I hereby give notice that an ordinary meeting of the Catchment Operations Committee will be held on:

Date: **Wednesday, 11 May 2022**
Time: **9.30am**
Venue: **Tararua Room**
Horizons Regional Council
11-15 Victoria Avenue, Palmerston North

CATCHMENT OPERATIONS COMMITTEE

AGENDA

MEMBERSHIP

Chair	Cr DB Cotton
Deputy Chair	Cr AL Benbow
Councillors	Cr EM Clarke
	Cr SD Ferguson
	Cr EB Gordon
	Cr FJT Gordon
	Cr RJ Keedwell
	Cr WM Kirton
	Cr JM Naylor
	Cr NJ Patrick
	Cr WK Te Awe Awe
	Cr GJ Turkington

Michael McCartney
Chief Executive

Contact Telephone: 0508 800 800
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Postal Address: Private Bag 11025,
Palmerston North 4442

Full Agendas are available on Horizons Regional Council website
www.horizons.govt.nz

Note: The reports contained within this agenda are for consideration and should not be construed as Council policy unless and until adopted. Items in the agenda may be subject to amendment or withdrawal at the meeting.

for further information regarding this agenda, please contact:
Julie Kennedy, 06 9522 800

CONTACTS	**24 hr Freephone : 0508 800 800**	**help@horizons.govt.nz**		**www.horizons.govt.nz**
SERVICE CENTRES	**Kairanga** Cnr Rongotea & Kairanga-Bunnythorpe Rds, Palmerston North	**Marton** 19-21 Hammond Street	**Taumarunui** 34 Maata Street	**Woodville** Cnr Vogel (SH2) & Tay Sts
REGIONAL HOUSES	**Palmerston North** 11-15 Victoria Avenue	**Whanganui** 181 Guyton Street		
DEPOTS	**Levin** 120-122 Hokio Beach Rd	**Taihape** 243 Wairanu Rd		
POSTAL ADDRESS	Horizons Regional Council, Private Bag 11025, Manawatu Mail Centre, Palmerston North 4442			
FAX	06 9522 929			

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AGENDA

1 Welcome/Karakia

2 Apologies and Leave of Absence

At the close of the Agenda no apologies had been received.

3 **Public Forums:** Are designed to enable members of the public to bring matters, not on that meeting's agenda, to the attention of the local authority.

Deputations: Are designed to enable a person, group or organisation to speak to an item on the agenda of a particular meeting.

Requests for Public Forums / Deputations must be made to the meeting secretary by 12 noon on the working day before the meeting. The person applying for a Public Forum or a Deputation must provide a clear explanation for the request which is subsequently approved by the Chairperson.

Petitions: Can be presented to the local authority or any of its committees, so long as the subject matter falls within the terms of reference of the council or committee meeting being presented to.

Written notice to the Chief Executive is required at least 5 working days before the date of the meeting. Petitions must contain at least 20 signatures and consist of fewer than 150 words (not including signatories).

Further information is available by phoning 0508 800 800.

4 Supplementary Items

To consider, and if thought fit, to pass a resolution to permit the Committee/Council to consider any further items relating to items following below which do not appear on the Order Paper of this meeting and/or the meeting to be held with the public excluded.

Such resolution is required to be made pursuant to Section 46A(7) of the Local Government Official Information and Meetings Act 1987 (as amended), and the Chairperson must advise:

(i) The reason why the item was not on the Order Paper, and

(ii) The reason why the discussion of this item cannot be delayed until a subsequent meeting.

5 Members' Conflict of Interest

Members are reminded of their obligation to declare any conflicts of interest they might have in respect of the items on this Agenda.

Minutes of the tenth meeting of the eleventh triennium of the Catchment Operations Committee held at 9.33am on Wednesday 9 March 2022, via audio visual link as a result of a change in legislation due to Covid 19.

All participants attended via audio-visual link

PRESENT	Crs DB Cotton (Chair), EM Clarke, SD Ferguson, FJT Gordon, RJ Keedwell, WM Kirton (from 9.34am), JM Naylor (from 9.35am), NJ Patrick, WK Te Awe Awe, and GJ Turkington.	
IN ATTENDANCE (via zoom from Horizons Regional Council's Tararua Room)	Chief Executive	Mr M McCartney
	Committee Secretary	Mrs JA Kennedy
ALSO PRESENT (via zoom from Horizons Regional Council's Tararua Room)	At various times during the meeting: Mr C Grant (Group Manager Corporate & Governance), Dr J Roygard (Group Manager Catchment Operations), Mr G Shirley (Group Manager Regional Services & Information), Mr S Edwards (Projects Team Leader), Mr G Cooper (Manager Land & Partnerships), Mr K Russell (Operations Manager), Mr A Smith (Chief Financial Officer), Mrs C Hesselin (Senior Communications Advisor).	

The Chair welcomed everyone to the meeting and invited Cr Te Awe Awe to say a karakia.

APOLOGIES

COP 22-61 ***Moved*** ***Te Awe Awe/Cotton***

That the Committee receives apologies from Crs Allan Benbow, Bruce Gordon, and an apology for lateness from Cr Weston Kirton.

CARRIED

Cr Kirton joined the meeting at 9.34am.

PUBLIC FORUMS / DEPUTATIONS / PETITIONS
There were no requests for public speaking rights.

SUPPLEMENTARY ITEMS
There were no supplementary items to be considered.

Cr Naylor joined the meeting at 9.35am.

MEMBERS' CONFLICTS OF INTEREST

Conflicts of interest were noted from:

- Cr Cotton – involvement in selling a property to one of the residents of Turoa Road (Report No. 22-17, Matarawa Scheme Extension)
- Cr Patrick – through her work with Te Pūwaha
- Cr Turkington – removal of overgrown shelter belt in Bulls (Report No. 22-20, Annex A Land Management Report)

CONFIRMATION OF MINUTES

COP 22-62 ***Moved*** ***Naylor/Keedwell***

That the Committee:

confirms *the minutes of the Catchment Operations Committee meeting held on 15 December 2021 as a correct record, and notes that the recommendations were adopted by the Council on 22 February 2022.*

CARRIED

The Chair congratulated Dr Roygard on his recent appointment as Group Manager Catchment Operations.

RIVER AND DRAINAGE ENGINEERING REPORT

Report No 22-16

This item reported on progress with river and drainage activities for the period December 2021-February 2022. Dr Roygard (Group Manager Catchment Operations) introduced the item and commented on the challenges associated with delivery targets going forward due to recent storm damage and Covid-19 interruptions.

Mr Russell (Operations Manager) provided updates on the progress of various river and drainage activities, showed a series of photographs in support of some of the projects, and together with Dr Roygard clarified Members' questions.

COP 22-63 ***Moved*** ***Patrick/Keedwell***

That the Committee recommends that Council:

a. receives the information contained in Report No. 22-16.

CARRIED

MATARAWA SCHEME EXTENSION

Report No 22-17

Dr Roygard (Group Manager Catchment Operations) introduced the item which was to consider the Long-term Plan submissions from the residents of Turoa Road Whanganui East to incorporate an open drain into the Matarawa Flood Control Scheme. Mr Russell (Operations Manager) spoke to a powerpoint presentation which identified the drain location, scheme area, and flooding issues. Following recommendation d. being moved and seconded, Members provided their views, and sought clarification around a number of concerns. Ultimately the wording of recommendation d. was amended to address Members' concerns.

Recommendations b. and c. were deleted.

COP 22-64 ***Moved*** ***Keedwell/Cotton***

That the Committee recommends that Council:

a. receives the information contained in Report No. 22-17.

d. resolves to defer any decision regarding management of the open drain and dam until further discussion with the Whanganui District Council and Te Awa Tupua has been completed, and the matter is presented in the context of other flooding issues in the area.

Against: Cr Turkington

CARRIED

CLIMATE RESILIENCE AND TE PŪWAHA PROJECTS

Report No 22-18

Dr Roygard (Group Manager Catchment Operations) introduced the item which updated Members on progress with delivering the flood Protection Climate Resilience and Te Pūwaha Projects. Mr Edwards (Projects Team Leader) spoke to a series of photographs which outlined some of the activities being undertaken, and together with Dr Roygard responded to Members' questions.

COP 22-65 ***Moved*** ***Cotton/Clarke***

That the Committee recommends that Council:

a. receives the information contained in Report No. 22-18.

CARRIED

LOWER MANAWATŪ SCHEME OPERATIONS, MAINTENANCE & SURVEILLANCE MANUAL

Report No 22-19

Dr Roygard (Group Manager Catchment Operations) introduced the item and Mr Russell (Operations Manager) gave a brief overview about the development and purpose of the Operations, Maintenance and Surveillance Manual for the Lower Manawatū Scheme.

COP 22-66 ***Moved*** ***Ferguson/Patrick***

That the Committee recommends that Council:

a. receives the information contained in Report No. 22-19.

CARRIED

LAND MANAGEMENT PROGRESS REPORT

Report No 22-20

Dr Roygard (Group Manager Catchment Operations) and Mr Cooper (Land & Partnerships Manager) presented the report and clarified Members' questions which covered work by the Natural Resources and Partnerships-Land Management team during the 1 November 2021 to 31 January 2022 period. It included the activity areas of the Sustainable Land Management Initiative, Regional Land, and Coast and Nursery.

COP 22-67 ***Moved*** ***Turkington/Te Awe Awe***

That the Committee recommends that Council:

a. receives the information contained in Report No. 22-20 and Annex.

CARRIED

The meeting closed at 10.55am.

Confirmed

GROUP MANAGER
CATCHMENT OPERATIONS

CHAIR

Report No.	22-43
Decision Required	

TE AWAHOU FOXTON FLOOD MITIGATION PROJECT

1. PURPOSE

1.1. This item updates Council on the Te Awahou Foxton Flood Mitigation Project (TAFFMP), including project progress, and seeks Council's direction on this project.

2. EXECUTIVE SUMMARY

2.1. Foxton Township has experienced flooding from Kings Canal in 2007, 2008, 2010, 2015 and 2017 and the township is currently assessed to have 1 in 2-3 year flood protection. Flooding issues include capacity and overtopping issues of Kings Canal and Purcell Street Drain, seepage through the existing Kings Canal embankment, and stability of the drain banks. The current level of protection is at risk due to the seepage through drain banks along Kings Canal.

2.2. A project for upgrading flood protection in Foxton Township was one of several submitted by Horizons Regional Council (Horizons) to Central Government as a shovel-ready project in April 2020. Approval in principle was announced in July 2020, with each project confirmed by Council (including the local share contribution) in August 2020 and the Horizons Long-term Plan (LTP). The Central Government confirmation was subsequently received in October 2020. Horowhenua District Council (HDC) are the other co-funding partner and have made an allowance for a contribution to the project in their LTP.

2.3. Prior to the application to Government, the Foxton project was scoped to address capacity issues in the system via a Cook Street pipeline and funded with budget of $3 million (HDC $1.8M, Horizons $1.2M). The application to Central Government secured funding for the current project, which is a larger scheme that aims to provide 1 in 50 year flood protection for Foxton, with an allowance for climate change. The project proposes an enhanced network in Foxton and a diversion though the rural land in the Whirokino area. The Whirokino diversion includes both larger existing and new drainage channels, and a new wetland area. The Whirokino area is planned to receive additional floodwater, which is planned to be offset by establishing a large pump station at the lower end of the Whirokino diversion to pump water out of the area, with the pump servicing both drainage from the Whirokino area and the Moutoa Spillway. This project requires design, land purchases, land access agreements, consents and a range of construction works to be completed, including establishing wetlands, during a four-year period.

2.4. The budget for this larger project was originally estimated at $6M (October, 2020). It was revised to $9.2M in November 2020 and further revised to $11.2M in July 2021. The $11.2M budget is the current budget for the project with contributions from Central Government ($6.525M), HDC ($2.46M) and Horizons ($2.23M). Updated costings prepared for this paper in April 2022 resulted in a current budget estimate of $14M.

