Territorial Authority (TA)	Project Name	Project Description	Project Total Cost ($m)	Project Start Date	Project duration	IMD Rank
	Waikato District	Mangatawhiri Pump Station Infrastructure	Replacing aged dual inlet at the pump station and the construction of an isolation gate enabling access to the pump for maintenance	0.54	2024	1	3725
	Waikato District	Tuakau Pumpstation Infrastructure	Replacing Tuakau Pump Station inlet and pipes	0.40	2023	2	3725
	Waitomo District	Erosion and Flood Prone Rivers in the Waikato, Waipa and West Coast River Catchments - Flood Resilience Improvements	Flood mitigation from remediation of active erosion and prevention of further signifincant erosion in high priority rivers.	5.00	2023	3	4219
	Waikato District	Lower Waikato Floodgate Upgrade Programme	Initial flood mitigation projects will be assets to the east of Huntly in the Mangawara catchment (Mangawara River, Sludge Creek, Pouaraureroa Stream)	2.00	2023	3	3725
	Hauraki District	Firth of Thames and Waihou Sediment Trap Digs - Sediment Removal	Flood mitigation sediment trap digs in preparation for future stopbank upgrades (material requires 3 years of drying before it is useable for construction) plus removal of built up sediment from silt traps. Project includes renewal of river side fences that are due for replacement.	3.00	2023	3	4622
Bay of Plenty Regional Council	Ōpōtiki District	Waioeka Otara Rivers Scheme Stopbank Upgrades	Upgrade existing stopbanks to meet 1 in 100 year event levels of service and provide for climate change	1.84	2023	1	5321
	Whakatāne District	Project Future Proof 2023-26 Whakatane-Tauranga Rivers Stopbanks and Floodwalls Upgrade	Upgrade existing stopbanks and floodwalls to meet 1 in 100 year levels of service and provide for climate change	16.50	2023	3	4322
	Whakatāne District	Whakatane Canals Stopbank & Trident Stopbank Upgrade	Upgrades of Whakatāne Canals and Trident stopbanks	5.90	2023	2	4322
	Taupō District	Rangitaikī Tarawera Rivers Scheme Stopbank Upgrades	Tarawera River, Rangitāiki River and Rangitāiki Drainage Schemes Stopbank Upgrades	3.40	2023	3	3248
	Western Bay of Plenty	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.	13.00	2023	2	2933
Gisborne District Council	Gisborne District	Waipaoa River Flood Control Scheme Climate Resilience Stopbank Strengthening Western side Project	Strengthening (stopbank raising & widening work) to the remaining 31km of stopbanks located along the western side of the Waipaoa River	12.00	2023	3	4480
	Gisborne District	Tokomaru Bay Mangahauini & Waiotu Rivers Flood Proection Climate Resilience Project	Strengthening of existing stopbank of 800m (LB), a new stopbank at a gap of 100m (LB) and a 800m new stopbank/flood wall at the RB at Mangahauni River scheme. Also a new stopbank / flood wall of 700m (RB) at Waiotu Stream along SH35.	2.80	2023	2	4480
	Gisborne District	Makarika School Flood Protection Climate Resilience Project - Ruatoria	Strengthening (stopbank raising & widening work) of an existing stopbank of 700m (LB), a new stopbank at a gap of 400m (LB) at Makarika River scheme	2.80	2023	2	4480
Taranaki Regional Council		No projects put forward					
Horizons Regional Council	Horowhenua District	Foxton Flood Mitigation Project - Tranche 2	Mitigating flooding caused by overtopping and seepage through the existing embankments by providing some detention of runoff on farmland to the east of the township.	12.70	2024	3	4627
	Whanganui District	Te Puwaha - Lower Whanganui Training Structures South Mole	Building resilient communities throug llower river training structures which maintain the current river channel alignment at the mouth of the river and protect critical infrastructure from erosion and sea encroachment,	13.20	2023	2	4383

Detailed project listings

Council	Territorial Authority (TA)	Project Name	Project Description	Project Total Cost ($m)	Project Start Date	Project duration	IMD Rank
	Palmerston North City	Rangitikei River Enhancement Project - Tranche 2	Enhancing the Lower Rangitīkei River by restoring natural processes and reducing the risk of flooding and erosion, with the long-term vision of re-creating a resilient and sustainable river corridor.	2.50	2024	3	3519
	Palmerston North City	Lower Manawatu and Palmerston North Climate Resilience Project - Tranche 2	Tranche 1 involved the targeted construction and upgrading of flood protection works within the Lower Manawatu and Palmerston North Climate Resilience Projects. Tranche 2 will combine these projects to allow future project works to be prioritised based on risk, consequence and deliverability, without the need to move funding between projects.	4.00	2024	3	3519
Hawke's Bay Regional Council	Hastings District	Heretaunga Plains Flood Control Scheme Stopbank Upgrade - Ngaruroro and Tukituki Rivers	Upgrading of 30km of stopbanks on both sides the upper section of the Ngaruroro and lower section of the Tukituki rivers, raising the flood protection level from 1:00 to 1:500, as a follow-on from current work in the Ngaruroro River	30.00	2023	3	3535
	Hastings District	Upper Tukituki River Gravel Extraction - Tranche 2	Removal of up to 2,000,000m3 of gravel from the upper section of the Tukituki river system.	4.00	2023	3	3535
	Napier City	Wharerangi Stream Erosion Control Project	Installation of 25m long x 3m deep of rock rip rap bed protection, contouring along a 15m vertical height waterfall which is eroding and undermining upstream bed material.	2.00	2024	2	3390
Greater Wellington Regional Council	Masterton District	River Road Masterton Flood Protection Upgrade	Completion of the final stage (stage 3) of the River Road, Masterton required project work through construction of 11 river protection groynes.	4.30	2023	3	3939
	Masterton District	Masterton Water Supply Protection Project	Protect Masterton District Council's raw water supply pipeline on the Waingawa River by constructuring three rock groynes.	0.54	2023	1	3939
	Masterton District	Waipoua River SH2 Left Bank Protection Upgrade	Flood protection construction of a new rock revetment to protect SH2 bridge abutment as well as the walking/cycle trail.	0.11	2023	3	3939
	Masterton District	Waipoua Industrial Site - Akura Road Edge Protection Project	Edge protection as a result of significant erosion of river-bank into industrial property, protecting Masterton's mains water supply pipe	2.21	2023	3	3939
	South Wairarapa District	Greytown Flood Protection Waiohine River Plan	Construction of two stopbanks both 800m long: one on North Street and one on Kuratawhiti Street.	8.04	2023	3	2565
	South Wairarapa District	Fullers Bend Protection - Greytown	Upgrade of Fullers Bend flood erosion protection with construction of a new rock revetment.	2.95	2023	3	2565
	Upper Hutt City	Pinehaven Streamworks Project, Upper Hutt	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.	14.30	2023	3	3200
	Upper Hutt City	Gemston Drive Flood Protection, Upper Hutt	Improving flood protection for residential properties through the construction of groynes along the true right bank of Te Awa Kairangi and the construction of a rock revetment along the true left bank.	4.69	2023	3	3200
	Masterton District	Rathkeale College Protection, South Wairarapa	Stopbank upgrade to protect neighbouring school	2.01	2023	3	3939
	Kapiti Coast District	Otaki Cliffs River Bank Protection	Improved flood protection flows 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.	14.70	2023	3	3095

Detailed project listings

Council	Territorial Authority (TA)	Project Name	Project Description	Project Total Cost ($m)	Project Start Date	Project duration	IMD Rank
	South Wairarapa District	Tawaha and Awaroa Floodway Spill-over-sill Update, South Wairarapa	Upgrade spill-over sill into Tawaha floodway through rock protection and realignment of sills. Also includes vegetation removal, survey, and levelling.	0.34	2023	3	2565
	South Wairarapa District	Pukio East Stopbank Realignment, South Wairarapa	Final stage of stopbank realignment	0.47	2023	3	2565
	South Wairarapa District	Floodgates and Pump Station Upgrades, South Wairarapa	Upgrades to existing river infrastructre at approximately 15 floodgates and 5 pump stations to include improved fish passage.	0.80	2023	3	2565
	Carterton District	Flood Protection Upgrade Buffer Riparian Planting, South Wairarapa	Planting of the buffers/riparian as per the Te Kāuru FMP	2.68	2023	3	2728
	Masterton District	Eastern Rivers Flood Protection Upgrade, South Wairarapa	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.	4.02	2023	3	3939
	Upper Hutt City	Poet's Park Development, Upper Hutt	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. Second stage involves additional design and landscaping elements such as seating, signage, Te Ao Māori focused artwork, etc.	0.67	2023	3	3200
Nelson City Council	Nelson City	Nelson Floods Repairs Risk Protection	Work includes channel capacity reinstatement, scour protection for river and stream banks, grade control reinstatement / upgrade, and fish passage	7.50	2023	3	2911
	Nelson City	Maitai Flood Management Project	Work includes scour protection for urban river banks/ stopbanks, stopbank improvements, channel capacity reinstatement, flood way and channel upgrade in planned urban growth area, and upgrades of minor bridge and tributary intake.	6.00	2023	3	2911
	Nelson City	Jenkins Stream Flood Protection	Work includes stopbank along Jenkins Creek (adjacent Trent Drive), stopbank improvements downstream of Pascoe Street, and channel capacity reinstatement	4.50	2023	3	2911
	Nelson City	Brook Stream Catchment Improvements	Work includes scour protection for urban river banks/ stopbanks, channel capacity reinstatement, grade control reinstatement / upgrade, concrete channel re-lining, fish passage, and tributary intake upgrades	3.00	2023	3	2911
	Nelson City	Todd Valley/The Glen Catchment Upgrade	Work includes secondary flowpath improvements to protect residential property, scour protection for urban stream banks, stream culvert upgrades, gravel traps, channel capacity reinstatement, wetland area restoration / inanga habitat project, and stream stopbanks	3.00	2023	3	2911
	Nelson City	Oldham Creek Upgrade	Work includes scour protection for urban stream banks, channel capacity reinstatement and potential realignement, and stream intakes improvement	3.00	2023	3	2911
Tasman District Council	Tasman District	Lower Motueka River Stopbank Refurbishment	To complete refurbishment of all the Lower Motueka River Stopbanks, building on an initial stage of Kānoa co-funded project work	10.00	2023	3	2517
	Tasman District	Peach Island Stopbank Repair and localised refurbishment	Stopbanks around Peach Island to be brought up to a climate resilient condition and to protect them from further damage	1.40	2023	1	2517
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	2449
	Marlborough District	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	2449