2.5. While the project was considered shovel ready, it was known at the outset that delivery within the four-year timeframe was reliant on resource consents, land access agreements and land purchases. Timeframes were a major consideration for Council seeking consents via the fast-track consenting process. As outlined to Council previously, there have been issues with securing land for the Whirokino (or "D-Shape") wetland and, as a result, the submitted fast-track consent application was withdrawn in late March 2022. This combined with new funding projections and consideration of timeframes has required a reassessment of options for the remainder of the term of the project. The options assessment has

including consideration of increasing inflationary costs, impacts on levels of service, co-funding contributions, and rating impacts. The starting point for the options assessment was the work to date. Up to the end of March 2022, a total of $1.397M had been spent on the TAFFMP, which included design, consenting costs, project management and construction. The construction works are the upgrade of the Coley Street and Cook Street culverts to increase the resilience of the scheme.

2.6. Six options are presented in this item. In summary:

- Option 1 ($14M) and Option 2 ($12.7M) include progressing the project as per the original scope, with the removal of the Lower Whirokino wetland from Option 2. These options aim to provide 1 in 50-year protection for Foxton Township with an allowance for climate change. Both these options require land access agreements, consenting and an increase from the current $11.2M budget. Option 1 is considered likely to require compulsory acquisition of land. Options 1 and 2 are predicted to be very difficult to deliver within the current timeframes of the project because land agreements, consenting and construction would all have to occur within approximately two years.
- Options 3 and 4 include a reduced project scope by decreasing or removing the diversion through the Lower Whirokino. Initial design modelling has been undertaken for both of these options and they have both been deemed not viable. They are included in this item to demonstrate that the options have been tested.
- Option 5 includes a number of work packages within the Foxton East Drainage Scheme to increase the scheme's resilience. Focussed on additional resilience for the township, Option 5 includes works to attenuate runoff upstream of the town and increase the conveyance and resilience along Kings Canal. This option will result in increased flows down Purcell Street, which are proposed to be partially mitigated by pumping into the Foxton Loop at the west end of Purcell Street. This is currently being modelled to determine the effects in various storm events. Option 5 is arranged in work packages from which Council can select. Option 5a, which includes all of the work packages and the lower cost option for pumping at Purcell Street, is currently projected to require a budget of $9.04M.
- Option 6 is to exit the project.

2.7. One question for Council to consider in their decision making is if the project is reduced in scope to focus just on upgrades in Foxton (Option 5), will Council in the future seek to complete the larger project to implement a diversion through the Whirokino and if so, when? Considering this aspect may be useful to inform decisions regarding the type of pumping provided at Purcell Street (tractor pumps or permanent) and at the Moutoa pump station i.e shared design ($5.3M) or simplified design ($3.4M) just for the Moutoa spillway.

2.8. The proposed work packages in Option 5, apart from the pumps and works in Purcell Street, also form part of Options 1 and 2, ensuring the majority of the works would still serve a useful purpose should the additional diversion through the Whirokino proceed in some form at a later date. If the diversion was to proceed, the Purcell Street pumps would have a reduced purpose and tractor pumps could likely be redeployed if the diversion was completed.

2.9. Another consideration for Council in this process is the Moutoa pump. Options 1 and 2 include the diversion though the Whirokino. linked to a shared pump station at Moutoa to both pump water out of the Whirokino area and to service the spillway. If Council chooses Option 5 without the diversion through the Whirokino, Council could choose to continue with a pump station design for this dual purpose and to only construct the parts that serve the Moutoa spillway until such time as the Whirokino diversion is established. Alternatively. the design could be simplified to just serve the Moutoa spillway. Further design and costings are being completed to inform Council further about this.

2.10. Further information on the project and the options is provided in the item below and Council's direction on the project is sought via this item. It is noted that any change in the project scope will be subject to approval and agreement from Central Government.

3. RECOMMENDATION

That the Committee recommends that Council:

a. receives the information contained in Report No. 22-43

b. approves the Te Awahou Foxton Flood Mitigation Project, proceeding based on Option 1, 2, 5a, 5b, 5c, 5d or 6 [select one].

c. directs the Chief Executive to prepare the Annual Plan budget based on the option identified above and to work with co-funding providers to confirm funding arrangements.

4. FINANCIAL IMPACT

4.1. The budget of the project in its current state is $11.2M, which includes funding from Horizons, Horowhenua District Council and Central Government via the Ministry of Business, Innovation and Employment (MBIE). The funding breakdown is as follows: MBIE $6.525M (58%), HDC $2.46M (22%), Horizons $2.23 (20%).

4.2. The current Horizons budgeted contribution consists of $1.63M from the Foxton East Drainage Scheme (FEDS), $0.15M from the Whirokino Drainage Scheme and $0.45M from the Lower Manawatu Scheme (LMS). If the project is amended in such a way as to remove benefits to the Whirokino and LMS drainage schemes (Option 5) funding from these schemes would also be removed and increased funding may be required from the FEDS (Option 5B) or a lower contribution may be required from FEDS (Options 5a, 5c & 5d).

4.3. Of the $2.46M of the budgeted contribution from HDC, only $1.047M has been formally secured. HDC has indicated that the balance of their $2.46M contribution could be incorporated into their LTP. It is noted that changes to the proposed design layout or level of service would need to be conveyed to HDC and could result in HDC reassessing its funding commitment.

4.4. If any changes are made to the project scope, discussions with MBIE will be required to confirm funding. It is anticipated that the $6.525M MBIE contribution will still be available for a different project scope, but this cannot be guaranteed. It is also noted that if the combined proportion of co-funding from HDC and Horizons reduces, there may be consequential reductions to MBIE's contribution. Currently, the co-funding from Central Government is subject to project completion by March 2024.

4.5. The financial impact of this item is dependent on the option selected. It is acknowledged that there is a lot of uncertainty with the design and costings of the various options as we have only completed an initial scoping exercise.

5. COMMUNITY ENGAGEMENT

5.1. A significant investment has been made to engage with the community on the current proposal (Option 1) during the last two years. This option has encountered opposition, primarily from landowners within the Whirokino Drainage Scheme catchment, but it has also received support from those adversely affected by ongoing flooding within the Foxton Township. Community engagement has taken many forms including the production of fact sheets, social media posts, a webinar, drop-in sessions, and presentations to community groups such as SoRT, the Foxton Community Board, and Horizons Scheme Liaison Committees.

5.2. Engagement is ongoing, including fortnightly steering group meetings. These meetings consist of representatives from Horizons, HDC, Iwi, E2 Environmental, Good Earth

Matters, and The Property Group. Further community engagement is recommended following Council's decision on the next steps for this project.

6. SIGNIFICANT BUSINESS RISK IMPACT

6.1. There is no significant business risk arising from this item. Some of the project-related risks are addressed elsewhere in the item.

7. CLIMATE IMPACT STATEMENT

7.1. The TAFFMP will improve the resilience of the Foxton East Drainage Scheme and Whirokino Drainage Scheme should the Council decide to continue to deliver the current design (Option 1). If another option is selected, the extent of the climate resilience improvements will likely be reduced.

7.2. In delivering the works associated with this project there will be some impact to the climate in terms of the use of materials, fuel and other resources that are considered to contribute to climate impact.

8. PROJECT BACKGROUND

8.1. This project commenced as a joint Horizons and HDC project. The initial investigation in 2017 proposed a pipeline running along Cook Street from Kings Canal to the Foxton Loop. The original rough order of costs for this work was estimated to be $3M. Horizons Council Item 20-34 (March 2020) notes both Councils committed to this funding in their LTPs (Horizons 40%, $1.2M and HDC 60%, $1.8M). Further investigations in 2019 revealed that the costs associated with this option would significantly exceed the budget with little added protection for Foxton Township.

8.2. In November 2019 E2 Environmental completed a Horizons-commissioned options assessment that led to the project that received Central Government co-funding (Figure 1). The project is predicted to provide 1 in 50-year protection for Foxton (accounting for climate change).

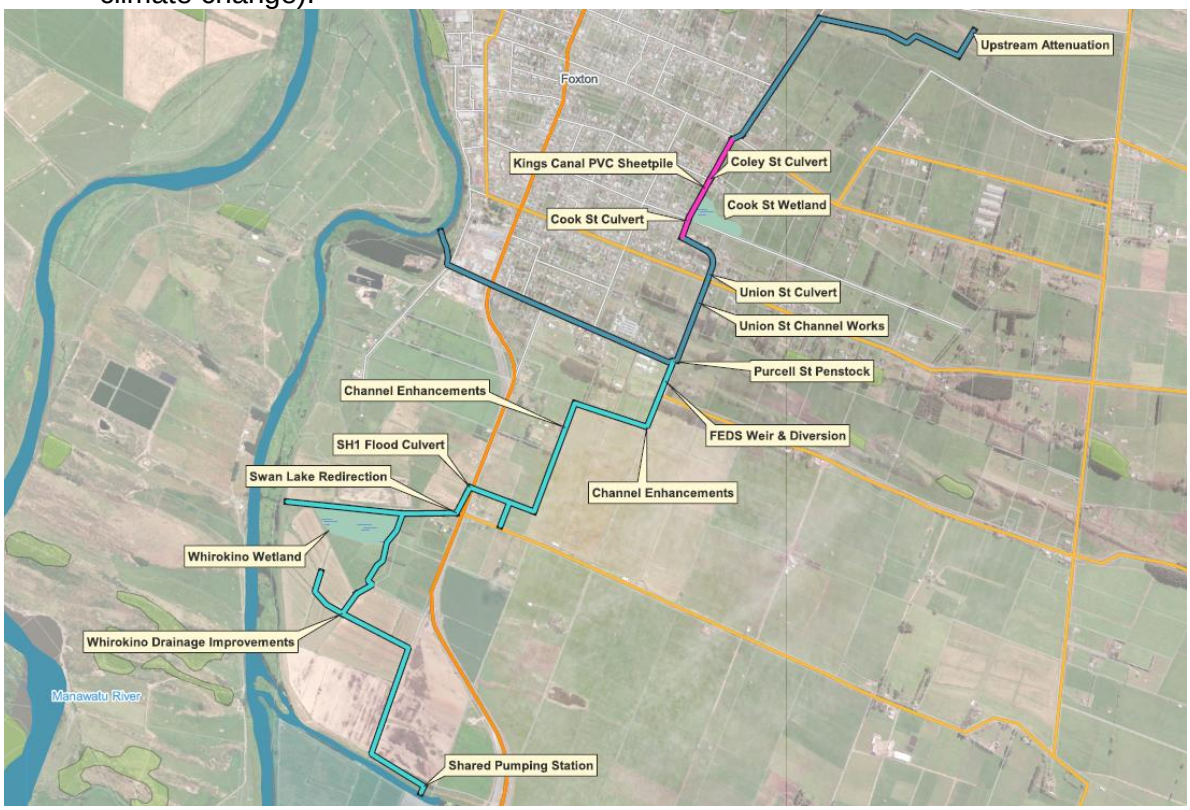

Figure 1: Current proposed design for the TAFFMP.

8.3. The project included proposed diversion of flows into the Whirokino Drainage Scheme and storage of runoff on rural land south of Foxton until it can be either drained through gravity or pumped into the Foxton Loop (Figure 1). The project linked through to a shared pump station with the LMS, with that pump upgrade being proposed via the Lower Manawatu climate resilience project. Although this option would result in increased volumes of water on some farmland during floods, the duration and frequency of inundation for most farms would be decreased with the installation and operation of a shared pump station.

8.4. The project proposed resilience upgrades within the Foxton Township and the addition of a wetland at Cook Street in Foxton to assist with water quality improvement. The proposal provided for a penstock to be installed at the east end Purcell Street to enable diversion of water away from the township through enhanced and new channels on farmland south of Foxton. From here, water would be diverted under State Highway 1 via a culvert. This would enable a small amount of water storage and potentially, water quality improvements in a large wetland (known as the Whirokino or 'D shape' wetland). From here, some water would flow out to the Foxton Loop through gravity while most water would run south to a storage location where the shared pump station will be located.

9. PROJECT BUDGETS

9.1. When originally scoped in November 2019, this option had an estimated total cost of $6M and was one of five flood protection shovel-ready projects submitted for Central Government funding consideration in April 2020 and subsequently confirmed in October 2020. Council approved this budget via Council Item 20-186 (August 2020).

9.2. Due to design refinements and high demand for plant, labour and materials experienced in the construction sector following the first Covid-19 lockdown in 2020, it was decided that it would be prudent to reassess the project budget. A revised forecast of $9.2M was subsequently produced in November 2020 and approved by MBIE.

9.3. A further estimate of $11.2M was produced in July 2021. This amended forecast included allowance for updated costings, land purchases, iwi and community engagement, and the addition of a project contingency. This revised budget was approved by Council in Item PX21-106 (August 2021) and is the current budget i.e. MBIE $6.525M (58%), HDC $2.46M (22%), Horizons $2.23 (20%).

9.4. There was a further assessment of budget projections in April 2022 as part of the options assessment for the project. This included consideration of additional requirements and inflationary pressures which show the budget to complete the project is approximately $14M, which is an additional $2.8M to the current budget. A range of factors could lead to increases above this.

10. PROJECT PROGRESS

10.1. Formal approval was received from Central Government in October 2020. The project has progressed some physical works in the township, completed further design work and progressed consenting, landowner approvals and land purchases. The project lodged a fast-track referral application via the Covid-19 Recovery (Fast-track Consenting) Act 2020, aiming to be consented to enable construction in Spring 2022.

10.2. Community engagement was a focus for the project. Due to Covid-19, face-to-face appointments with all landowners could not go ahead and a webinar outlining the project proposal was uploaded to the Horizons website. Some face-to-face meetings were able to progress with some of the affected landowners.

10.3. There has been opposition to the project, particularly the requirement to install the increased capacity (including some new) drainage network through farmland and the proposal to use land for a wetland. Horizons was unable to secure the land for the Whirokino (or 'D shape') wetland through a willing buyer/ willing seller arrangement and

confirmed this in March 2022. As a result, the fast-track consent has been withdrawn, due to there being no ability to put this on hold. Subsequently, staff have assessed options for the project progressing and these are outlined below.

11. PROJECT EXPENDITURE

11.1. The largest items of expenditure to date have been design, construction along Kings Canal and project management costs (Table 1). In summary, from October 2020 to March 2022 a total of approximately $1,397M had been spent on the TAFFMP.

Table 1: Breakdown of costs to March 2022.

Budget Item	FY20/21	FY21/22	Total Cost
Design	$130,029.74	$161,817.42	$291,847.16
Consents/ Approvals	$18,040.00	$129,502.03	$147,542.03
Property Entry/ Purchase	$60,069.00	$77,716.42	$137,785.42
Kings Canal Upgrades and Sheet piling		$482,020.05	$482,020.05
Project Management & Comms	$103,480.26	$227,361.35	$330,841.61
Iwi Resourcing		$5,956.88	$5,956.88
Social Procurement		$574.00	$574.00
Total	**$311,619.00**	**$1,084,948.15**	**$1,396,567.15**

11.2. Design drawings have been completed for works within Foxton Township and for the proposed works within the Lower Whirokino (from the diversion at Purcell Street to the original proposed location of the Whirokino wetland). The design for works within Foxton will be used, wholly or in part, should any of the options that involve further construction be selected.

11.3. Costs incurred for consenting and approval relate to the application of the fast-track consent. A number of technical inputs and assessments were required, including: cultural impact assessments, an ecological assessment, noise and vibration assessments, soil testing and sampling, and water quality sampling. These reports will remain useful for all options outlined in the below assessment, except for Option 6 which is to exit the project.

11.4. Significant effort has been made progressing land entry agreements and land purchases along the length of the project corridor. The costs incurred primarily involve time spent by Horizons staff and consultants meeting with landowners, documenting discussions and negotiation of agreements. They also include obtaining legal advice and property valuations to inform the negotiation process.

11.5. Approximately one third of the project budget to date has been spent on construction costs. These have been incurred upgrading existing culverts on Kings Canal, including a culvert upgrade at the end of Coley Street and with a second culvert upgrade at the end of Cook Street currently underway. Purchase of the sheet pile for the true right bank of Kings Canal has also been made in April 2022 (not included in Table 1), with an initial quantity having now been delivered to Horizons' depot in Kairanga. The installation of the vinyl sheet pile will address seepage and reduce the risk of piping failure on the eastern side of Foxton Township. The sheet piling also seeks to prevent overtopping in this section of Kings Canal, providing an increased level of service for this area. These combined upgrades will be beneficial to the residents along Kings Canal and will form part of all options assessed below, except Option 6 which is to exit the project.

12. OPTIONS ASSESMENT

12.1. A summary of the options is provided in the Executive Summary. This section provides further detail on the individual options. Section 13 below provides further information on budgets, including some aspects of potential co-funding and rating impact. Section 14 provides more information on the options for Moutoa pump station.

OPTION 1 – Existing proposal

12.2. Option 1 is for Council to proceed with the current design. This option would, when completed, provide Foxton with the highest level of protection of all the options, being an estimated 1 in 50-year return period including an allowance for climate change.

12.3. Option 1 has faced opposition from several landowners within the Whirokino drainage scheme catchment. This includes opposition to paying increased rates, which they have indicated may affect the viability of their farms. It is likely this would also apply to Option 2.

12.4. Negotiation of land access agreements for Options 1 and 2 pose a significant risk to the project delivery. These options call for significant drain enlargements through farm land and a number of farmers have indicated that they are not supportive of these designs. It is noted that some farmers are willing to have further discussions, depending on the rating impact of the project on their properties and levels of compensation for project impact.

12.5. As a part of this options assessment, staff have assessed options for compulsory acquisition of the land for the wetland through the Public Works Act 1981 (PWA) and the ability to establish the new and enlarged drainage channels through the farmland, likely through the Soil Conservation and Rivers Control Act 1941 (SCRCA).

12.6. The Council could elect to compulsorily acquire land utilising its powers under section 18 and 23 PWA as the works fit within the Act's definition of a public work. It is worth noting that the landowner can object, and any objection is heard by the Environment Court. This can result in significant expense and delays, which may impact on project delivery within timeframes.

12.7. Where land is not required but access to property is necessary to complete the proposed works it is generally considered the best method for obtaining access would be via a land entry agreement. Where a landowner does not agree to allowing access through a voluntary agreement, an option would be for Council to exercise its rights under the SCRCA, which provides broad powers of entry. One of the SCRCA's three overriding purposes is to "make better provision for the protection on property from damage by floods". Compensation is referenced to the compensation provisions of the PWA. Section 137 of the SCRCA provides Council with the ability to provide a notice to the owner and occupier where no agreement between parties has been achieved. If an objection is then received, an "independent assessor" is required to make a decision that is binding on both parties.

12.8. The current forecast budget for this option is $14M, with only $11.2M being committed currently. As previously discussed, this difference between committed funding and reforecast budget is due the levels of inflation currently experienced in the sector and forecast to continue for the duration of the project. To fund this project a further $2.8M would need to be allocated. It is likely that this funding would need to be provided by Horizons ratepayers, as the other project partners have indicated that they are unwilling to commit to further funding.

12.9. The current programme timeline requires the project to be fully consented by the start of the next construction season. The project was on track to be consented by July 2022 but with the withdrawal of the fast-track consent in March 2022 it is now considered not feasible to be consented by the next construction season.

12.10. In summary, Option 1 is the option that is currently scoped and is expected to provide 1 in 50-year protection including an allowance for climate change. However, this option has challenges in terms of achievability within the timeframe, additional forecast budget costs, a likely requirement to use compulsory acquisition, and other means to obtain land access.

OPTION 2 – Existing proposal without the Whirokino wetland

12.11. Option 2 proposes the removal of the 'D shape' wetland situated in the Lower Whirokino (Whirokino wetland on Figure 1) from the current design. This option would, when completed, provide Foxton with similar protection as Option 1 i.e. an estimated 1 in 50-year return period including an allowance for climate change, with a small reduction in water storage due to the removal of the wetland.

12.12. Removal of this wetland from the design may impact on the consenting process for this project as the wetlands are proposed to provide a small amount of water storage and potentially water quality improvement. The wetland design has not been fully scoped for any of the options and that work would be required to determine what treatment the wetland would provide for various water quality parameters and in which flow conditions. Further planning and water quality measurement and modelling work would be required to relate this to water quality objectives and planning requirements. It is noted that local Iwi and hapū groups have expressed support for wetlands being included in the project.

12.13. Similar to Option 1, the negotiation of land access agreements and consent permissions are also required for Option 2 and these pose a risk to the project in terms of budget, feasibility and timeframes. Possible further delays in consenting are predicted with Option 2, due to the additional water quality investigation requirements.

12.14. The current forecasted cost for Option 2 is $12.7M compared to the $11.2M committed currently. To fund this project a further $1.5M would need to be allocated. It is likely that this funding would need to be provided by Horizons as the other project partners have indicated that they are unwilling to commit to further funding.

12.15. If Option 2 is to be progressed, discussions will have to be had with the project partners (MBIE and HDC) around their contributions. It is anticipated that the removal of this wetland would not influence their contribution, but this cannot be guaranteed. As noted above there is also some uncertainty around HDC's contribution to the project.

12.16. In summary, Option 2 is similar to what is originally proposed and aims to provide a 1 in 50-year level of service with an allowance for climate change, potentially with less water quality improvements.

OPTION 3 – Amended diversion through the lower Whirokino

12.17. Option 3 (Figure 2) investigated diverting runoff around Foxton Township and through a modified diversion, into the lower Whirokino and finally out to the Loop via both Purcell Street and at the southern end of Stewart Street.

12.18. Due to the low-lying nature of the land in the lower Whirokino that the diversion would pass through, this option could not be undertaken by constructing open channels without placing dwellings in Stewart Street at significant risk in large flood events. Piping the diversion was also considered but the costs involved and technical difficulties in constructing a pipeline of the required size and length were considered prohibitive. This option has therefore been considered not feasible.

Figure 2: Proposed design/ layout of option 3.

OPTION 4 – New gravity pipeline along Purcell Street

12.19. Option 4 (Figure 3) investigated the possibility of installing a gravity pipeline down the length of Purcell Street, discharging to the Foxton Loop. Preliminary analysis conducted by E2 Environmental indicated that there would be insufficient head to convey the required flows when floodwaters were up in the Foxton Loop. It was also noted that to achieve a similar conveyance to the 1 in 50-year events achieved in Options 1 and 2 would require the equivalent of three 1800 mm diameter pipelines which is not feasible although one might be.

12.20. This option has therefore been considered not feasible.

Figure 3: Proposed design/ layout of Option 4.

OPTION 5 – Resilience improvements within the Foxton East Drainage Scheme

12.21 Option 5 (Figure 4), used information about the performance of the FEDS network and identified packages of work that build resilience, provide levels-of-service (LOS) improvements, reduce maintenance costs, provide environmental enhancements, and build capacity within that system without the Whirokino diversion and link with the Moutoa pump station.