Detailed project listings

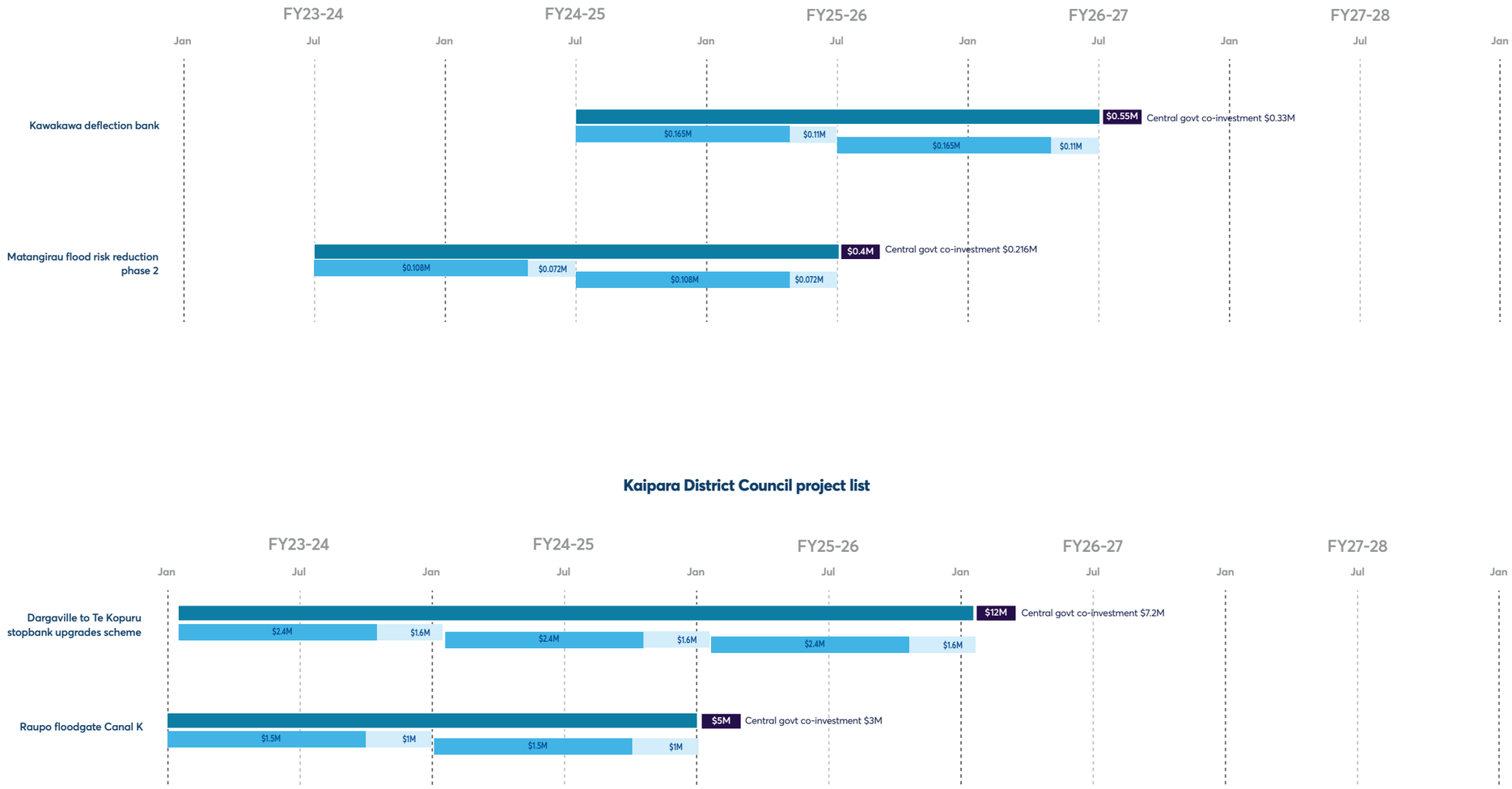
Council	Territorial Authority (TA)	Project Name	Project Description	Project Total Cost ($m)	Project Start Date	Project duration	IMD Rank
	Marlborough District	Wairau River Flood Protection Scheme	Construction of new intermediate groynes, new riparian planting, and extension of rock armouring	4.50	2023	3	2449
	Marlborough District	Lower Opaoa Flood Protection	Construction of upgraded stopbank (1 in 100 yr)	2.60	2023	3	2449
Environment Canterbury	Ashburton District	Region wide Flood Recovery & Resilience Programme	Stopbank build, rebuild, relocation, retreat, various river works, gravel removal, rock, planting including nursery development, investigations and land purchase	20.00	2023	3	2314
	Timaru District	Waitarakao/Washdyke/Seadown	Investigations, drain relocation/retreat, stopbank rebuild, wetland creation/enhancement, planting	2.00	2023	3	2641
	Waimakariri District	Region wide Planting and Berm Transition #2	Planting, weed control, wetland enhancement. Expansion and continuation of existing highly successful programme of work	4.00	2023	3	2204
	Timaru District	Rangitata Flood & Resilience #2	Investigations, land purchase, stopbank build, rock, diversions and river works, planting, wetlands. Expansion and continuation of existing highly successful programme of work.	3.00	2023	3	2641
	Timaru District	Culvert Weir, Floodgate, Waihao Box Capital Upgrade Programme	Investigations, monitoring, capital upgrades, fish passage enhancements	2.50	2023	3	2641
	Waimakariri District	Fairway Vegetation Clearance Programme	Vegetation spraying and mechanical removal in the fairway, primarily alder and willow	2.50	2023	3	2204
	Christchurch City	Halswell/Huritini & Te Waihora Catchment Drain/ Waterways Planting & Initiatives	Planting to shade drains, pest tree removal, wetland enhancement, drain adaptation/improvement, improved water retention, access and other values	1.50	2023	3	2831
West Coast Regional Council	Westland District	Hokitika River Floodwalls	Stage 3: Flood Protections walls to the Hokitika River from mouth to Dairy factory and at Kaniere	2.00	2023	1	3032
	Westland District	Wanganui new riverwall	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	2023	2	3032
	Westland District	Waiho River North Side (Stage 2)	Reduce the flood risk and increase level of flood protection	10.00	2023	1	3032
	Grey District	Cobden Seawall	Protection of the mouth of the Grey River, Cobden residential area, gateway to Elizabeth Point and North Beach	4.00	2023	1	3896
Otago Regional Council	Dunedin City	Henley Bund - Taieri River	Settlement in the crest level of the low floodbank that protects Henley township from the Taieri River allow water to prematurely overflow the bank, and into the township.	1.00	2023	2	2791
	Dunedin City	Middlemarch Flood Resilience	Flood and hazard mitigation for the Central Otago township of Middlemarch	2.00	2023	3	2791
	Dunedin City	Continuation of Contour Channel (West Taieri) Resilience Upgrade	Having completed stages 5 -10 of this project under the climate resilience fund, ORC is now seeking to complete reconstruction for the remaining length of the floodbank, stages 11+. The scope would be similar to the previous stages with the reconstruction of higher and wider floodbanks and associated asset renewals, including up to 3 bridges.	8.00	2023	3	2791
	Dunedin City	Outram Floodbank Safety Upgrade	Preliminary work is underway to establish the structural integrity of the floodbank that protects the Outram township to the west, with remediation options needing to be considered. Additional work is also underway to hydraulic model the failure mechanism and establish/quantify what the risk is to the township of Outram.	5.00	2023	3	2791

Detailed project listings

Council	Territorial Authority (TA)	Project Name	Project Description	Project Total Cost ($m)	Project Start Date	Project duration	IMD Rank
	Clutha District	Balclutha Township Relief Wall Replacements	Assessment and replacement/repair of relief wells on the landward side of the floodbank that protects Balclutha.	2.50	2023	3	2813
	Dunedin City	Silverstream Pump Station Condition & Environmental Improvement	Completing a thorough investigation into the cause of identified seepage issues and implementing solutions to mitigate the risk of floodbank failure, also provides the opportunity to assess and implement fish passage options for this site.	1.80	2023	3	2791
	Dunedin City	Taieri/Waipori Confluence Minibank Repair	ORC is currently reviewing options for repair or potential replacement of this section of floodbank on an alternative alignment. This brings with it the opportunity to consider and implement environmental enhancements in this area, with the potential to create and/or enhance existing wetlands (regionally significant) nearby.	1.50	2023	1	2791
	Dunedin City	East Taieri Lower Pond Gravity Floodgates	Replacing the gabion headwalls , culvert and gravity gates to ensure ongoing structural integrity.	1.50	2023	2	2791
	Dunedin City	Kaikorai Stilling Basin Resilience and Environmental Enhancement	Replacement of stilling basin on the Kaikorai Stream that was significantly damaged in the 2017 flood, to restore its functionality and better enable fish passage past this structure.	2.00	2024	3	2791
	Central Otago District	Roxburgh Flood Resilience	Flood and debris flow mitigation for the central Otago township of Roxburgh.	1.50	2023	3	1217
	Clutha District	Clutha Delta Split Lagoon Environment Enhancement	Installation/modification of the split lagoon culvert to improve its operational and flow control and better facilitate fish passage through the lagoon. Works also need to consider ongoing blockage issues at this location.	2.50	2025	2	2813
	Clutha District	Puerua Outfalls Culvert (Training Line)	Upgrade/modification to culvert system following storm damage in 2020 flood event	1.50	2024	2	2813
	Dunedin City	North East Valley (Lindsay Creek) Flood Resilience	Regular flooding in Lindsay Creek have caused damage to properties through bank erosion and from floodwater overtopping the river banks.	2.00	2023	3	2791
	Dunedin City	Leith Amenity to Sea	Upgrading (long overdue) the stretch of the Leith between Forth St and the harbour (approximately 800m long) to better align with the upstream improvements and surrounding area.	3.00	2024	3	2791
Environment Southland	Gore District	Mataura River Flood Protection Upgrade Project	Increasing resilience across FPS for Southland's 2nd largest population.	18.00	2023	3	3044
	Invercargill City	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, and completion of the Stead Street pump station upgrade.	11.00	2023	3	3395
	Southland District	Oreti River Catchment Flood Protection Upgrade Project	Oreti FPS upgrade Stage One	0.80	2023	2	1879
	Southland District	Aparima Catchment Flood Protection Scheme Upgrade	Restoring the banks to 1:20 LOS from 1:17, and preparing the banks for future increase in height as 2nd stage projects.	0.50	2023	2	1879
	Southland District	Te Anau Basin Catchment Flood Management Project	Improving the Te Anau Catchment floodplain capacity by upgrading floodbanks to offset the effects of climate change including bioengineering controls.	0.30	2023	1	1879
	Southland District	Makarewa Catchment Flood Management Project	Improving flood plain capacity by removing aging pest trees, pest weed build ups etc.	0.50	2023	1	1879