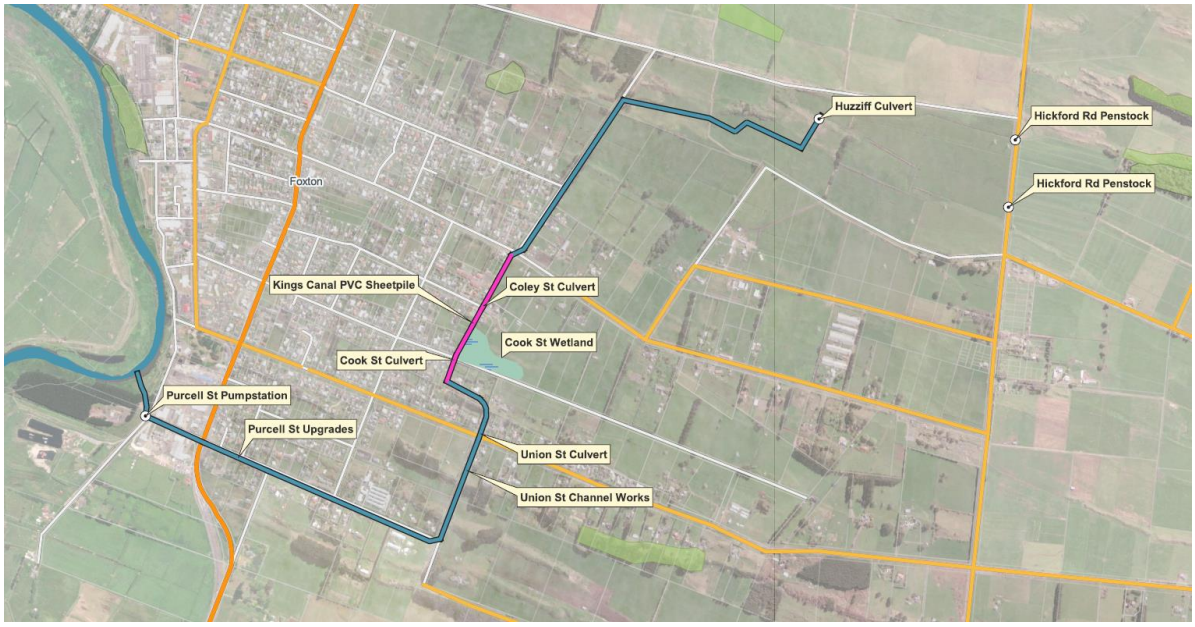

Figure 4: Proposed work packages for Option 5.

12.22. Option 5 is configured as individual work packages that are assessed as providing benefit to the community, particularly in terms of resilience of current infrastructure. Further modelling is required for some of these options to further understand the overall impact of these works being completed and that they would not create significant adverse impacts in other areas of the scheme. For example, the proposed works are likely to increase volumes of water in Purcell Street and a pump station is proposed at the bottom of Purcell Street. Further modelling is required to design this mitigation and to test various storm event scenarios.

12.23. Work package A focuses on upstream attenuation, including new penstocks. This provides significant advantages with reducing peak flows further down the catchment for an estimated budget of approximately $180K. Some increased level of inundation would be expected above these structures and it is likely that it would be necessary to compensate the landowners. From preliminary discussions with the affected landowners, it is thought that it will be possible to get agreement to this proposal.

12.24. Work package B proposes sheet piling and upgrades along the west bank of Kings Canal between The Avenue and Union Street to prevent seepage and mitigate the risk of piping failure. This work will also reduce the frequency of overtopping of the embankment. Some of the sheet piles have already been purchased and a deposit paid for sheet piles coming from Australia. The level at which the top of the sheet pile will be set will depend on the outcomes of the modelling that is currently underway. This will determine the LOS that can be provided and the effects of increased flows downstream including on Purcell Street. It is noted that undertaking this work package will mean that work packages E, F, and G or H will be required to at least partially mitigate the downstream effects.

12.25. Work package C is the purchase of a piece of land that is regularly inundated with storm water, and aims to prevent the future development this existing water storage area. It also provides a location where a wetland can be constructed (Work package D). Negotiations regarding the land purchase of Work package C is near completion.

12.26. Work package D is currently referred to as “the Cook Street wetland” and provides treatment for run-off from the north and east of Foxton. It is noted that work around this work package has not been fully scoped and that additional design would be required to determine what treatment this work package will provide. Photo 1 below shows effects of flooding that occurred in June 2015 on the proposed wetland site.

12.27. Work package E is the Union Street upgrades to provide resilience and reduced maintenance. This includes some land purchase, a culvert upgrade, removal of a culvert and bank stability work. It is also noted that some of the materials for this work package have already been procured and that these works will be beneficial to the scheme.

12.28. Work package F is the Purcell Street upgrades and will be required should Work package B be progressed. This work package will provide resilience, reduced maintenance demands and risk of blockages along the Purcell Street drain. Photo 2 below shows effects of flooding that occurred in June 2015 in Purcell Street. Option 5 retains Purcell Street as an open drain and it is currently proposed that the 1200 mm diameter culvert located between Purcell Street and Union Street remains in place to throttle flows down Purcell Street. There are likely to be backwater effects, the extent of which is currently being modelled.

12.29. Work package G and H are two different options for the pump stations at the end of Purcell Street. One of these will be required should Work package B be progressed to mitigate additional water flow through Purcell Street. This work package will convey additional flows from Purcell Street into the Foxton Loop. Option G is for dedicated tractor pumps estimated to cost $620,000, and which would allow the pumps to be redeployed should Horizons decide to proceed with Option 1 or 2 at a later date. Option H is for a permanent pump station that is estimated to cost $2M and may have reduced value if Horizons decides to proceed with upgrading the scheme to Option 1 or 2 in the future. The tractor pump option requires further ongoing staff intervention during storm events, whereas the permanent pump station will be automated with lower operating costs than the tractor pumps. Further modelling and costing may be useful to further inform Council around these options.

Photo 1: Wetland site (work package C & D) on true left bank of Kings Canal (inundated area) and sand bags to prevent overtopping on the true right bank – June 2015.

Photo 2: Purcell Street flooding – June 2015.

12.30. Should Council decide to proceed with this option, four sub-options (5a-d) are presented for consideration based on two decisions:

- Construction of the Cook Street wetland (yes/no).
- Purcell Street pump (tractor pumps or permanent pump station).

12.31. The costs and descriptions of these sub-options can be seen below:

5a $9.04M. This sub-option includes work packages A-G (construction of the Cook Street wetland and the use of tractor pumps to pump from Purcell Street into the loop)

5b - $10.42M. This sub-option includes work packages A-F & H (construction of the Cook Street wetland and the construction of a permanent pump station to pump from Purcell Street into the loop).

5c - $7.46M. This sub-option includes work packages A-C, E, F & G (excludes the construction of the Cook Street wetland and includes the use of tractor pumps to pump from Purcell Street into the loop).

5d - $8.84M. This sub-option includes work packages A-C, E, F & H (excludes the construction of the Cook Street wetland and includes the construction of a permanent pump station to pump from Purcell Street into the loop).

12.32. All of the Option 5 sub-options presented above are less than the originally proposed budget (Table 2) and provide a lesser level of service. Funding contributions between funding partners would require reconfirmation. From a Horizons rating perspective, the rating contribution to the project funding would likely change if Option 5 was selected by Council, as the contribution to the project would move to being from the FEDS only, without a contribution from the Whirokino or Moutoa Scheme as shown in the Section 13 below.

Table 2: Summary of costs for the work packages and sub-options for Option 5.

	Project	Budget
Work package	Actual Spend (LTD March 2022)	$1,396,567
A	Hickford Rd Penstocks and Huzziff Culvert	$177,493
B	Kings Canal Channel & Culvert Upgrades & Sheet Piling	$2,114,568
C	Cook Street Land purchase (includes project management & legal costs)	$556,254
D	Cook Street Wetland Construction	$1,582,841
E	Union Street upgrades	$1,160,382
F	Purcell Street upgrades	$1,433,711
G	Purcell Street Tractor Pump (either option G or option H)	$620,784
H	Purcell Street Permanent pump (either option G or option H)	$2,000,784
Sub-option		Total
5a	All works (A-F) with tractor pump	$9,042,600
5b	All works (A-F) with permanent pump	$10,422,600
5c	All works with tractor pump, without wetland development (D)	$7,459,759
5d	All works with permanent pump without wetland development (D)	$8,839,759

OPTION 6 – Exit project

12.33. Exiting the project is an option. This will provide Foxton with little gain or increased resilience. If Council selects this option there will be a range of considerations around construction materials that have already been ordered and wrapping up the project investigations, etc that are under way so that these are available for any potential further investigation of options for increased flood protection and resilience for Foxton.

13. OPTIONS ASSESSMENT - BUDGET SUMMARY

13.1. The options and estimated budgets are summarised in Table 3. In summary, Options 1 and 2 would require additional funding, Option 3 and 4 are not considered hydrologically feasible, and Options 5 and 6 would result in savings to the project.

Table 3: Description and cost breakdown of Options 1 to 6.

Option	Description	Est. Final Cost
1	As is with compulsory acquisition	$13.98M
2	As is without D-shape wetland	$12.66M
3	As is with decreased diversion through Lower Whirokino	$11.78M
4	As is without Whirokino diversion and with additional pipeline through Purcell Street	$14.61M
5a	Work packages A-G (includes the Cook St wetland and a tractor pump)	$9.04M
5b	Work packages A-F & H (includes the Cook St wetland and a permanent pump station)	$10.42M
5c	Work packages A-C, E, F & G (excludes the Cook St wetland and includes a tractor pump)	$7.46M
5d	Work packages A-C, E, F & H (excludes the Cook St wetland and includes a permanent pump station)	$8.84M
6	Exit project	$2.5M

13.2. Any changes to the project will require confirmation of co-funding commitments and changes to Horizons rating for the project. For the purposes of this paper some indicative modelling has been completed (Tables 4 and 5) using the assumptions as outlined below.

13.3. For Options 1 to 4 with increased funding requirements, the funding partner contributions from MBIE ($6.525M) and HDC ($2.46M) are modelled to remain the same as it is considered unlikely that additional funding could be sourced from Horizons' project

partners. The additional funding is modelled as being provided by Horizons via the three schemes (FEDS, Whirokino and Moutoa) on the same proportional basis as has been assumed for the current budget (Table 5). This results in changes to rate requirements for each of the schemes, as shown in Table 5.

13.4. For the Option 5 sub-options, which all have a lower overall project budget, the assumption modelled (Table 4 and Table 5) include:

- That the MBIE contribution remains the same ($6.525M) for options 5a, 5b and 5d, however is reduced in the lowest cost option (5c) to maintain the MBIE contribution at a maximum of 75% ($5.595M);
- That the HDC contribution has been modelled as remaining at the $1.047M that has been confirmed. With this assumption, Horizons' share of the combined Horizons-HDC contribution is modelled to be 58% for 5a, 53% for 5b, 45% for 5c, and 75% for 5d. Horizons has a larger contribution to HDC for three out of the four options (5a, 5b & 5d) and these options are better for HDC than the current project budget arrangement of 48% Horizons, 52% HDC funding of the combined Horizons-HDC share. Option 5c as modelled is predicted to have a larger contribution from HDC (55% of the combined Horizons-HDC share); and
- That all of the Horizons co-funding is via the FEDS with no contribution from Whirokino and Moutoa schemes (Table 5). This results in savings for all four sub-options in the Whirokino and Moutoa schemes. For the FEDS scheme, three sub-options are modelled to provide for reduced rate impact (5a, 5c and 5d). Sub-option 5b as modelled would have an increase for the FEDS ratepayers, taking the total contribution for the current $1.63M to $2.848M – an increase of $1.218M.

13.5. Option 6 (to exit the project) would see a cessation of expenditure following some close-out work and has been modelled on the basis of 75% from MBIE, 15% from HDC and 10% from Horizons. Final funding contributions would need to be negotiated. It is unknown if the unused MBIE funding could be reallocated at this stage of the programme of work.

Table 4: The current project budget and modelled funding contributions for Options 1 to 6 using the assumptions as described in the text.

	Total Budget ($M)	Budget difference ($M)		Funding contributions ($M)			Funding contributions difference ($M)			Funding contributions (%)		
		Total project	Horizon share	MBIE	HDC	Horizons	MBIE	HDC	Horizons	MBIE	HDC	Horizons
Current budget	11.215	0	0	6.525	2.46	2.23	0	0	0	58%	22%	20%
Option												
1	14	2.785	2.785	6.525	2.460	5.015	0	0	2.785	47%	18%	36%
2	12.66	1.445	1.445	6.525	2.460	3.675	0	0	1.445	52%	19%	29%
3	11.78	0.565	0.565	6.525	2.460	2.795	0	0	0.565	55%	21%	24%
4	14.6	3.385	3.385	6.525	2.460	5.615	0	0	3.385	45%	17%	38%
5a	9.04	-2.175	-0.762	6.525	1.047	1.468	0	-1.413	-0.762	72%	12%	16%
5b	10.42	-0.795	0.618	6.525	1.047	2.848	0	-1.413	0.618	63%	10%	27%
5c	7.46	-3.755	-1.412	5.595	1.047	0.818	-0.930	-1.413	-1.412	75%	14%	11%
5d	8.84	-2.375	-0.962	6.525	1.047	1.268	0	-1.413	-0.962	74%	12%	14%
6	2.56	-8.655	-1.970	1.920	0.380	0.260	-4.605	-2.080	-1.970	75%	15%	10%

Table 5: The current project budget and modelled Horizons ratepayer funding contributions for Options 1 to 6 using the assumptions as described in the text.

	Total Budget ($M)	Budget difference ($M)		Horizons funding contributions ($M)				Horizons funding contributions difference ($M)			
		Total project	Horizons share	Total	FEDS	Whirokino	Moutoa	Total	FEDS	Whirokino	Moutoa
Current budget	11.215	0	0	2.23	1.63	0.15	0.45	0	0	0	0
Option											
1	14	2.785	2.785	5.015	3.666	0.337	1.012	2.785	2.036	0.187	0.562
2	12.66	1.445	1.445	3.675	2.686	0.247	0.742	1.445	1.056	0.097	0.292
3	11.78	0.565	0.565	2.795	2.043	0.188	0.564	0.565	0.413	0.038	0.114
4	14.6	3.385	3.385	5.615	4.104	0.378	1.133	3.385	2.474	0.228	0.683
5a	9.04	-2.175	-0.762	1.468	1.468	0.000	0.000	-0.762	-0.162	-0.150	-0.450
5b	10.42	-0.795	0.618	2.848	2.848	0.000	0.000	0.618	1.218	-0.150	-0.450
5c	7.46	-3.755	-1.412	0.818	0.818	0.000	0.000	-1.412	-0.812	-0.150	-0.450
5d	8.84	-2.375	-0.962	1.268	1.268	0.000	0.000	-0.962	-0.362	-0.150	-0.450
6	2.56	-8.655	-1.970	0.260	0.190	0.017	0.052	-1.970	-1.440	-0.133	-0.398

14. SHARED MOUTOA PUMP STATION

14.1. The designer of the currently proposed upgrade originally suggested a pump station located at the Hokorawa Stream (Duck Creek) outlet into the Loop. This was to provide approximately 2.5 cumecs of pumping with an estimated cost of $2.5M. This pump station was not included in the original budget, but was to be constructed at a future date.

14.2. The current design (Option 1) and the proposed Option 2 for the TAFFMP incorporate a new shared pump station to be constructed as part of this project to remove stored runoff from the FEDS and Whirokino drainage schemes, and also to replace the existing pump station at the bottom of the Moutoa floodway.

14.3. This shared design was considered to have significant advantages over constructing two individual pump stations to achieve the two purposes. For example:

- Larger pumping capacity would be available to remove runoff diverted into the Lower Whirokino quicker, as the larger pumping capacity required to service the Moutoa could also be utilised within the Lower Whirokino. This is predicted to result in reduced frequency and duration of inundation of farmland in the Lower Whirokino;
- The new location would also provide benefits for the Moutoa scheme in terms of resilience and future proofing for sea-level rise; and
- Lower capital and maintenance costs. It is noted that this is not limited to the structures and pumps themselves. A single pump station could also utilise the one available electricity supply and remove the expense of providing a second supply.

14.4. The existing pump and structure on the Moutoa spillway is nearing the end of its useful life and will require significant investment to keep it serviceable until Y8 of the LTP, when replacement is planned. It is therefore proposed that a replacement pump station will be constructed as part of the Lower Manawatu Scheme Climate Resilience project with some funding from LMS reserves and the Moutoa scheme.

14.5. Dependant on the options selected for the TAFFMP, the design and construction of the pump station on the Moutoa could proceed in a number of ways: design and construct a pump station that services the Moutoa only. design and construct a shared pump station, or design a shared pump station but only construct elements needed for the Moutoa. This last option would see a staged construction process – Stage 1 being construction of the structure, pumps and pipework for the Moutoa including one intake structure, and electrical and telemetry; Stage 2, if and when construction of either Option 1 or 2 is undertaken, would see additional pumps and fittings added, as well as an additional intake structure and associated gate structures.

14.6. In summary, if the shared pump station is not progressed, the overall cost for the pump station (currently estimated at $5.3M) will be lower (estimated at $4M). The funding model would be different with the contribution from the Moutoa scheme and the LMS reserves predicted to reduce from $1.9M to $0.6M. The contribution from the LMS project is predicted to remain the same at $3.4M, which includes a contribution from MBIE. Further design and procurement processes will assist with refining these budget estimates.

15. TIMELINE / NEXT STEPS

15.1. This project will proceed in accordance with Council decisions relating to this item.

16. SIGNIFICANCE

16.1. This is not a significant decision according to the Council's Policy on Significance and Engagement.

Diandri vanZyl
PROJECT ENGINEER

Shaun Edwards
PROJECTS TEAM LEADER

Dr Jon Roygard
GROUP MANAGER CATCHMENT OPERATIONS

ANNEXES

There are no attachments for this report.

Report No.	22-44
Decision Required	

RIVER AND DRAINAGE MANAGEMENT CAPITAL WORKS PROGRAMME

1. PURPOSE

1.1. This item provides an update to Council on Horizons' capital works programmes and seeks Council's direction on a range of matters to inform the Annual Plan 2022-23 (AP) process.

2. EXECUTIVE SUMMARY

2.1. Horizons has an accelerated River and Drainage Management Activity capital work programme that includes: Central Government co-funded projects, storm damage repair works, capital renewal programmes scheme upgrade projects, and additional requests for work both within and outside of schemes.

2.2. The Long-term Plan 2021-31 (LTP) included a range of planned projects, many of which have been interrupted or impacted by Covid-19 with delays and increases in costs (e.g. contractors, materials etc) also being a factor in the 2021-22 year's activity. In this first financial year of the LTP $27.082M of capital work was planned and current projections indicate approximately $16,814M will be delivered by year-end, including some storm damage repair work that arose during the year. This equates to approximately three times the amount delivered in the previous 2020-21 year. There have been other issues with delivery of projects, for example not being able to secure land for part of the Foxton project, delays in land purchases for the Feilding Special Project (Reid Line), and delays in completing consultation, design or progressing permissions (consents etc) for some projects.

2.3. Preparation of the budgets and work programme for the AP has taken into account delays in work programmes in the current year and previous years; the work that was planned as a part of the LTP for the 2022-23; the project's readiness for completion (design, consenting, landowner and other permissions etc); and Covid-19 impacts on the operating environment (including staff and contractor capacity, inflation etc). Further requests to Council for other River Management Activity work were also considered.

2.4. The revision of projects for the AP prioritised delivering on the Central Government co-funded programmes (which are time constrained), storm damage repairs and capital renewals to maintain levels of service. Some ongoing existing commitments for upgrades that are a continuation of work underway have also been included and some are planned to proceed at a slower pace.

2.5. The proposed work programme continues the Council's decisions in the LTP without further projects, other than some newly identified flood repairs. One change in approach has been to factor in fish passage repairs to Horizons' assets and infrastructure to be eligible for River Management Environmental Grants (without an increase in the Environmental Grant budget). A further change is not to make provision for capital spend for land purchase as part of the Reid Line project, with Council to consider land purchases or agreements as they arise and to then make provision for loan repayments for any of these that are progressed in subsequent years.

2.6. The LTP signalled a capital programme of $38.963M over the next two financial years ($27.956M in 2022-23, and $11.008M in 2023-24). The revised capital programme presented in this item aims to complete $43.801M of work over the next two financial years ($25.893M in 2022-23, and $17.907M in 2023-24). With the current Covid-19 impacted

operating environment and reduced levels of staffing, this is expected to be challenging to deliver and it is envisaged that further adjustments will be required over the 2022-23 and 2023-24 years.

2.7. The overall budget numbers referred to above provide a broad-level summary of proposed changes and it is important to consider how these translate to impacts on rates for individual ratepayers. The complexity of the rating types and various differentials make it difficult to communicate the detail of rating changes. It is noted that the proposed changes will affect the phasing and/or quantum of rates for ratepayers compared to the LTP proposals. Further, it has impacts on the contributions from others including Central Government and some District Councils.

3. RECOMMENDATION

That the Committee recommends that Council:

a. receives the information contained in Report No. 22-44.

b. notes the Annual Plan workshops have presented information incorporating the revised budgets presented in this item.

c. approves the revised capital programme as presented in this item.

d. acknowledges that in preparation of the Annual Plan budget further changes to phasing or quantums of budgets may occur as further information becomes available and the final decision on these budgets will be via the Annual Plan process.

4. FINANCIAL IMPACT

4.1. This item discusses a range of matters in relation to capital and operational spend for the River and Drainage Management Activity and Council's decisions may have a financial impact that would be implemented through the AP process. Council's AP workshops have discussed the proposed work programme within this paper and there have been some minor adjustments made as a part of preparing this paper, including aligning budgets with the resolutions of the Te Pūwaha Council Item in April 2022.

5. COMMUNITY ENGAGEMENT

5.1. This item is a public item and Council may deem this sufficient to inform the public.

6. SIGNIFICANT BUSINESS RISK IMPACT

6.1. The River and Drainage Management Activity includes a range of work that aims to provide for protection of life and property. Decisions in relation to levels of service and capital projects may have an impact on readiness for storm events or levels of service in river and drainage management. This item seeks to put the range of capital projects that have been considered in the LTP, and some others, into a single decision-making process for Council to consider this risk and prioritise activity. This item is not deemed to have a significant business impact.

7. CLIMATE IMPACT STATEMENT

7.1. Horizons' River Management Activity includes a range of construction activity and some environmental enhancement work, including tree planting. The activity has a focus on maintaining and increasing the resilience of the community to the impacts of climate change, however delivery of that resilience does involve activity that are considered to have a climate change impact eg. the use of fossil fuels.

8. INTRODUCTION

8.1. The purpose of the paper and outcomes sought are described in the sections above. The paper is arranged in sections with sections on River and Drainage Activity capital project selection and achievability. Subsequent sections discuss the collection of projects that fit into the categories of Central Government co-funded projects, storm damage repair projects, capital renewals, scheme upgrades, and other requests including non-scheme activity. The final section draws this information together to show the proposed capital budget changes for the AP for the 2022-23 year.