Delivery timeline by council

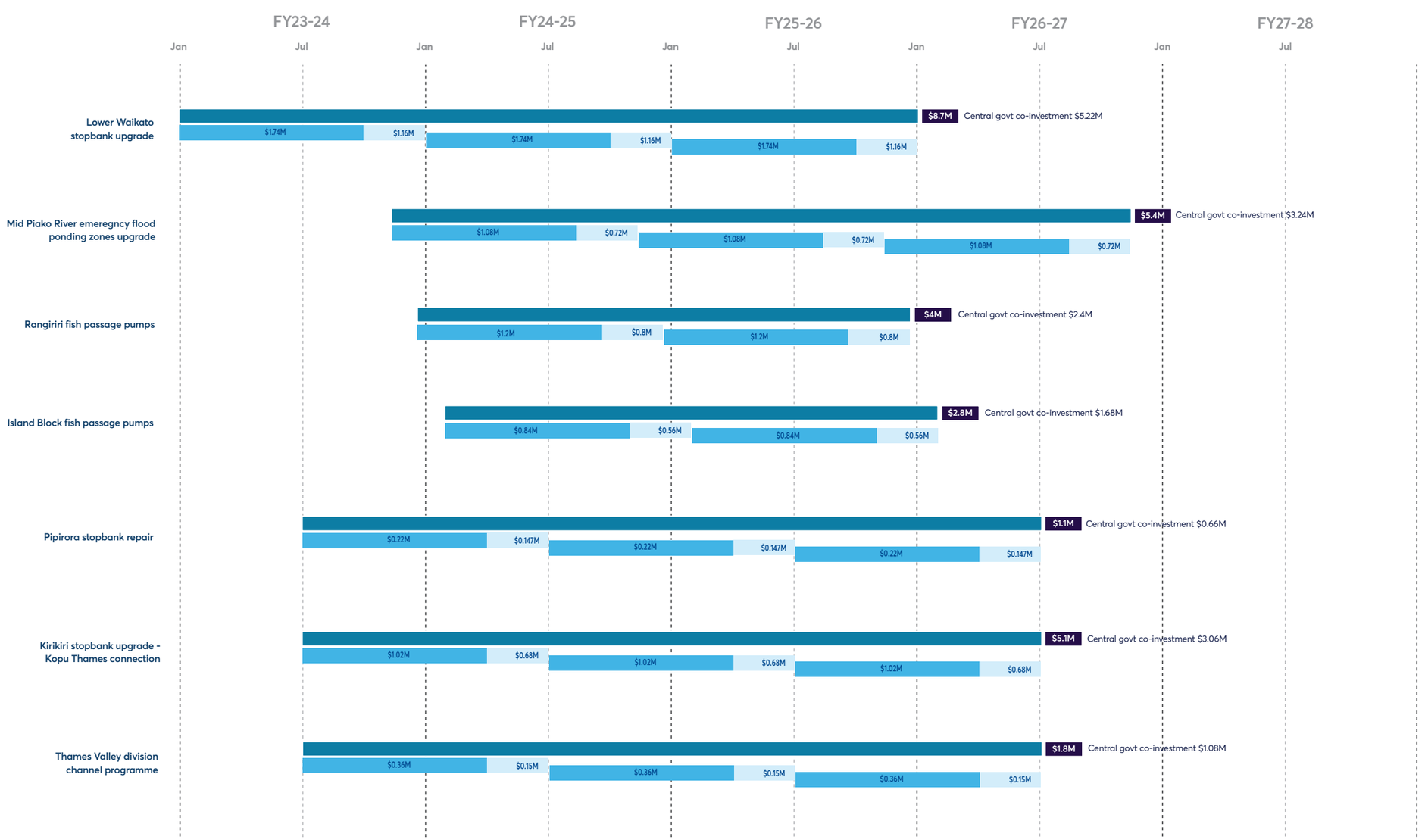
Northland Regional Council project list



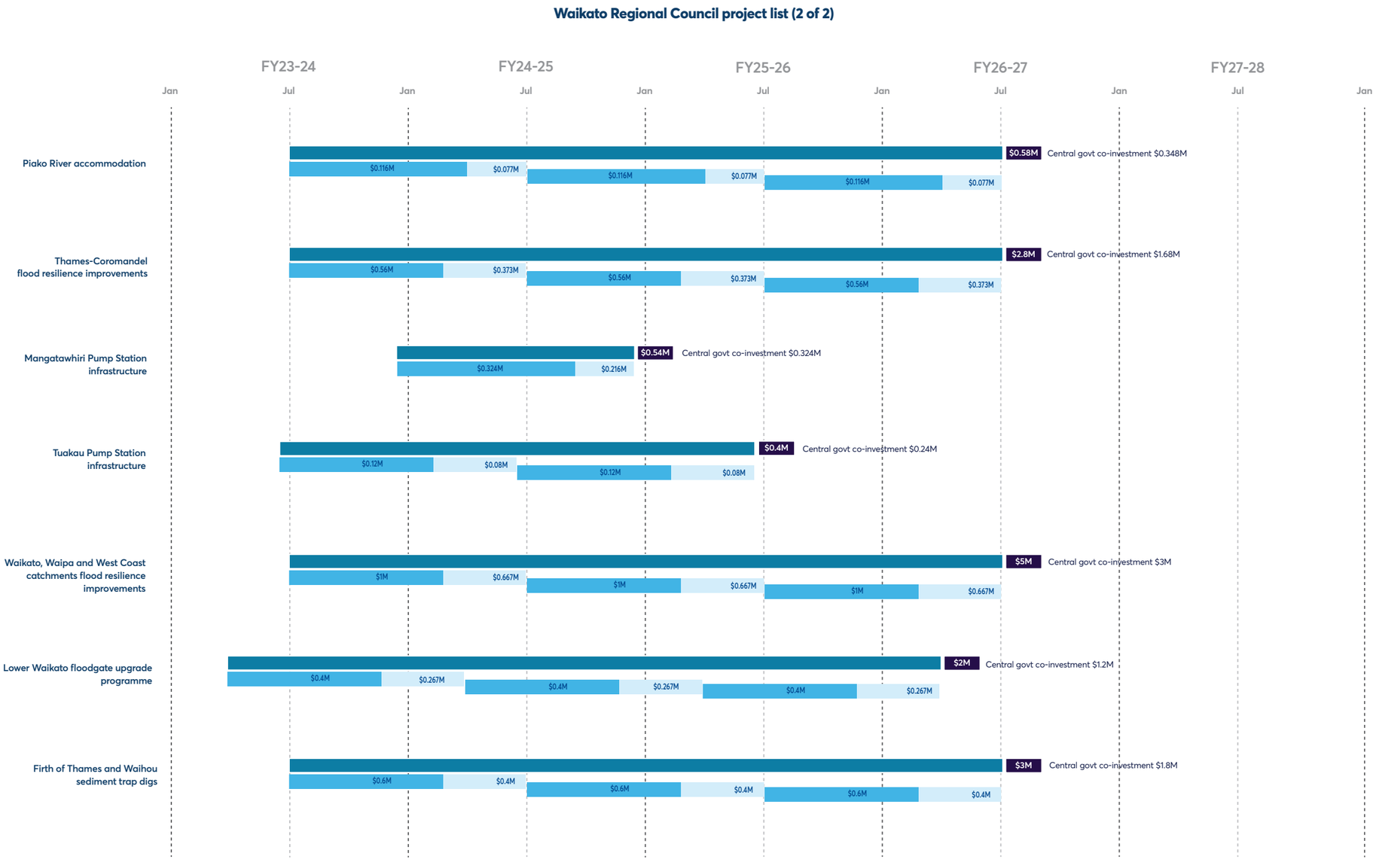
Kaipara District Council project list

Delivery timeline by council

Waikato Regional Council project list (1 of 2)