9. CAPITAL PROJECT SELECTION

9.1. Horizons has a range of reasons for committing to capital works programmes for river and drainage management schemes. The types of projects selected can be categorised in a number of ways. For the purposes of this item, the capital projects are categorised as follows:

- Central Government co-funded projects including the Te Pūwaha project in Whanganui and the four Climate Resilience projects, namely Rangitīkei, Lower Manawatū, Palmerston North and Te Awahou Foxton;
- Storm damage repair works, some of which are known heading into a financial year and others that have to be assessed and responded to within financial years following storm events;
- Long-term capital renewal programmes for River and Drainage scheme assets;
- Other planned River and Drainage scheme upgrade projects including Matarawa, Lower Whanganui, Tutaenui, South East Ruahines, Reid Line, Lower Manawatū Scheme Rural Upgrade project (Te Arakura Road, Koputoroa etc); and
- Requests for additional work both within and outside of schemes. Some of this additional work is able to be co-funded via the operational budget for the Environmental Grant fund of approximately $60,000 per annum. Other requests are outside the scope of Council-approved budgets e.g. Waikawa, Putorino landfill, Koitiata etc.

9.2. Council has choices around what works are committed to and the levels of service that are provided for flood and drainage schemes. These decisions are confirmed by Council through the LTP and AP processes, as well as through separate items to Council.

9.3. Broadly, the levels of service have been set at a scheme level and over time these levels of service are aimed to be maintained. In many cases there have been conscious decisions to invest and upgrade levels of service.

9.4. The process to prepare the capital work programme for the AP has not revisited decisions around levels of service or revisited the selection process for the projects included in the LTP, rather it has sought to continue with the direction set in the LTP for projects. The process has considered the new information available at this time, including delivery in year 1 of the LTP and information on completion of design work, permissions, pricing and other information. For the purposes of this paper, the prioritisation has focussed on maintaining levels of service, known storm damage repair work, achieving delivery of the Central Government co-funded projects within the project deadlines, ease of delivery of other proposed upgrades and achievability.

9.5. Relative risk was also considered in prioritising within the projects and this was assessed based on a group discussion involving Horizons Area and Project Engineers. A regional assessment of the overall risks from flooding in the region to inform project selection and prioritisation into the future is recommended. This includes reviewing the levels of service being provided to see if estimates of these have changed over time with further information such as longer hydrological records now available, plus consideration of climate change and changes to infrastructure including urban expansion in some areas.

10. ACHIEVABILITY

10.1. In the last five years Horizons has, through its LTP and Annual Planning processes, set a total capital works programme budget averaging approximately $8.3M and delivered an average of approximately $6.7M (Table 1).

10.2. In the current 2021-22 year Horizons had set out to complete a River and Drainage Management capital programme spend of $27.082M and, through Council approvals, the revised budget has increased to $28.348M. At the end of March 2022, the programme had spent $9.459M and was aiming to spend more than $16.814M by year-end i.e. approximately two and a half times the average spend during the last five years and $11.534M less than planned.

10.3. Within these comparisons of capital budgets and amounts delivered, some work was delivered that was not originally planned, so the comparison is not a perfect "apples with apples" comparison. Similarly, it is standard to allow for contingency in capital programmes and some underspend will likely relate to unspent contingency funding.

Table 1: Summary of capital budgets and levels of delivery over the last five years and forecast for this year. It is noted that not all of the **delivered** work shown in the actual budget will be related to budgeted work, with some required in response to storm damage repair or other projects that have been committed to within the year after budgets were determined, including carry-forwards.

Year	Annual Plan ($M)	Revised Budget ($M)	Actual ($M)	Difference ($M)	Comment
2016-17	10.497	10.497	12.065	-1,568	Primarily Rural Upgrade projects.
2017-18	6.641	7.042	4.718	2,324	Primarily Rural Upgrade projects.
2018-19	7.821	12.945	6.937	6,008	Primarily Rural Upgrade projects.
2019-20	5.436	12.296	4.610	7,686	Primarily Rural Upgrade projects – Te Arakura was the main underspen
2020-21	11.152	16.233	5.039	11,194	Major projects include Te Pūwaha, Climate Resilience, and Reid line.
Total	**41.547**	**59.013**	**33.369**	**25,644**	
Average	**8.309**	**11.803**	**6.674**	**5,129**	
2021-22	27.082	28.348	16.814 (forecast)	11,534	Major projects include Te Pūwaha, Climate Resilience, and Reid line.

11. CENTRAL GOVERNMENT CO-FUNDED CAPITAL PROJECTS

Projects and budgets

11.1. There are five Central Government co-funded projects within the River Management Activity of Horizons including the Te Pūwaha project in Whanganui and the four Climate Resilience projects, namely Rangitīkei, Lower Manawatū, Palmerston North and Te Awahou Foxton. Four of these are Climate Resilience Fund projects and the other is though the Provincial Growth Fund (PGF) with both funds being administered by Kanoa, the Regional Economic and Investment Unit of the Ministry of Business, Innovation and Employment (MBIE).

11.2. The overall budgets and co-funding arrangements for these are shown in Table 2 below. Council committed to these projects through items 20-106 (August 2020), 19-137 (September, 2019), 20-128 (September, 2020), and the LTP. Modifications to some of the budget allocations were made via PX-Item 21-106 "Reallocation of Kumeroa Quarry Funding" (August 2021). Table 2 shows the budgets for the project after that adjustment, which related to the Te Awahou Foxton project. It is noted that there has been subsequent reporting on these projects to Council and some further adjustments to the budgets, including Item 22-37 (April 2022), and that the numbers in the table are intended to represent the established agreements as committed originally (noting the adjustment to the Te Awahou Foxton project made in August 2021).

11.3. These projects represent a total budget of $53.415M over five years, with Horizons contributing $14.960M or 28% of the overall cost. The Central Government co-funding totals $34.425M, 64% of the total budget.

11.4. Other partners have signalled significant co-funding contributions. This includes a signalled $2.46M from Horowhenua District Council (HDC) and $1.8M from Whanganui District Council (WDC) with together represent 8% of the overall budget for these projects.

Table 2: Summary of the funding arrangements for the five Central Government co-funded projects as approved (noting the adjustment to the Te Awahou Foxton project as discussed in the text).

Project	Government contribution ($M)	Other funding partners ($M)	Horizons ($M)	Total ($M)	Horizons (%)
Rangitīkei	3.900	0	1.300	5.200	25%
Palmerston North	5.250	0	1.750	7.000	25%
Te Awahou Foxton	6.525	2.230[a]	2.460	11.215	22%
Lower Manawatū	11.250	0.000	3.750	15.000	25%
Sub total	26.925	2.230	9.260	38.415	24%
Te Pūwaha	7.500	1.800[b]	5.700	15.000	38%
Total ($)	34.425	4.030	14.960	53.415	28%
Total (%)	64%	8%	28%		

[a] Horowhenua District Council.
[b] Whanganui District Council.

Project delivery and revised budgets

11.5. These projects were established prior to the LTP and started in the 2019-20 year. The current year, first year of the LTP, is the second year of the projects. Over those first two years there were a range of changes to the project plans and this has resulted in significant re-phasing of the projects. Table 3 summary of the budgets for the next two years as originally phased in the LTP and revised delivery based on current project planning.

11.6. Further information on the Te Awahou Foxton project is provided in a separate agenda item in this Catchment Operations Committee Agenda. This separate item outlines a range of options for Council to consider for the project going forward and the numbers presented in the proposed AP budget may require adjustment following decisions related to that.

11.7. For year 2 (this year) the projects are anticipated overall to be $6.072M underspent (29%). For most of the projects to provide for the full expenditure within the project timeframe (and other changes to the projects) projected spends for the remaining years have been increased (Table 3).

Table 3: Summary of LTP and proposed AP budgets for the Central Government co-funded projects.

Government co-funded ($M)	LTP 2022-23	AP 2022-23	2022-23 Difference	LTP 2023-24	AP 2023-24	2023-24 Difference	Combined LTP (2 years)	Combined AP (2 years)	AP - LTP Difference (2 years)
Rangitīkei	1,953,827	1,253,053	-700,774	765,165	977,923	212,758	2,718,992	2,230,976	-488,016
Palmerston North	3,066,979	4,459,234	1,392,255	1,481,316	663,459	-817,857	4,548,295	5,122,693	574,398
Te Awahou Foxton [a]	4,511,192	3,949,357	-561,835	908,868	2,491,053	1,582,185	5,420,060	6,440,410	1,020,350
Lower Manawatū	6,205,476	5,571,991	-633,485	2,349,600	6,241,603	3,892,003	8,555,076	11,813,595	3,258,519
Sub total	15,737,474	15,233,635	-503,839	5,504,949	10,374,038	4,869,089	21,242,423	25,607,674	4,365,250
Te Pūwaha	6,455,608	7,761,257	1,305,649	1,863,804	2,280,589	416,785	8,319,412	10,041,846	1,722,434
Total	22,193,082	22,994,892	801,810	7,368,753	12,654,627	5,285,874	29,561,835	35,649,519	6,087,684

[a]Assumes Option 5a for the Te Awahou Foxton project which has a similar budget to Option 5d.

11.8. The proposed total capital spend for the Central Government co-funded projects for the next financial year (2022-23, year 2 of the LTP, year 3 of the projects) is $22.995M (Table 3). This represents an increase of $0.802M to the LTP budget of $22.193M. The variations proposed for the individual projects are shown in Table 3.

11.9. The proposed total capital spend for the Central Government co-funded projects for the following financial year (2023-24, year 3 of the LTP, year 4 and final year of the projects) is $12.655M (Table B, project year 4). This represents an increase of $5.286M to the LTP budget ($7.369M). The variations proposed for the individual projects are shown in

Table 3. Overall these budget changes largely reflect an increase in works in the next two years, following delays in the earlier years of the projects.

11.10. The project phasing has some impacts for timing to the project contributions from the project partners. The rating impact will vary for the projects. In some cases, the reduced delivery in this and the previous years will delay the requirements for loan repayments. In the cases of Whanganui and Foxton, the budget changes and rating impacts are more complex and have been presented to Council for decisions in separate items.

12. STORM DAMAGE REPAIRS

12.1. The requirement for storm damage repairs, and other unforeseen repair requirement, depends on what events occur during the year and what is assessed as requiring completion. The majority of storm damage repairs that have been identified and had work to remedy these planned in the 2021-22 year have been, or are on track to be, completed by 30 June 2022. Three budgeted items have been identified at this point for works in the 2022-23 year (Table 4). It is acknowledged that as further storms occur, more work in this category could be identified.

12.2. These three identified capex work streams for the 2022-23 financial year are all in the Manawatū Catchment (Upper Manawatū/lower Mangahao scheme, Mangatainoka Scheme, and Pohangina/Oroua). The works in these schemes are a continuation of storm damage repairs or works that have been deferred due to additional storm damage repair work in the 2021-22 year. These projects combined have a total estimated value of $436,018, being $90,188 more than the capital budgets forecast in the LTP for these schemes. The approach to funding these has been to prioritise storm damage repairs over the planned asset management and maintenance work in order to limit the additional rates requirement to fund the works. This does contribute to a deficit in the maintenance works over time that can lead to further vulnerability of the scheme to damage.

12.3. The proposed changes to the LTP budget for the next two years is shown in Table 4. The primary additional capital cost is the additional $97,879 for the Upper Manawatū/ Lower Mangahao scheme that will be paid for from reserves and rates.

12.4. The proposed upper Manawatū/Mangahao scheme works total $166,855, comprising five small projects to repair bank erosion on the Manawatū and Mangahao rivers. Repairs consist of tied tree works and rebuilding groynes to reduce further erosion.

12.5. The proposed Mangatainoka Scheme works for the 2022-23 year total $119,163 and comprise six small projects to repair bank erosion on the Mangatainoka and Makakahi rivers. Repairs include tied tree works, gravel management and some rock lining work. This budget is slightly less than the LTP budget, being a reallocation of maintenance and asset management budget to storm repairs.