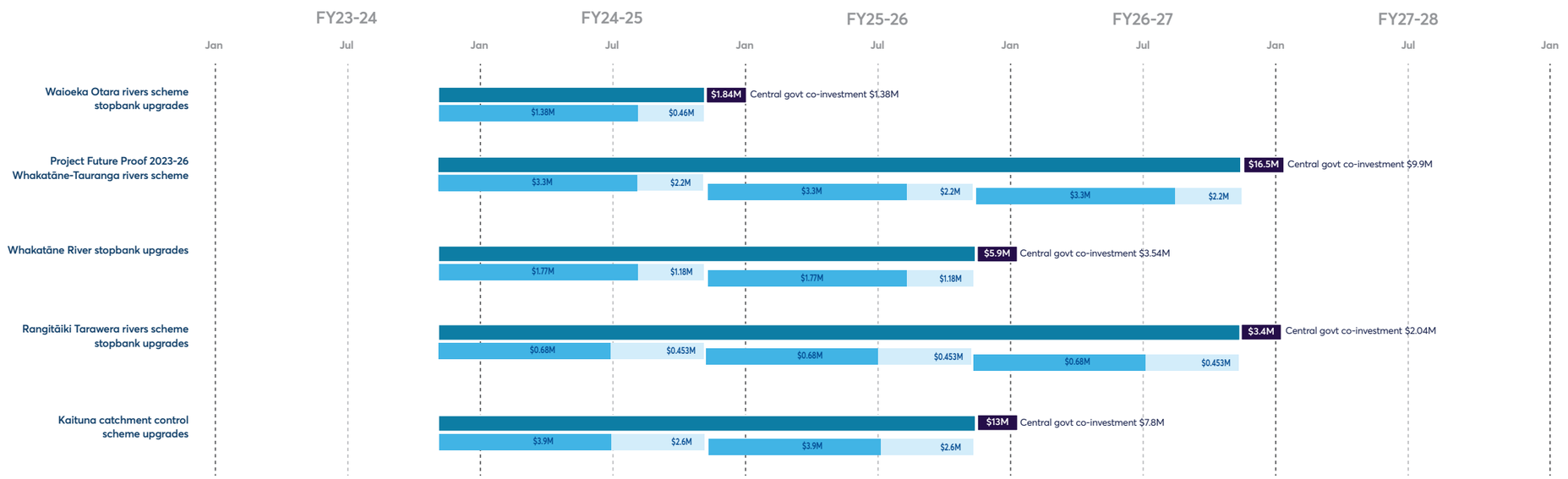


Delivery timeline by council

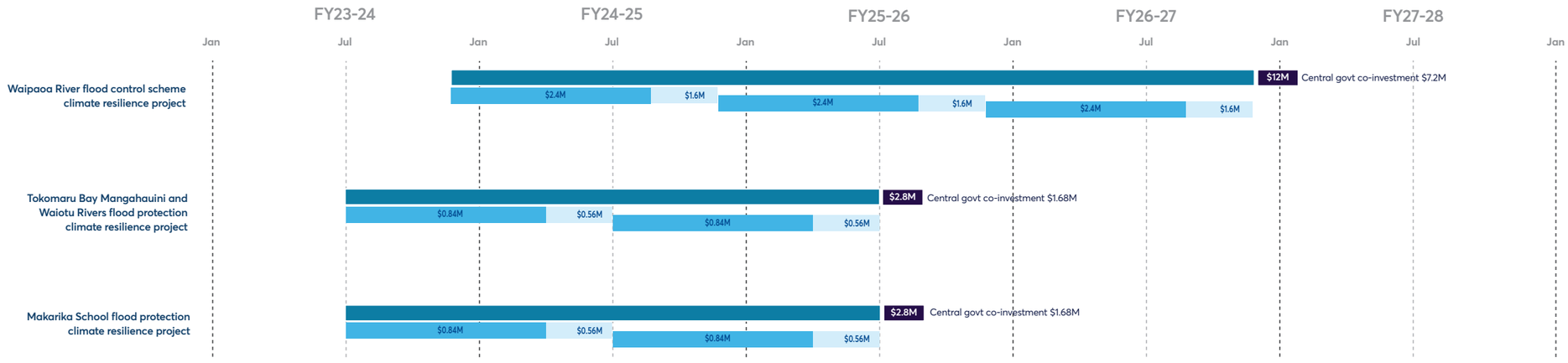


Delivery timeline by council

Bay of Plenty Regional Council project list

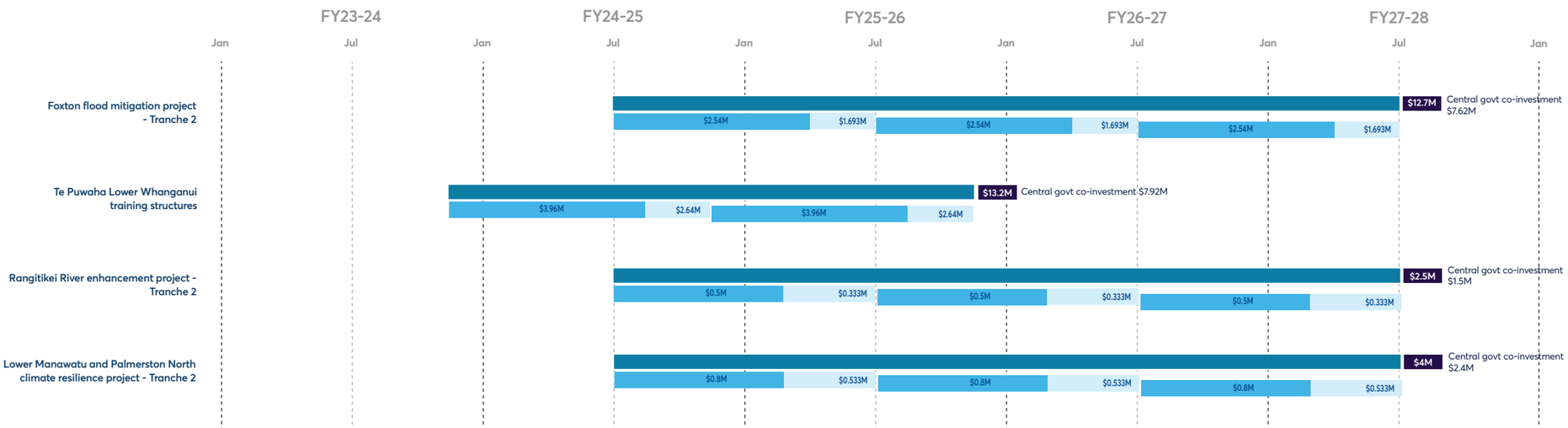


Gisborne District Council project list

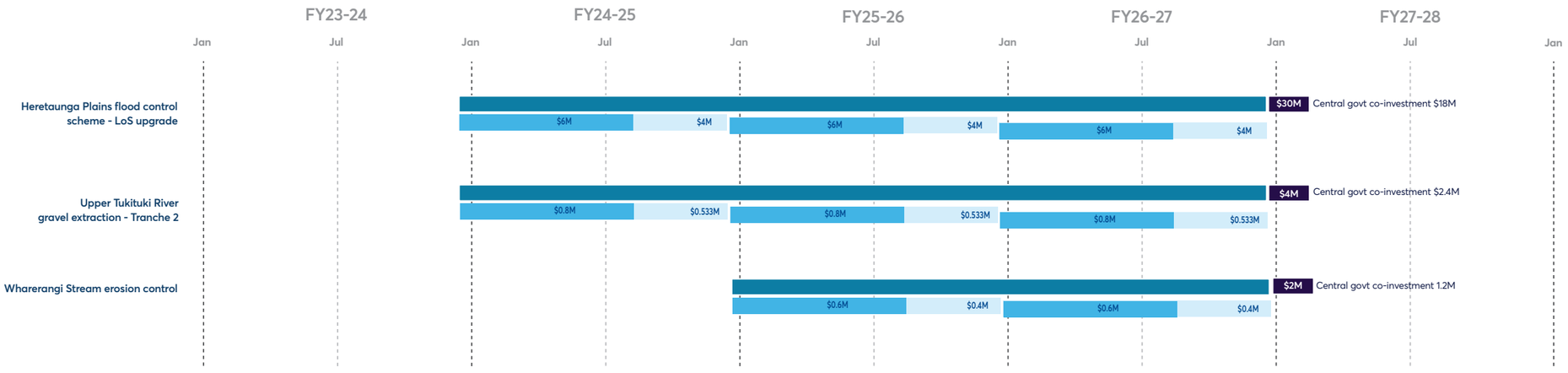


Delivery timeline by council

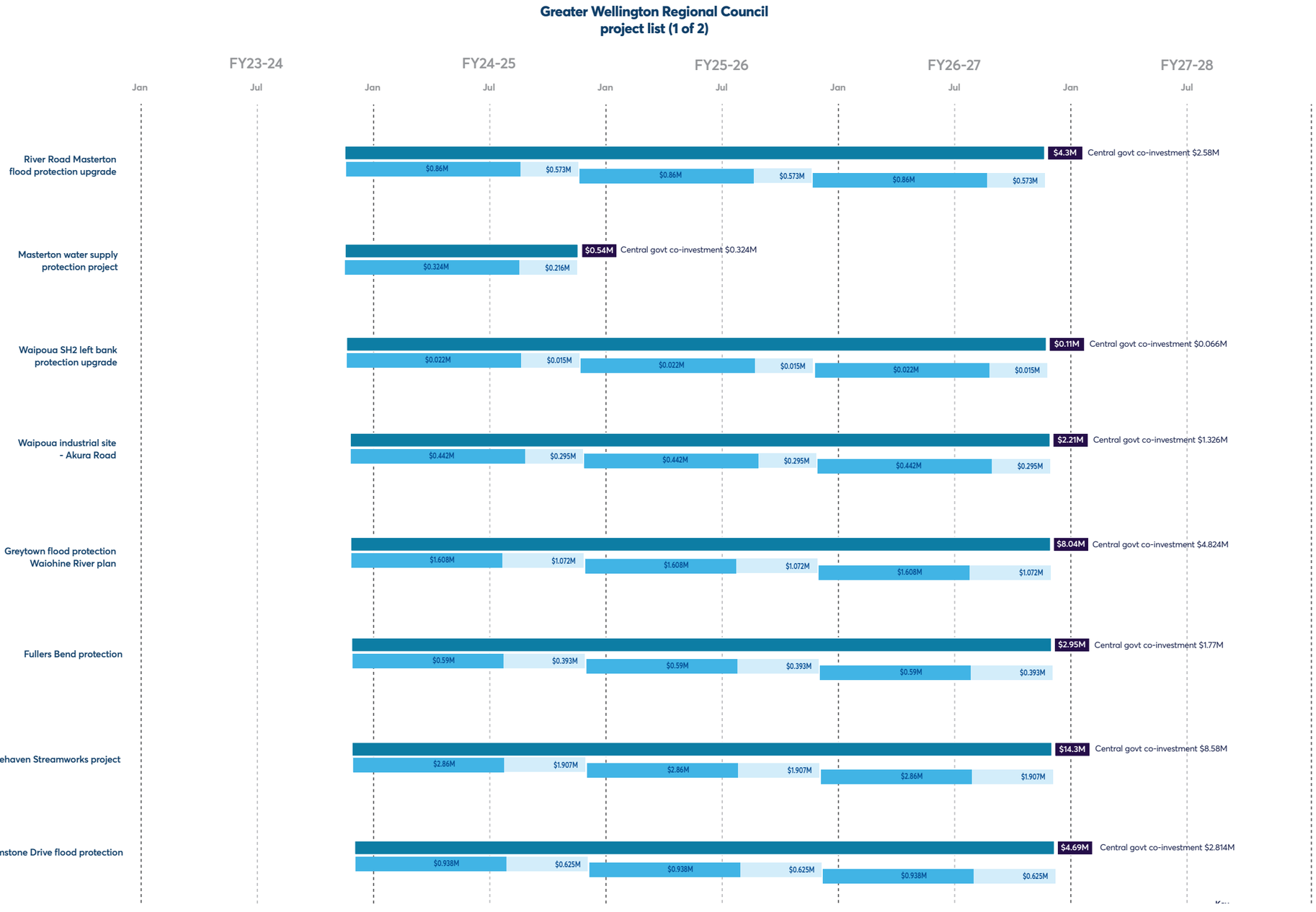
Horizons Regional Council project list



Hawke's Bay Regional Council project list



Delivery timeline by council

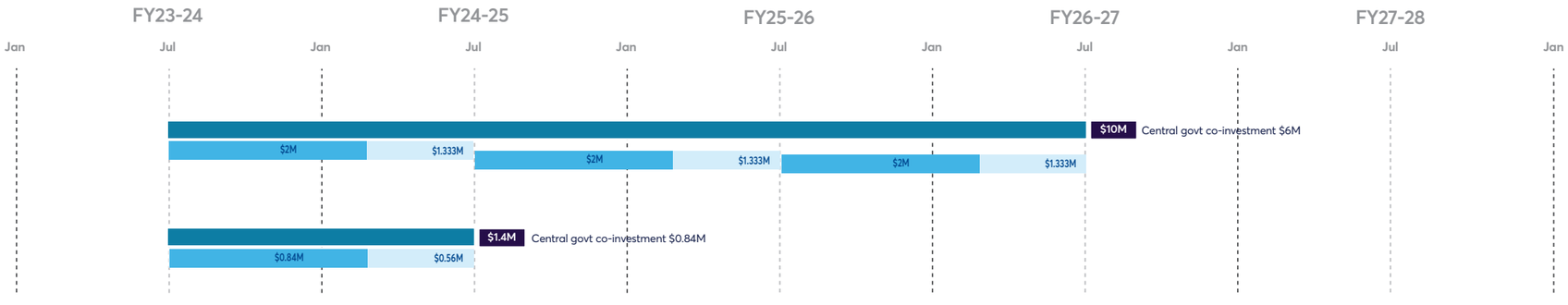


Delivery timeline by council

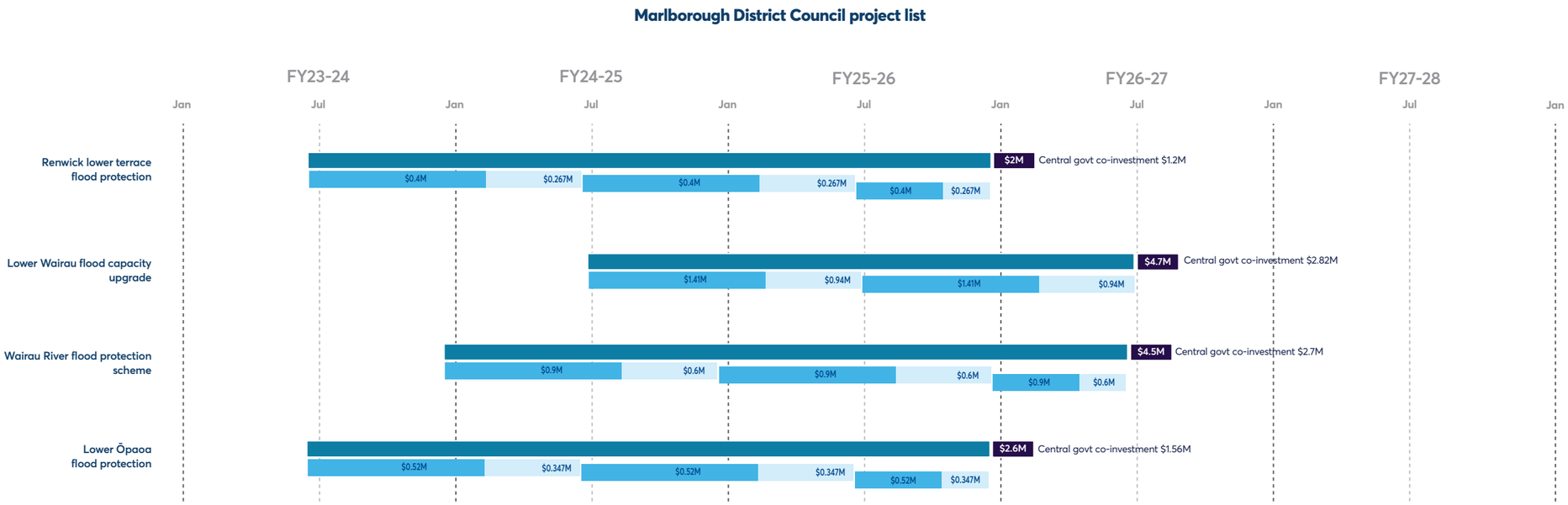
Delivery timeline by council

Nelson City Council project list

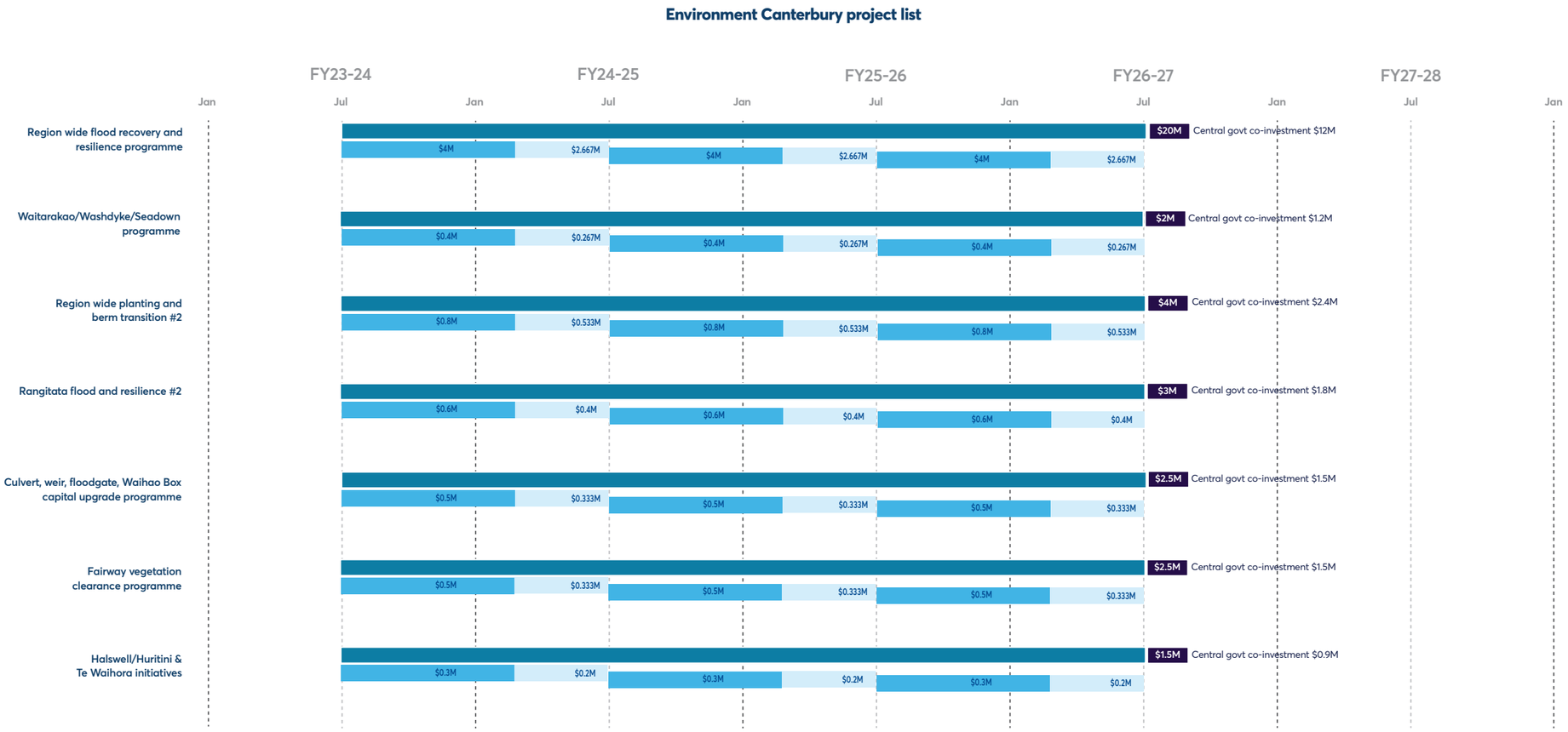
Tasman District Council project list



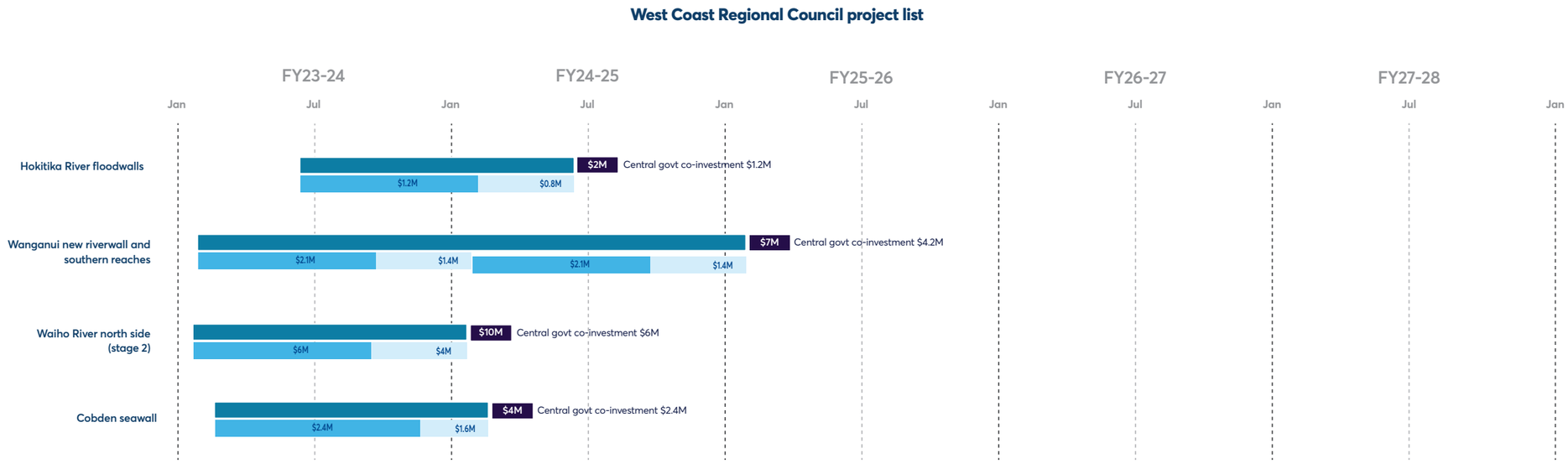
Delivery timeline by council



Delivery timeline by council

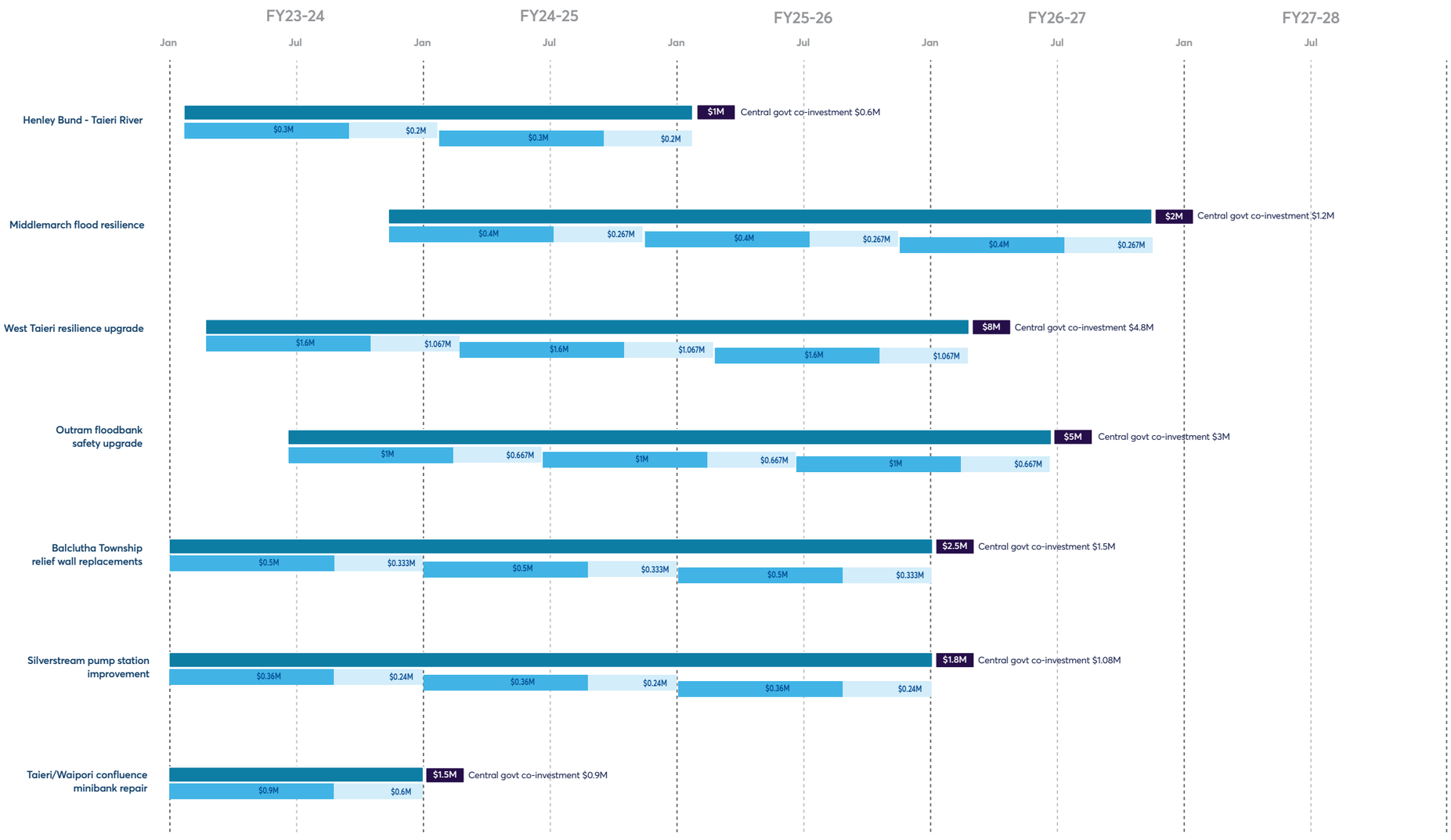


Delivery timeline by council



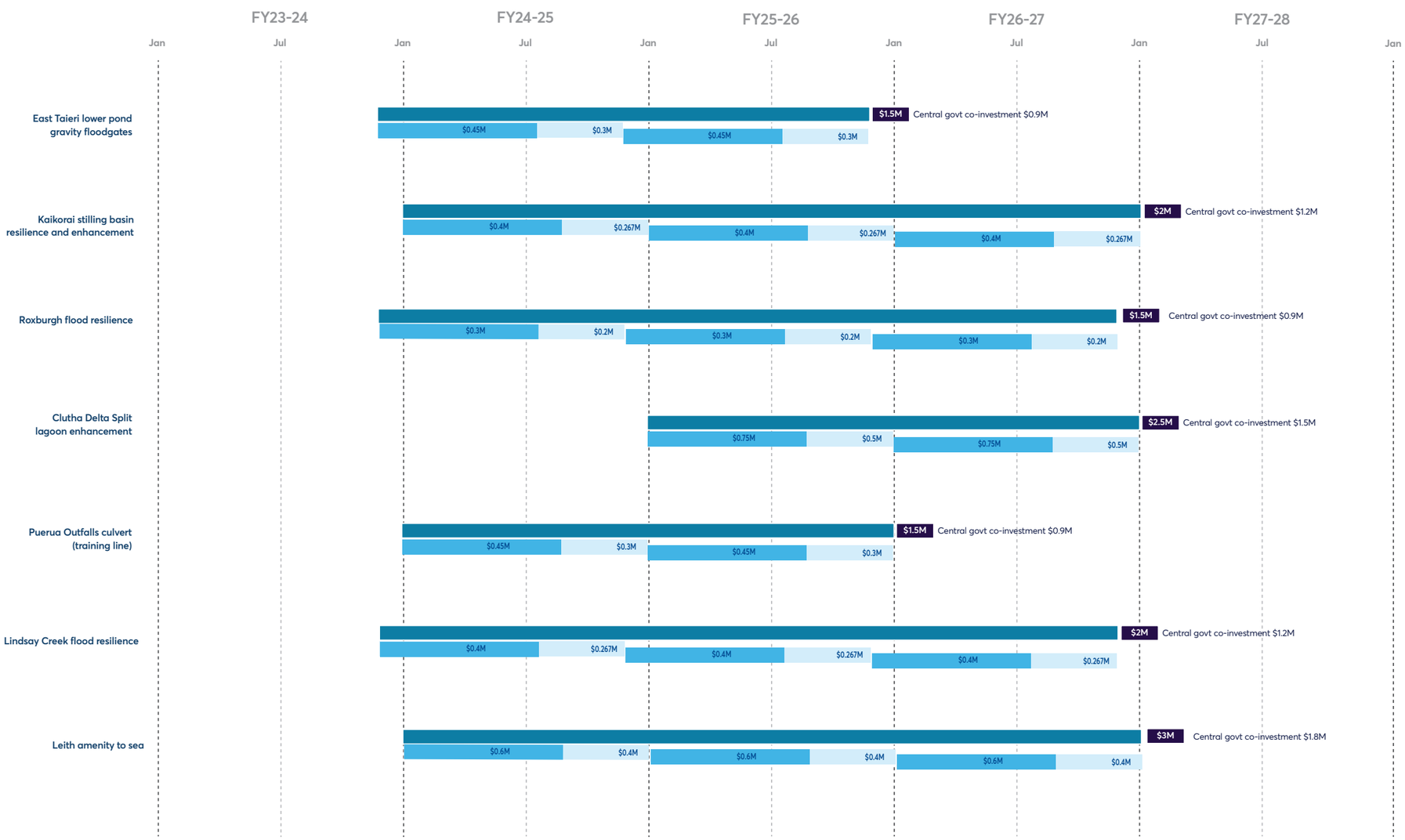
Delivery timeline by council

Otago Regional Council project list (1 of 2)

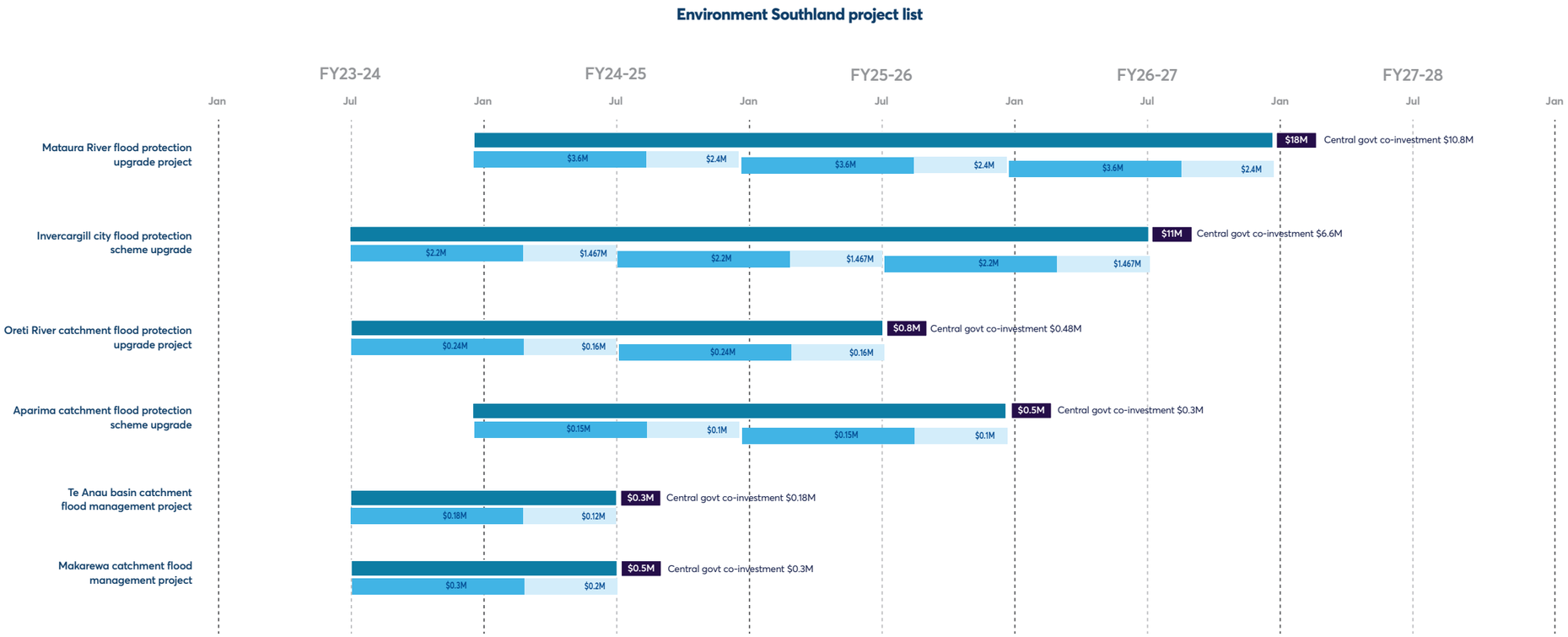


Delivery timeline by council

Otago Regional Council project list (2 of 2)