12.6. The Pohangina/Oroua scheme works have a capital budget of $150,000, less than the LTP budgeted $155,100. This total budget reflects a rate contribution of $75,000 and combined funding from landowners for $75,000. This reflects the cost-share arrangement to storm damage or other flood protection works in the Pohangina/Oroua scheme. The amount of work completed in each year can vary and any unspent funds are moved to reserves to enable further work in years with higher demand. It is noted that this is a mix of storm damage repairs and asset renewals.

Table 4: Summary of LTP and proposed AP budgets for the identified storm damage repair work.

Storm Damage Repairs ($M)	LTP 2022-23	AP 2022-23	2022-23 Difference	LTP 2023-24	AP 2023-24	2023-24 Difference	Combined LTP (2 years)	Combinec AP (2 years)	AP - LTP Differenc e (2 years)
Upper Manawatū Lower Mangahao	68,976	166,855	97,879	71,272	66,962	-4,310	140,248	233,817	93,569
Mangatainoka Scheme	121,754	119,163	-2,591	125,903	119,789	-6,114	247,657	238,952	-8,705
Pohangina Oroua	155,100	150,000	-5,100	160,200	150,000	-10,200	315,300	300,000	-15,300
Total	345,830	436,018	90,188	357,375	336,751	-20,624	703,205	772,769	69,564

13. CAPITAL RENEWALS

13.1. Capital renewals are a standard part of scheme management. The asset management plans for the schemes guide the overall spend, however changes are made to the plan where there are other more pressing priorities such as breakdowns of pumps or other matters identified though inspection of the scheme assets, damage repair etc.

13.2. Not all schemes have assets and therefore not all have capital renewal programmes. Some of the smaller schemes have assets but do not have capital renewal programmes and these are addressed on an as-needed basis.

13.3. The LTP budget for renewals this year was $773,621 across seven schemes and the forecast year-end result is for $704,637 of work across 10 schemes.

13.4. For the second year of the LTP, starting July 2022, eight of the schemes have planned capital renewal works with a total budget of $340,558. This is proposed to decrease to $329,360 in the proposed Annual Plan. Similarly, the LTP year 3 total budget of $276,453 is proposed to reduce to $258,851 (Table 5). Over the two years, $28,800 of funding has been reduced from the programme.

13.5. The capital renewal works are primarily funded via loans, with some also funded through reserves or directly rated for.

Table 5: Summary of LTP and proposed AP budgets for the capital renewal work.

Capital Renewals ($M)	LTP 2022-23	AP 2022-23	2022-23 Difference	LTP 2023-24	AP 2023-24	2023-24 Difference	Combined LTP (2 years)	Combined AP (2 years)	AP - LTP Difference (2 years)
Makerua	47,400	45,841	-1,559	55,003	51,501	-3,502	102,403	97,342	-5,061
Lower Manawatū	43,221	41,800	-1,421	0	0	0	43,221	41,800	-1,421
Manawatū Drainage Scheme	104,537	101,100	-3,437	35,137	32,900	-2,237	139,674	134,000	-5,674
Moutoa Drainage Scheme	20,343	19,674	-669	58,740	55,000	-3,740	79,083	74,674	-4,409
Koputaroa	36,019	34,835	-1,184	13,937	13,050	-887	49,956	47,885	-2,071
Te Kawau	16,958	16,400	-558	49,555	46,400	-3,155	66,513	62,800	-3,713
Hokio	62,040	60,000	-2,040	64,080	60,000	-4,080	126,120	120,000	-6,120
Ohau	10,040	9,710	-330	0	0	0	10,040	9,710	-330
Total	340,558	329,360	-11,198	276,453	258,851	-17,602	617,011	588,211	-28,800

14. SCHEME UPGRADE PROJECTS

14.1. In the current financial year Horizons planned work on eight upgrades outside of the Central Government co-funded work programmes. The total LTP budget for this work is $5.372M and the current forecast is to deliver $1.121M of this work (Table 6). The primary reason for the $4.251M reduction in spend has concerned the Reid Line project, which is forecast to be $3.939M underspent at year-end (June 30, 2022) due to proposed land purchases being delayed.

14.2. The reduced spend in the current year and size of the programme to deliver for the Central Government programme have been factored into a revised budget for projects over the next two years. Other factors, such as design requirements, consenting, land purchase

requirements and consideration of engagement required have also been factored into delaying delivery of some projects.

14.3. In summary:

- The work programme for the 2022-23 year has been significantly reduced, with the revised total budget of $2.133M being $2.943M less than the LTP budget of $5.076M (Table 7);
- The work programme for the 2023-24 year starting in July 2023 is for a total budget of $4.657M, being $1.652M more than budgeted in the LTP ($3.005M); and
- The revised combined work programme for the next two years has a total budget of $6.790M, being $1.291M lower than the LTP budget for this period of $8.081M.

14.4. During the first three years of the LTP, the budget for these planned upgrade projects is proposed to reduce from $13.453M to $7.911M – a reduction of $5.543M. This reduction is primarily due to a $5.339 million reduction in forecast spend on the Reid Line project over three years. This reflects removing specified amounts for capital purchase for property from the planned capex spend, as the amounts and timing of land purchase or other agreements are unknown. The proposed approach is to seek Council approval for this spend by way of resolution when opportunities arise and to then make adjustment to the following AP for loan repayments. Several other project spends for the upcoming 2022-23 year have also been proposed to be delayed as the projects are not ready in terms of design and permissions, including the Te Arakura Road part of the Lower Manawatū/ Scheme rural upgrade project and some of the work in the Lower Whanganui Scheme.

14.5. The scheme upgrade budgets, like all of the capital project budgets, are estimates and may need to be updated as more information is gathered through design, consenting, procurement etc.

14.6. Comments on the individual planned upgrades are provided in the following sections.

Table 6: Summary of LTP budget and forecast spend for the scheme upgrade projects in the current financial year.

Scheme upgrades ($)	LTP 2021-22	Forecast 2021-22	Forecast – LTP difference
Matarawa Flood Control	0	0	0
Lower Whanganui	53,181	80,000	26,819
Rangitikei River Scheme	400,000	205,672	-194,328
Tutaenui Flood Control Scheme	29,150	0	-29,150
Tawataia-Mangaone	0	0	0
South East Ruahine Scheme	366,792	268,042	-98,751
LMS Stoney Creek Project	0	0	0
Feilding Special Project –Reid line	4,059,730	120,923	-3,938,806
LMS Rural Upgrade	58,408	40,369	-18,039
Lower Manawatū	0	0	0
Moutoa	0	0	0
Koputaroa Capital	304,916	304,000	-916
Makerua Capital	0	1,789	1,789
Manawatu Capital	100,000	100,000	0
Total	5,372,177	1,120,795	-4,251,383

Table 7: Summary of LTP and proposed AP budgets for the scheme upgrade capital projects.

Scheme Upgrades ($M)	LTP 2022-23	AP 2022-23	2022-23 Difference	LTP 2023-24	AP 2023-24	2023-24 Difference	Combined LTP (2 years)	Combined AP (2 years)	AP - LTP Difference (2 years)
Matarawa	15,510	15,000	-510	389,958	362,079	-27,879	405,468	377,079	-28,389
Lower Whanganui	380,708	323,426	-57,282	1,082,701	856,715	-225,986	1,463,409	1,180,140	-283,269
Tutaenui	90,316	99,998	9,682	58,955	55,404	-3,551	149,271	155,402	6,131
Tawataia-Mangaone	2,568	2,531	-37	0	0	0	2,568	2,531	-37
South East Ruahine	379,287	436,882	57,595	402,537	377,231	-25,306	781,824	814,114	32,290
Stoney Creek	0	0	0	39,057	0	-39,057	39,057	0	-39,057
Reid line	1,100,552	200,000	-900,552	599,462	100,000	-499,462	1,700,014	300,000	-1,400,014
LMS Rural Upgrade	2,688,400	250,000	-2,438,400	0	2,300,000	2,300,000	2,688,400	2,550,000	-138,400
Lower Manawatu	0	200,000	200,000	0	0	0	0	200,000	200,000
Moutoa	0	200,000	200,000	0	200,000	200,000	0	400,000	400,000
Koputaroa Capital	315,349	305,323	-10,026	325,723	305,494	-20,229	641,072	610,818	-30,254
Manawatū Capital	103,400	100,000	-3,400	106,800	100,000	-6,800	210,200	200,000	-10,200
Total	5,076,090	2,133,160	-2,942,930	3,005,194	4,656,923	1,651,730	8,081,284	6,790,084	-1,291,200

Matarawa flood control

14.7. The Matarawa Stream currently has a diversion structure that diverts a portion of flood flows away from the Whanganui East urban area to the Mateongaonga Stream. Public consultation has asked Horizons to look at opportunities to divert all flood flows away from the urban area to mitigate flood risk. This project requires extensive public consultation with downstream landowners, a new resource consent, and renewal of the existing diversion structure. Preliminary consultation and design are planned for 2023 at a cost of $15,000 followed by further design, consenting and construction in 2024, estimated at $362,079.

Lower Whanganui scheme

14.8. The Lower Whanganui Scheme has a range of works programmed in the LTP with the largest being the Whanganui River training structures component of the Te Pūwaha project. This and other planned work as part of the Lower Whanganui Scheme, including budgets, was discussed in Council report 22-37 (April 2022).

14.9. Commercial properties along Taupo Quay in Whanganui CBD are subject to flooding in large storm events. One proposed Lower Whanganui Scheme project, "the Climate Change impact – CBD" project scope is to work with Whanganui District Council and property owners to develop a vision on how to provide flood protection to these buildings. This is likely to range from flood resilient building updates to floodwalls. This project has been delayed as the Te Pūwaha and Climate Resilience projects have taken priority.

14.10. Three sections of Kowhai Park stopbank require the manual construction of temporary barriers during flood events to block gaps in the stopbank where road access is required. To eliminate this risk, designs have been completed to raise the roads over the stopbank. The third section of work is programmed for 2023. The egress gate is required to allow rapid drainage of Kowhai Park and Anzac Parade once flood waters have overtopped the stopbank. Work was unable to be completed in 2021 due to staff departures and is now programmed for 2024. Design of this structure is well advanced and work could be brought forward to 2023.

14.11. Flood protection for Putiki was proposed 15 years ago and programmed as stage three of the Whanganui upgrades with stage one being Balgownie and stage two Kowhai Park, both of which are complete. Work was removed from the LTP 10 years ago when submissions supporting the project were not received. Since then residents have asked

why work has not been undertaken and reconfirmed their wish for protection at a public meeting held at the marae. Design work is planned for 2023 with construction in 2024 and 2025.

14.12. The Anzac Parade strategy development project is reported on separately in this Catchment Operations Committee Agenda. As outlined in the item, the proposed strategy will be provided to Council in late June 2022. Consistent with Council's work programme in the LTP, no provision has been allocated for further work on this strategy in the 2022-23 year. Work on further communication around warning systems etc is planned to be funded. Council will be able to consider the strategy and any proposed next steps as part of the next AP.

14.13. Overall, the proposed budget as scoped for the Lower Whanganui Scheme is considered ambitious. The Te Pūwaha work alone is a significant workload and it may be necessary to further delay some of the projects identified above to ensure the Central Government co-funded work is delivered within timeframes.

Tutaenui

14.14. The Tutaenui catchment receives flood protection from 18 detention dams with each dam providing approximately a 25-year return period flood protection to its tributary. This does not entirely mitigate the risk of flooding in the urban centres of Marton and Bulls. For example, Horizons' Marton office has experienced water through the building twice in the past 10 years. Flood plain modelling for the Tutaenui catchment was completed some five years ago with the next step being the analysis of this data to identify cost-effective protection works. Budget allocation over the next two financial years of $155,000 will allow evaluation of this data and commencement of capital works.