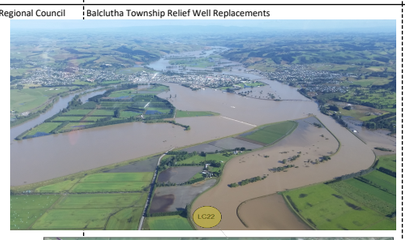


Delivery timeline by council




Te Uru
Kahika
Regional and
Unitary Councils
Aotearoa

Territorial Authority	Council	Project Name Scheme/	Project Description	What does the project achieve	Benefits Value to Region / NZ	Other aspects being implemented as part of a PARA approach	Consideration given to Te Mana o Te wai / environmental considerations	Proposed Start Date	Project Duration (Up to 3 years)	Total Cost $m	Benefit of Government funding - addressing affordability needs of vulnerable communities	ORC priority (1-Highest, 7-Lowest)
Dunedin City	Otago Regional Council	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. Preliminary work is underway to establish the structural integrity of the floodbank that protects the Outram township to the west. 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. Early indications show a factor of safety of only 1.2. This was established with a limited data set and ORC is about to embark on further investigations along the full segment of floodbank. If the investigation and modelling work continue to give results of concern then remediation options will need to be considered. With increased flood frequency anticipated, the risk to this area is amplified. Additional work is also underway to hydraulic model the failure mechanism and establish/quantify what the risk is to the township of Outram.	Gain better data about the material used to construct the floodbank, enabling better modelling. Subsequently any remediation work will ensure the floodbank is structurally sound and continues to provide protection to the Outram community. This section of floodbank is critical for protecting the vunerible community of Outram (and the wider basin, including the Dunedin Internation Airport, being 50% Crown owned) from the increasing flood return period. This work is required ot ensure atleast the current 1% AEP standard cn be maintaned ot current design flows.	Outram and the surrounding area supports an integral part of NZs dairy industry. This area is also the uppermost part of the Lower Taieri Flood Protection Scheme, providing flood protection to Dunedin's international airport, state highways (SH1, SH86 and SH87) and railway assets.	Protection: 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. The Outram Climate Resilience project (weighting blanket) at the downstream (southern end) is now cmpleted. Recent (July 2022) slump points identified further concerns when test pits were undertaken.	While the project has no direct environmental aspects. Environmentl protection will be of upmost importnace during construction.	February 2024 - Design/Consenting/Approvals October 2024 Construction	3	$5.50	This floodbank protects a vulnerable community, as well as strategic infrastucture, including Dunedin International Airport, and the reassurance that it is structurally sound and fit for purpose is essential for the protection and wellbeing of the community. Government funding would ensure that best for asset decision can be made without the limitation of rate payer affordability impacting on these decisions.	1
Dunedin City	Otago Regional Council	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. It protects 7300 hectares of farmland and the Dunedin Airport. Having completed stages 5 -10 of this project under the climate resilience fund, ORC is now seeking to complete reconstruction for the remaining length of the floodbank, stages 11+. The scope would be similar to the previous stages with the reconstruction of higher and wider floodbanks and associated asset renewals, including up to 3 bridges. In addition to this ORC needs to make further improvements to work completed previously on Stage 1-4 of the Contour Channel. Improved climate change knowledge and modelling has identified that these stages are still susceptible to flooding and therefore require further reconstruction works.	Increased resilience and ongoing protection to infrastructure (including Dunedin International Airport, being 50% Crown owned), people and farming in the West Taieri flood plain against the increasing frequency of flood events.	Integral part of Dunedin's economy and protection to Dunedin's international airport and, highway and railway assets.	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 Contour Channel intercepts runoff from the various steep streams located on the Maungatua Range and conveys this runoff by gravity to the Waipori River. 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.		Design/procurment/consent March 2024 Construction February 2025	3	$9.00	Allow for full completion for the project ahead of intended timeframes. The contour channel protects and is funded by the vulnerable west Taieri farming community. Their targeted rates contribution is high for even ongoing basic maintenance. A need to contribute to ongoing asset upgrades further stretches already tight budgets for these farmers, and decision may be made to not fund the much needed upgrades if alternative funding can not be sought. The farms in this region provide many jobs for the area.	2
Dunedin City	Otago Regional Council	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.	Mitigate the risk of seepage and subsequent piping through the floodbank and mitigate the risk of backflow from the Taieri River into the Lower Pond when the river is running high. The outfall gates at this location are critical to the control of flood waters from the ponding area being released into the Taieri and in part prevents flooding of the townships of Allanton and Mosgiel.	Integral part of Dunedin's economy and protection to Mosgiel, highway and railway assets.	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. ORC has worked closely with Dunedin City Council over the past 10 years on the Dunedin District Plan Review (2GP). Land use controls have been added to the Plan to prohibit residential development within the ponding area.	As part of work fish passage will be reviewed and improved	Jul-24	2	$1.70	Without additional funding this project may be restricted to essential repair work only, which will be temporary in nature. Government funding will allow for a full and modern upgrade to these outfall gates	3
Clutha District	Otago Regional Council	Puerua Outfalls Culvert (Training Line) 	Upgrade/modification to culvert system following storm damage in 2020 flood event.	Work will initially (underway) evaluate the increasing threat of sea level rise and storm surge presents to this area, to establish to what extent and the asset should have further investment. From here work will be undertaken to undertake repair work that matches the expected life of the asset ad ensues the work undertaken is fit for purpose.	Ongoing protection of essential farm land, Improved ecological conditions for the area.	Protection: 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.	Renewal works on the Training Line culverts which is key to the delta management of the Clutha River/Mata-Au which ensures that river flows freely under natural processes and flooding events, which reduces the risk of flooding to the Clutha township.	Jul-24	3	$2.00	Without additional funding this project may be restricted to essential repair work only, which will be temporary in nature. Government funding will allow for a full and modern upgrade to these outfall gates	4

Dunedin City	Otago Regional Council	Kaikorai Stilling Basin Resilience and Environmental Enhancements 	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. It is proposed to replace the stilling basin to restore the functionality of the stilling basin and better enable fish passage past this structure. The concrete panelling would be replaced by a less deep riprap lined basin, as the first part of more extensive works to restore a much longer section of concrete lined channel upstream of this structure.	Enhanced ecological benefits, improved longer term resilience. Avoidance of catastrophic failure of the existing basin and blockage of the stream (one of the three main waterways in Dunedin city).	Improved ecological, amenity and resilience to enable ongoing community and business growth. Maintenance of SH1 transport route.	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.	Opportunity to improve fish passage and improve habitat through this section of Kaikorai Stream. The existing, damaged concrete structure is representative of historic practises for in-channel structures. The proposed works will make use of rock riprap and soft approaches that reflect modern values.	Jul-24	3	$2.50	Without additional funding this project may be restricted to essential repair work only, which will be temporary in nature. Government funding will allow for a full and modern upgrade to these outfall gates	5
Clutha District	Otago Regional Council	Balclutha Township Relief Well Replacements   	There are 43 relief wells on the landward side of the floodbank that protects the urban centre and business district, including residential homes, of Balclutha. These relief wells are a critical feature of the flood protection scheme because they mitigate the risk of floodbank failure by allowing seepage water to escape and subsequently reduce the migration of fine sediment through/beneath the floodbank. An assessment of the relief wells following the February 2020 flood event highlighted damage to a number of the wells. It was recommended that three wells be replaced, replacement/repair of two wellheads, and grouting of the base of all wells to further reduce the potential for sediment inwash. Assessment of the performance of the wells is ongoing as part of a routine monitoring programme and further work to repair/replace more wells and associated infrastructure may be necessary. In addition to this ORC is looking at relief wells as one option to mitigate the risk of floodbank failure at other vulnerable points along the floodbanks that form part of the scheme. An upcoming scheme condition assessment will inform where this additional infrastructure may be required.	Provides resilience to infrastructure that is critical to the protection of the Balclutha Township and surrounding settlements and farms. A failure of this floodbank has the potential to be catastrophic, impacting on people, their livelihoods and associated infrastructure (roading, utilities, essential services). Additionally, the downstream effects of an assets failure could undermine the future operation of the scheme. The area of relief well renewal has a township of 2000 residents, aged care and community facilities that rely on the floodbank resilience.	Balcultha township (4,060 as at 2019) is at the core of the Clutha district and protection of this township is essential to ensure economic success for the area and well-being and safety of the population. The Clutha District Council is promoting redevelopment of the township and economic development. This includes a new community centre that is part funded by central government. The proposed works help protect this local and central government investment in the township.	Protection: 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. Increased maintenance/inspection of relief wells has been integrated into the annual programme of work. Upcoming scheme condition assessment.	For the immediate work the integrity of the flood bank at this location is critical to ensure that river/flood waters do not flow through potentially hazardous industrial areas. With regards to the wider scope the floodbanks and its associated infrastructure are part of a complex ecological balance for the area, with multiple ecologically sensitive reserves/lagoons that would be compromised in the event of a significant flood bank failure.	Mar-24	3	$1.00	Ensures delivery of the project without overburdening the rate payer in this low socio-economic area.	6
Clutha District	Otago Regional Council	Clutha Delta Split Lagoon Environmental Enhancement  	The installation/modification of the split lagoon culvert to improve its operational and flow control and better facilitate fish passage through the lagoon. Works also need to consider ongoing blockage issues at this location.	Improvement to fish passage through the lagoon (a regionally significant wetland) and potential improvement to water quality.	Ongoing protection of essential farm land, Improved ecological conditions for the area.	Protection: 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.	Improvements and maintenance of a healthy ecological environment in Split Lagoon. The proposed work is supported by Otago Fish and Game.	Jul-24	3	$2.75	Without additional funding this project may be restricted to essential repair work only, which will be temporary in nature. Government funding will allow for a full and modern upgrade to these outfall gates	7

24.45

Council	Project Name Scheme/	Project Description Edit to provide short summary sentence	Proposed Start Date	Project Duration (Up to 3 years)	Total Cost $m
Otago Regional Council	Henley Bund - Taieri River	Protection to the Henley township from the Taieri River.	Feb-23	2	1.0
Otago Regional Council	Middlemarch Flood Resilience	Flood and hazard mitigation for the Central Otago township of Middlemarch	Oct-23	3	2.0
Otago Regional Council	Roxburgh Flood Resilience	Flood and debris flow mitigation for the central Otago township of Roxburgh.	Oct-23	3	1.5
Otago Regional Council	Outram Floodbank Safety Upgrade	Climate resilience works to a 6-metre-high flood bank with seepage risk which protects a township (Outram) and other infrastructure (Dunedin International Airport).	June 2023 - Consenting/Approvals Sept 2024 Construction	3	5.0
Otago Regional Council	Balclutha Township Relief Well Replacements	Following the February 2020 flood event highlighted damage to a number of the wells and it is recommended that three wells be replaced and replacement of two wells.	Sep-23	3	2.5
Otago Regional Council	Silverstream Pump Station Condition & Environmental Improvement	Upgrade of the pumpstation floodbank for seepage issues and environmental improvements, this site is ranked highly in terms of ORC's focus for understanding and managing fish passage moving forward.	Sep-23	3	1.8
Otago Regional Council	North East Valley (Lindsay Creek) Flood Resilience	Development of the flood protection scheme for the Lindsay Creek to provide protection to properties.	Oct-23	3	2.0
Otago Regional Council	Continuation of Contour Channel (West Taieri) Resilience Upgrade	Renewal of the Contour Channel was originally built in the 1900s to intercept runoff from the Maungatua Range and uses gravity to drain to the Waipori River.	Design/procurment/consent March 2023 Construction Oct 2024	3	8.0
Otago Regional Council	Kaikorai Stilling Basin Resilience and Environmental Enhancements	Replacement of a stilling basin on the Kaikorai Stream that was significantly damaged in the 2017 flood.	2024	23/24 - Complete design and initiate consenting process. 24/25 - Complete consenting and procurement. 25/26 - Construction (relatively short duration).	2.0
Otago Regional Council	East Taieri Lower Pond Gravity Floodgates	Work is required to replace the gabion headwalls , culvert and gravity gates to ensure ongoing structural integrity.	Oct-23	2	1.5
Otago Regional Council	Clutha Delta Split Lagoon Environmental Enhancement	The installation/modification of the split lagoon culvert to improve its operational and flow control and better facilitate fish passage through the lagoon. Works also need to consider ongoing blockage issues at this location.	Jan-25	2	2.5
Otago Regional Council	Puerua Outfalls Culvert (Training Line)	Upgrade/modification to culvert system following storm damage in 2020 flood event.	2024	2	1.5
Otago Regional Council	Taieri/Waipori Confluence Minibank Repair	Repair of a section of minibank on the right bank of the Taieri River which was damaged in the January 2021 flood event	Oct-23	1	1.5
Otago Regional Council	Leith Amenity to sea	Renewal of the stretch of the Leith between Forth St and the harbour to better align with the upstream improvements and surrounding area.	2025	3	3
					35.8

Application for Funding

Objective of the Regional Infrastructure Fund (RIF)

The RIF seeks to enable business growth and improve prosperity of New Zealanders by investing in regionally significant infrastructure projects.

If you are referencing content within documentation that is being supplied in addition to this application, e.g. a business case, consents, feasibility study etc., please reference the title and relevant page of the appropriate document throughout this form.

By submitting your application form and pro forma you are agreeing to the terms and conditions of applying for Regional Infrastructure Fund investment which can be found in Appendix 1.

If you are applying on behalf of several parties, you need the consent of all parties to submit this application. An Agent with Authority to act can add other applicants during the application process. You will be the point of contact for this application, but you must give us all required information about all applicants.

Next Steps

1. Email your completed form to Kanoa@mbie.govt.nz.
2. Applicants will receive acknowledgment of their submission.
3. Kānoa – RD will be in contact if there are any questions regarding the content of your application.

Funding Agreement

If your project is successful in securing funding from the RIF, a Funding Agreement between you and the Ministry of Business, Innovation & Employment must be executed before funds can be accessed.

Section 1: Key Information

1. Provide the details of the applicant organisation/entity for which funding is being requested:

Entity legal name:	Otago Regional Council
Entity type:	Local Authority
Contracting Entity:	Not Required
Registered Office address:	70 Stafford Street Dunedin 9054
Entity or business website (if applicable):	https://www.orc.govt.nz/
New Zealand Business Number (NZBN):	9429041912362
Registered Company Number:	Not Applicable

2. Provide the details for the key contact person for this application:

Contact name and role:	Michelle Mifflin , Manager Engineering		
Email Address:	Michelle.mifflin@orc.govt.nz	**Telephone:**	027 216 0091

3. Provide a brief description on what the funding sought from the Regional Infrastructure Fund would be used for:

Project Title:	Contour Channel (West Taieri) Resilience Upgrade – continuation
Description of what the sought funding would be spent on:	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. It protects 7300 hectares of farmland and the Dunedin Airport. Having completed stages 5 -10 of this project under the climate resilience fund, ORC is now seeking to complete reconstruction for the remaining length of the floodbank, stages 11+. The scope is similar to the previous stages with the reconstruction of higher and wider floodbanks and associated asset renewals, including up to 3 bridges. In addition to this ORC needs to make further improvements to work completed previously on Stages 1-4 of the Contour Channel. Improved climate change knowledge and modelling has identified that these stages are still susceptible to flooding and therefore require further reconstruction works.

4. Provide the details of the proposed project location:

Landowner Structure/Status:	Landowner access agreements are in place for the first stage of construction being replacement of Bridge 14. Access agreements for floodbank reconstruction will be required. The floodbanks, bridges and associated structure are all ORC owned assets.

5. Select the sector most closely aligned with the project works and the post-completion activities. Industry Classifications and further information can be found here Ariā - Classifications (stats.govt.nz)

In what Sector are the works proposed to occur through this application most closely aligned to?	Construction
In what Sector are the post-completion activities arising from those works most closely aligned to?	Agriculture

6. Please provide dates and commentary on the various stages of your proposal:

Project name	**Date completed or forecast to be complete**	**Description** (include commentary on activities that the forecast is contingent upon e.g. when consenting or design needs to conclude)
Contour Channel (West Taieri) Resilience Upgrade – continuation		

Stage		
Consenting	Consent for Construction Season 24/25 Completed Forecast consent June 2025	Consent has been granted for replacement of bridge 14, allowing this to take place within 2024/25 construction season. Further consenting will be required for flood bank reconstruction, which will take place in construction seasons 25/26 and 26/27.
Construction Commencement	Construction Season 24/25 (Oct 24 - May 25)	Replacement of bridge 14 is ready to commence during the 24/25 construction season; design, consenting and procurement have all been completed.
Construction Complete	Construction to be completed by December 2027.	Work will be staged over the next three construction seasons.
Construction Build Time	3 years	

7. Please provide a copy of any consents obtained for the proposed project with this application.

Consents RM22.375.01 (Appendix 1) and LUC-2022-330 (Appendix 2) are attached. These resource consents relate to Bridge 14.

8. **For Flood Resilience projects only,** please provide values and commentary for the following metrics where appropriate:

Commented [ELH1]: To discuss with Graeme

Metric	Value	Commentary
Area of land protected from floods (hectares)		
Value of commercial assets protected from floods (NZ$)		
Number of people (approximate) proposed to be provided with flood protection under this project		

9. Provide commentary on expected employment throughout the delivery of your project:

It is expected that this project will provide an average of approximately 7 FTEs per year. (21 FTE years over the project duration)

Section 2: Financial Analysis

10. Please provide the council's projected debt position in 5 and 10 years:

ORC projected debt position as detailed within the Draft 2024 – 2034 Long Term Plan is as follows (to be considered by the ORC Council on 26th July 2024). Year 5 (2028/2029) - $72.7M Year 10 (2033/2034) - $95.0M

11. Please also attach with this application a copy of the last two years of audited financial statements (cashflow, balance sheet, profit and loss).

Annual reports for years 2021-22 (appendix 3) and 2022-23 (appendix 4) have been attached.

Section 3: Management Analysis

12. Please provide responses to the following questions to support Kānoa – RD management analysis:

#	Question	Response
1	What is the applicant entity ownership structure and who are the key personnel?	CEO: Richard Saunders CFO: Nick Donnelly River Manager(s): Michelle Mifflin (Manager Engineering)

Section 4: Applicant and submission readiness

13. Please confirm what additional material has been provided for your appropriate entity type each question of readiness.

Entity Type	Further Questions	**Comment** (Reference Attachments if applicable)
Councils, Council-Controlled Organisations and other Local Authority entities	a. Please confirm that this project aligns with your latest Long-Term Plan or current draft LTP.	The *Contour Channel (West Taieri) Resilience Upgrade* is included within the Draft LTP 2024-2034 (Appendix 5) and Draft Infrastructure Strategy (Appendix 6) which are to be considered by the ORC Council on 26th July 2024.

14. Please check applicable boxes where necessary against each question of readiness:

#	Application and supporting documents:	Check if applicable
1	The applicant has attached the required documents including: • The last two years of audited financial statements (cashflow, balance sheet, profit and loss) • Consents	☒ ☒

Appendix 1 – Terms and Conditions of this application

General
The terms and conditions are non-negotiable and do not require a response. Each applicant that submits an application request for the Regional Infrastructure Fund ("RIF") funding has confirmed by submitting this application that these terms and conditions are accepted without reservation or variation.

The Regional Infrastructure Fund is a government initiative which is administered by Kānoa – Regional Economic Development & Investment Unit ("Kānoa – RD"), a unit within the Ministry of Business, Innovation and Employment. Any reference to Kānoa – RD in these terms and conditions, is a reference to MBIE on behalf of the Crown.

Reliance by Kānoa - RD
Kānoa - RD may rely upon all statements made by any applicant in an application and in correspondence or negotiations with Kānoa - RD or its representatives.

Each applicant must ensure all information provided to Kānoa - RD is accurate. Kānoa - RD is under no obligation to check any application for errors, omissions, or inaccuracies. Each applicant will notify Kānoa - RD promptly upon becoming aware of any errors, omissions, or inaccuracies in its application or in any additional information provided by the applicant.

Ownership and intellectual property
Ownership of the intellectual property rights in an application does not pass to Kānoa. However, in submitting an application, each applicant grants Kānoa a non-exclusive, transferable, perpetual licence to use and disclose its application for the purpose of assessing and decision making related to the RIF application process. Any hard copy application or documentation supplied by you to Kānoa - RD may not be returned to you.

By submitting an application, each applicant warrants that the provision of that information to Kānoa - RD, and the use of it by Kānoa - RD for the evaluation of the application and for any resulting discussions, will not breach any third-party intellectual property rights.

Confidentiality
Kānoa - RD is bound by the Official Information Act 1982 ("OIA"), the Privacy Act 1993, parliamentary and constitutional convention and any other obligations imposed by law. While Kānoa - RD intends to treat information in applications as confidential to ensure fairness for applicants during the assessment and decision-making process, the information can be requested by third parties and Kānoa - RD must provide that information if required by law. If Kānoa - RD receives an OIA request that relates to information in this application, where possible, Kānoa - RD will consult with you and may ask you to confirm whether the information is considered by you to be confidential or still commercially sensitive, and if so, to explain why.

Kānoa - RD may disclose any application and any related documents or information provided by the applicant, to any person who is directly involved in the RIF assessment process on its behalf including officers, employees, consultants, contractors and professional advisors of Kānoa - RD or of any government agency. The disclosed information will only be used for the purpose of participating in the RIF application and assessment process, which may include carrying out due diligence.

In the interests of public transparency, if an application is approved for funding, the application (and any related documents) may be published by Kānoa - RD. Commercially sensitive and personal information will be redacted by reference to the provisions of the Official Information Act 1982.

Limitation of Advice
Any advice given by Kānoa - RD, any other government agency, their officers, employees, advisers or other representatives about the content of your application does not commit the decision maker.

No contractual obligations created
No contract or other legal obligations arise between Kānoa - RD and any applicant out of, or in relation to, the application and assessment process, until a formal written contract (if any) is signed by both Kānoa - RD and a successful applicant.

No process contract
The RIF application and assessment process does not legally oblige or otherwise commit Kānoa - RD to proceed with that process or to assess any particular applicant's application or enter into any negotiations or contractual arrangements with any applicant. For the avoidance of doubt, this application and assessment process does not give rise to a process contract.

Costs and expenses
Kānoa - RD is not responsible for any costs or expenses incurred by you in the preparation of an application.

Exclusion of liability
Neither Kānoa - RD or any other government agency, nor their officers, employees, advisers or other representatives will be liable (in contract or tort, including negligence, or otherwise) for any direct or indirect damage, expense, loss or cost (including legal costs) incurred or suffered by any applicant, its affiliates or other person in connection with this application and assessment process, including without limitation:

a) the assessment process
b) the preparation of any application
c) any investigations of or by any applicant
d) concluding any contract
e) the acceptance or rejection of any application, or
f) any information given or not given to any applicant(s).

By participating in this application and assessment process, each applicant waives any rights that it may have to make any claim against Kānoa - RD. To the extent that legal relations between Kānoa - RD and any applicant cannot be excluded as a matter of law, the liability of Kānoa - RD is limited to $1.
Nothing contained or implied in or arising out of the RIF documentation or any other communications to any applicant shall be construed as legal, financial, or other advice of any kind.

Inducements
You must not directly or indirectly provide any form of inducement or reward to any officer, employee, advisor, or other representative of Kānoa - RD or any other government agency in connection with this application and assessment process.

Governing law and jurisdiction
The RIF application and assessment process will be construed according to, and governed by, New Zealand law and you agree to submit to the exclusive jurisdiction of New Zealand courts in any dispute concerning your application.

Public statements
Kānoa - RD and any other government agency, or any relevant Minister, may make public in whole or in part this application form including the following information:

- the name of the applicant(s)
- a high-level description of the proposed activity
- the total amount of funding and the period for which funding has been approved (if successful)
- the region and/or sector to which the project relates

Kānoa - RD asks applicants not to release any media statement or other information relating to the submission or approval of any application to any public medium without prior agreement of Kānoa - RD.

Use and disclosure of information

Kānoa - RD will require you to provide certain information, including personal information, on application forms if you wish to apply for funding. If you do not provide all the information that is required on an application form, Kānoa - RD may be unable to process or otherwise progress your application.

MBIE will generally only use personal information provided in the application process for the purpose of administering the RIF which includes assessing an application you have submitted, contracting, monitoring compliance and reporting.

We may use personal information provided to us through the application for other reasons permitted under the Privacy Act (e.g., with your consent, for a directly related purpose, or where the law permits or requires it).

MBIE will generally not otherwise disclose personal information provided or collected through this application unless required or otherwise permitted by law. For example, we may seek your consent to undertake additional due diligence checks and request information from other relevant third parties. If an application is approved for funding, information provided in the application and any related documents may be used for the purpose of contracting.

Electronic signature

You can only file documents and information with us using an electronic signature if you are the signatory or have authority to act on behalf of the signatory, and are using software that complies with our standards, in particular keeping records of transactions where an electronic signature has been used. Once a document with your electronic signature has been filed with us, we consider the information:

- has been provided with your full knowledge and agreement

- is authentic and accurate
- Was not amended after your electronic signature was added to the document, unless a change has been clearly marked on the document.

You're responsible for:

- safeguarding how and when your electronic signature and credentials are used on documents and information
- managing who has authority to use your electronic signature on your behalf, for example, a chartered accountant.

If your electronic signature on a document or information is filed with us, you won't be able to dispute having signed and approved the document or information. If we question the authenticity of an electronic signature or online transaction, you must be able to demonstrate on request the validity of the software used to apply your electronic signature to the document.

You must use electronic signature software that captures authentication, time and source details for any online transaction where a document with your electronic signature has been filed. These details must be held within the software itself, in the form of a file that:

- is maintained in its original form with no amendments, and
- can be provided to us, if requested, within a specified time.

The file must be treated as a record, as defined by the Companies Act 1993, and a business record as defined by the Evidence Act 2006

Declarations

1.	The contracting entity is compliant and will continue to comply with all applicable laws, regulations, rules and professional codes of conduct or practice including but not limited to health and safety and employment practices	Yes: ☒	No: ☐
2.	Has this applicant ever been declined Crown Funding in the past?	Yes: ☐	No: ☒
3.	Has the applicant or the contracting entity ever been insolvent or subject to an insolvency action, administration or other legal proceedings?	Yes: ☐	No: ☒
4.	Has any individual involved in the proposed project (including the Applicant's Leadership Team, directors, partners, or trustees, or any key members of the project) ever been insolvent or subject to an insolvency action, administration or other legal proceedings, or actively involved in any organisation which has?	Yes: ☐	No: ☒
5.	Has any individual in the proposed project (including the Applicant's Leadership Team, directors, partners, or trustees, or any key members of the project) ever been adjudged bankrupt or is an undischarged bankrupt?	Yes: ☐	No: ☒
6.	Has any individual in the proposed project (including the Applicant's Leadership Team, directors, partners, or trustees, or any key members of the project) ever been under investigation for, or been convicted of, any criminal offence?	Yes: ☐	No: ☒
7.	The applicant has no outstanding tax or rate obligations as at the time of application.	Yes: ☐	No: ☒
8.	Are there any actual, potential or perceived conflicts of interest that the applicant or any of the key personnel have in relation to this project.[1]	Yes: ☐	No: ☒

If you answered "Yes" to any question from 1 to 8 please provide a description below:

[1] "In a small country like ours, conflicts of interest in our working lives are natural and unavoidable. The existence of a conflict of interest does not necessarily mean that someone has done something wrong, and it need not cause problems. It just needs to be identified and managed carefully…" https://www.oag.govt.nz/2007/conflicts-public-entities

By completing the details below, the applicant makes the following declarations about its application for Kānoa – Regional Economic Development & Investment Unit funding for the project ("application"):

☒ I have read, understand and agree to the Terms and Conditions of applying for Kānoa – Regional Economic Development & Investment Unit funding which are attached as Appendix 1.

☒ The statements in the application are true and the information provided is complete and correct, and there have been no misleading statements or omissions of any relevant facts, nor any misrepresentations made.

☒ I have secured all appropriate authorisations to submit the application, to make the statements and to provide the information in the application.

☒ I have obtained the permission of each member of the project team to provide the information contained in this application and those individuals are aware of, and agree to, the Terms and Conditions of applying for Kānoa – Regional Economic Development & Investment Unit funding which are attached as Appendix 1.

☒ I consent to this application being publicly released if funding is approved.

☒ The applicant warrants that it has no actual, potential or perceived conflict of interest (except any already declared in the application) in submitting the application or entering into a contract to carry out the project. Where a conflict of interest arises during the application or assessment process, the applicant will report it immediately to Kānoa – Regional Economic Development & Investment Unit by emailing Kanoa@mbie.govt.nz.

☒ I understand that the falsification of information, supplying misleading information, or the suppression of material information in this application, may result in the application being eliminated from the assessment process and may be grounds for termination of any contract awarded as a result of this application process.

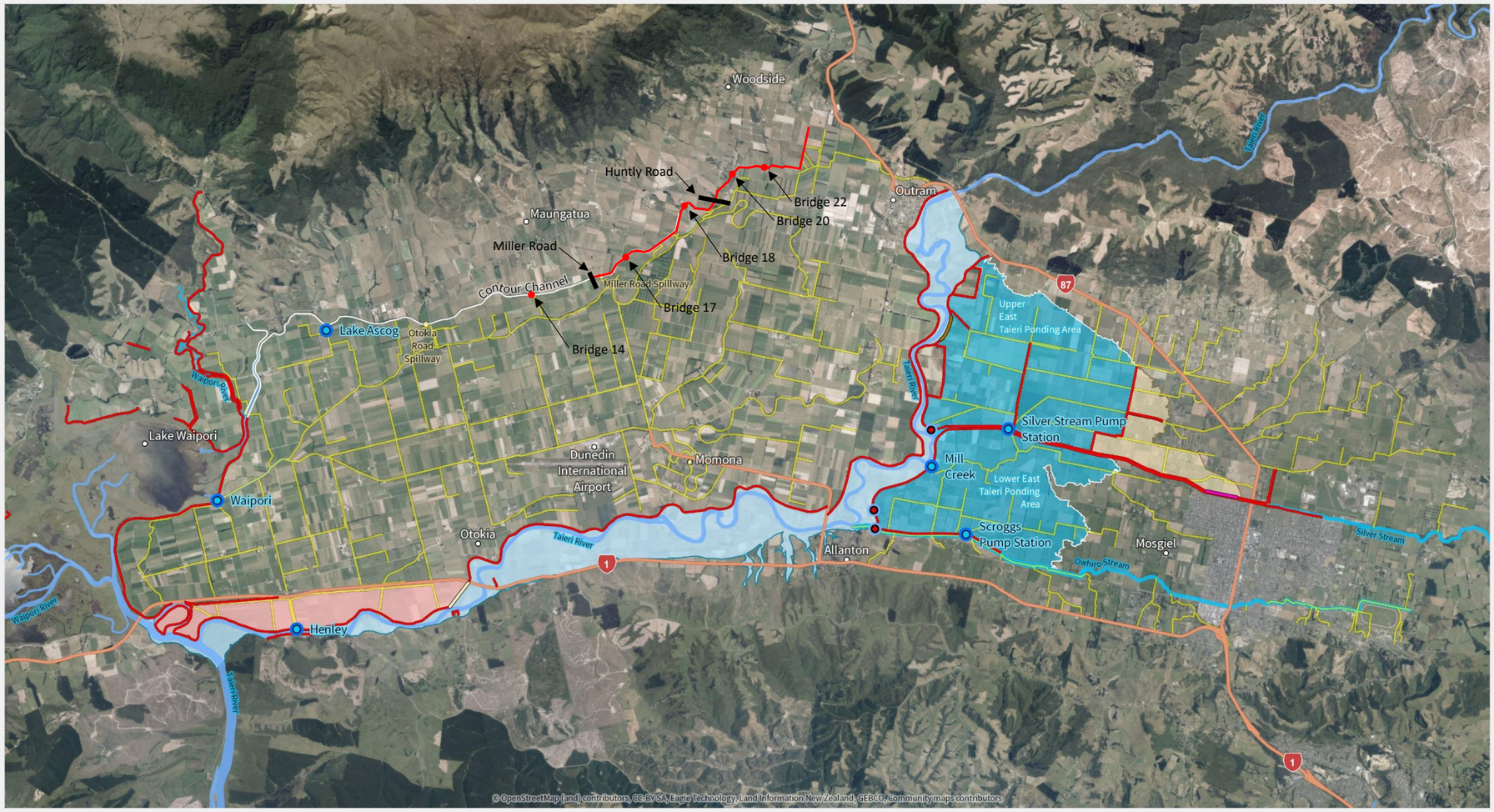
☒ The applicant consents to Kānoa undertaking due diligence including any third-party checks as may be required to fully assess the application.

Michelle Ellen Mifflin **Full name:**	
Manager Engineering **Title / position:**	
Signature / eSignature: ……	**Date:**

Lower Taieri

Flood Protection and Drainage Schemes

Otago Regional Council



Flood Protection Scheme:

Gordon Road Spillway · Henley Spillway · Outfall Structures · Lower Taieri Floodway · Gordon Road Floodway

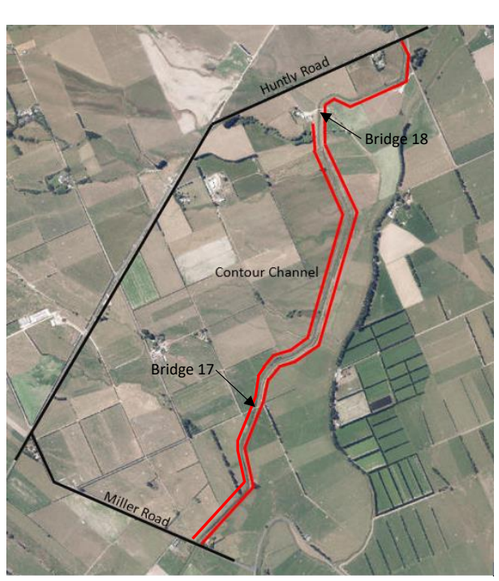
Riverside Spillway · Floodbanks · Ponding Areas · Taieri Floodway/Berms

East/West Taieri Drainage

Drains · Pump Stations

0 1 2 4 Kilometres

Information on this map may not be used for the purposes of any legal disputes. The user should independently verify the accuracy of any information before taking any action in reliance upon it. This map was generated for A1 printing on 14/08/2024 at the scale of 1:70,000.


Huntly Road
Bridge 18
Contour Channel
Bridge 17
Miller Road


Woodside Road
Bridge 22
Contour Channel
Bridge 20
Huntly Road

APPENDIX H: Extract from Infrastructure Strategy 2024 – 2054 – Investment Programme

Diagram 4: Lower Taieri Flood Protection Scheme

Estimated Expenditure $,000's

Year	Y1 2024/25	Y2 2025/26	Y3 2026/27	Y4 2027/28	Y5 2028/29	Y6 2029/30	Y7 2030/31	Y8 2031/32	Y9 2032/33	Y10 2033/34	Y11-15 2035-39	Y16-20 2040-44	Y21-25 2045-49	Y26-Y30 2050-54
Routine / Business as Usual Activities														
Scheduled Maintenance and Inspections	2,377										1,371	1,479	1,587	1,695
Reactive Maintenance	276										165	178	191	204
River Channel Maintenance	2,858										2,158	2,328	2,498	2,668
Routine Condition Assessments and Monitoring	932										190	205	220	235
Risk Management (Ongoing Performance and Risk Assessments)				164				178			317	342	367	392
Designation / Bylaw Renewal										121	127	137	147	157
Flood Preparedness and Response Plan	305				55			58			127	137	147	157
Crest Levelling Programme			451								317	342	367	392
Projects														
Silver Stream Capacity Maintenance*	829													
Geotechnical Investigations	231													
Public Safety Assessment	10													
Contour Channel Resilience Upgrade: Completion of Current Programme	1,000													
Contour Channel Resilience Upgrade: Continuation of Programme	8,810										6,346	6,846	7,346	7,846
Lower Pond Gravity Gates Renewal	1,751													
Scheme Performance and Risk Assessments	412						G							
Climate Adaptation (Scheme Impacts and Options)				272										
Lower Taieri Climate Adaptation (Flood Protection)								1,780						
Climate Adaptation: Ongoing Assessment											127	137	147	157
Climate Adaptation & Resilience: Ongoing Implementation											1,904	2,054	2,204	2,354
Riverside Spillway: Investigations and Planning	204		H											
Riverside Spillway: Construction				1,071										
Outram Floodbank Resilience Improvements: Feasibility	203													
Outram Floodbank Resilience Improvements: Construction		I	5,300											
Taieri/Waipori Confluence Floodbank Realignment: Construction	J	1,138												
Taieri/Waipori Confluence: Morphological Modelling					109	K								
Taieri/Waipori Confluence: Nature-based Solution											635			

* Ongoing capacity maintenance incorporated as routine activity from Year 5 onwards (River Channel Maintenance).

Key

Operational Expenditure | Capital Expenditure | Significant Decision Point

Diagram 5: West Taieri Drainage Scheme