South-East Ruahines

14.15. This work programme includes $240,000 for vegetation clearance on the scheme's streams as part of an approved LTP request from the scheme committee for a $1M loan over three years for work required in this scheme to reduce flood damage. The work programme also includes $80,000 for repairs to 500m of stopbank on the Mangaatua River, $80,000 for repairs to 1500m of stopbank on the Raparapawai Stream and $30,000 to upgrade four weirs in this scheme to make fish passable.

Reid Line

14.16. The Reid Line project aims to increase flood protection of the Reid Line spillway from approximately 1 in 100-year to 1 in 200-year flood protection. It is noted that a recent event, estimated to be in the order of a 1 in 80-year event, tested the capacity of the spillway and demonstrated that larger events could overtop the current levels of service.

14.17. To date, the project has spent in the order of $2.3M including property purchases. Further design and consenting work is required and further agreements with landowners will also need to be secured for the project to progress.

14.18. As identified above, the allocated budget for this project in the next two years has been reduced as the amounts for land purchases are unknown going into the financial year. The approach recommended is to allow for budget to be provisioned by Council as landowner agreements come to Council for consideration. A budget for project management, further design, consent preparation, landowner liaison etc has been retained.

14.19. It is recommended that Horizons also engage with Manawatū District Council (MDC) further on this project and undertake a broader review of options to improve flood protection for Feilding Township in partnership with MDC, to identify a strategy to improve flood protection and ensure an aligned approach between the two councils. Discussions with senior management at MDC have indicated support for this type of approach and funding allocated to the Reid Line project is also proposed to contribute to this.

Lower Manawatū Rural Upgrade

14.20. The final stage to complete the Lower Manawatū Rural upgrade is the Te Arakura Road project to connect already completed stopbanking, on the left bank of the river, north of the Awahuri Bridge with that south of the Feilding Golf Club. The project in this reach of the river necessitates the construction of new stopbanking rather than the upgrading of existing stopbanking.

14.21. Physical work on this project began in the summer of 2019-20; however, following protest action on one of the affected land parcels, work was suspended in January 2020. To progress this work, engagement with affected parties needs to be re-established effectively. The support of governance is requested to progress these conversations and determine a path forward. This approach aims to build on discussions that the Chair and River Management Group Manager led earlier this financial year.

14.22. The 2022-23 financial year has $250,000 budgeted to undertake any design or other work that may be required as a result of the engagement with affected parties. The following financial year has $2.3M budgeted for construction. This budget and timing estimate is subject to further change following any design modifications and procurement.

Lower Manawatū and Moutoa

14.23. Additional funding totalling $600,000 has been allocated for these two schemes as a contribution to the Moutoa pump replacement project. The addition of the Moutoa pump upgrade follows new information about the pump's condition and the plan to bring forward an upgrade from its originally proposed timing in the LTP (year 8). The pump is now proposed to be replaced as a part of the Climate Resilience project for the lower Manawatū, with some Central Government co-funding. Design work is currently being procured and further, more refined, budgeting for the project will be possible when that work is completed. There is potential for a shared-purpose pump to also provide for drainage of the Whirokino area. This is further discussed in the Te Awahou Foxton Flood Resilience Update in this Catchment Operations Committee agenda.

Koputaroa drainage scheme

14.24. This is a four-year programme to upgrade the lower sections of stopbanking on the Koputaroa Stream downstream of the Railway crossing. The works are being undertaken to improve the resilience of the stopbank following the overtopping and subsequent failure of a section of bank in 2015 and the additional discharge coming from the Roslyn subdivision. This work is co-funded by HDC with a yearly contributions of $150,000 over four years as part of the consent conditions for the Fairfield Road stormwater pipe upgrade project.

Manawatū Drainage Scheme Capital

14.25. This work is a continuation of minor drainage improvements to increase the performance of the drainage network. No additional funding has been included in this budget to provide additional flood protection to address existing flooding issues to residential properties within the scheme.

15. OTHER REQUESTED CAPITAL WORKS

15.1. Beyond the budgeted capital project, Horizons does sometimes receive requests to fund other works. This includes the Environment Grant work that funds 30 percent of works outside of scheme areas and has a total budget of approximately $60,000. Several of the projects below are able to be partially funded by the Environmental Grant budget, and the proposed AP budget provides for the Environmental Grant budget to extend to projects including fish barrier repairs for Horizons infrastructure.

15.2. Horizons has been asked to consider requests include the projects discussed below. For the AP process, the only project within this list that is proposed to proceed with Horizons

funding (outside of the Environment Grant work as discussed above) is the waka launching ramp in Palmerston North which is proposed, subject to Council approval via this paper, to proceed with funding from the LMS Special Projects budget.

15.3. Please note the projects below are presented in no particular order.

15.4. Two waka launching ramps – one in Palmerston North and the other at Whirokino. The Palmerston North ramp is proposed to be funded from LMS Special Projects and has already been designed in partnership with Rangitane. The Whirokino ramp is still in its scoping stage with discussions still required with local Iwi, HDC and river users. Ongoing maintenance of these structures is a consideration.

15.5. Whirokino boat ramp – in the Lower Manawatū Catchment to replace the current structure. The Whirokino ramp could be potentially be funded with $300,000 from Climate Resilience and $100,000 from the all-schemes reserve fund. This would need to be considered alongside other priorities for the Climate Resilience project and requiring approval from MBIE. The ongoing maintenance and ownership of this structure is a further consideration.

15.6. Fish barrier repairs – national policy changes put in place new requirements for Regional Councils around fish passage. These requirement include Horizons updating its policies around fish passage and also apply to Horizons as an owner of assets in rivers. The AP has made some provision for fish passage repairs from Scheme budgets e.g. the South-East Ruahines. It also provides for fish barrier repairs to Horizons structures to be eligible for the River Management Environmental Grant Fund.

15.7. Waikawa Estuary – Horizons have been requested to undertake further work to protect a subdivision in the vicinity of the Waikawa Estuary. The issue sits outside of Horizons scheme area and Horizons have not provisioned budget to pursue work within the LTP. The erosion issue and potential work to remediate this relate to protection of a subdivision that was provided for by Horowhenua District Council, which originally held the consent. The consent was transferred to Horizons, when Horizons undertook some HDC-funded work there previously. Horizons sought to renew the consent, however the application lacked the information required for it to be processed. A report by Tonkin and Taylor was on potential works was presented to Council in April 2019 (Report No.19-37). It outlined a range of potential management options, which were narrowed to three that ranged from a capital cost of $150,000, $700-900,000 and $1 million plus. Each had ongoing annual maintenance costs and presumably staff time, consenting etc. costs over and above this. It is noted that contractor costs have increased since 2019 and that this does not likely include consenting costs. It is well understood that the Waikawa Estuary outlet has moved over time. The scale of movement was described in the Tonkin and Taylor report (March 2019), which stated “The natural mobility of the Waikawa Inlet has led to the implementation of various management operations and structures since the mid-1990s. Shoreline erosion of some 25m over the past 10 years at the northern end of the inlet bay has resulted in Horizons’ request for investigation into further management options to mitigate shoreline erosion”. In summary, the request for work at Waikawa Estuary has been investigated and there are options available via the Tonkin and Taylor report, which likely require updating. Roles and responsibilities for this work have been debated, in particular who should lead and pay for any proposed works. Consistent with the LTP, the proposed AP budget has not allocated budget to this project.

15.8. Works outside of schemes post events – After rain events where damage is caused by high river flows, Horizons receives a range of requests from property owners outside of managed schemes requesting help and advice for repairs and possible funding. This currently takes considerable time (funded via schemes) to respond to and there is limited funding available via the Environmental Grant budget for support.

15.9. Koitiata – There have been requests from the residents, and recently the Rangitīkei Mayor, to open part of the sand dunes to allow stormwater that is flooding the town to escape. There are environmental considerations for this work and consents are required. Koitiata is

not part of a Horizons scheme but Rangitīkei District Council have recently indicated they would like to work with Horizons on this issue and the Putorino landfill.

15.10. Foxton Loop – Horizons has been involved in a range of work around the requests for works and support for the reopening the Manawatu River Loop at Foxton.

15.11. Subdivisions & District Plan Changes – Recent housing demand has resulted in river management staff becoming more involved with input, consents and liaising with property developers, District and City Councils regarding potential subdivisions. This demand is directing time away from scheme management and there is only a limited budget for this work, via District Advice. Examples of District Plan Changes include the Ashhurst Plan Change, Tara-ika, Kakatangiata.

15.12. Other Governmental Agency Projects – This is similar to subdivisions as outlined above. Examples include: Otaki to North Levin: KiwiRail Freight Hub; Palmerston North City Council Ring Road; etc. Consultation with these agencies also uses staff time that has not budgeted for.

16. CAPITAL PROJECTS SUMMARY

16.1. For the 2021-22 year the Long Term Plan budgeted a capital works programme of $27.082M and is currently forecasting to deliver $16.814M of this work. The reduced work programme included a range of projects, or components of projects, that had experienced significant cost increase.

16.2. The proposed AP work programme (Table 8) has a considerable focus on delivery of the Central Government co-funded projects, including completing some work that was planned iin previous years. In summary:

- The capital work programme for the 2022-23 year has been reduced with a total budget of $25.893M, being $2.062M less than the LTP budget of $27.956M;
- The work programme for the 2023-24 year that starts in July 2023 is for a total budget of $17.907M, being $6.9M more than budgeted in the LTP ($11.008M); and
- The combined work programme for the next two years has a total budget of $43.801M, being $4.837M higher than the LTP budget for this period of $38.963M.

16.3. It is noted that Council will make final decisions on the work programme via the AP process and that budgets are subject to change as new information arises through design, consultation, consent and other permissions processes, procurement etc.

16.4. There are many variations on the proposed capital budgets for the River and Drainage Activity in the 2022-23 year and Council guidance on the proposed work programme is requested via this item.

Table 8: Summary of LTP budget and proposed AP budgets for capital upgrade projects in the 2022-23 financial year.

Capital projects ($M)	LTP 2022-23	AP 2022-23	2022-23 Difference	LTP 2023-24	AP 2023-24	2023-24 Difference	Combined LTP (2 years)	Combined AP (2 years)	AP - LTP Difference (2 years)
Government co-funded	22,193,082	22,994,892	801,810	7,368,753	12,654,627	5,285,874	29,561,835	35,649,519	6,087,684
Storm Damage Repairs	345,830	436,018	90,188	357,375	336,751	-20,624	703,205	772,769	69,564
Capital Renewals	340,558	329,360	-11,198	276,453	258,851	-17,602	617,011	588,211	-28,800
Scheme Upgrades	5,076,090	2,133,160	-2,942,930	3,005,194	4,656,923	1,651,730	8,081,284	6,790,084	-1,291,200
Community requests	0	0	0	0	0	0	0	0	0
Total	27,955,560	25,893,430	-2,062,130	11,007,775	17,907,153	6,899,378	38,963,335	43,800,583	4,837,248

17. TIMELINE / NEXT STEPS

17.1. Councillors' guidance on the matters in this paper will be incorporated into the proposed AP budgets and Council will be able to make further formal decisions on budgets for the River and Drainage Management Activity through the AP process. The current timeline for this has Council workshops scheduled monthly, with final decisions scheduled for the Council meeting in May.

18. SIGNIFICANCE

18.1. This is not considered a significant decision according to the Council's Policy on Significance and Engagement.

Kyle Russell
OPERATIONS MANAGER

Adrian Smith
CHIEF FINANCIAL OFFICER

Dr Jon Roygard
GROUP MANAGER CATCHMENT OPERATIONS

ANNEXES

There are no attachments for this report.

Report No.	22-45
Information Only - No Decision Required	

CENTRAL GOVERNMENT CO-INVESTMENT IN FLOOD PROTECTION SCHEMES SUPPLEMENTARY REPORT

1. PURPOSE

1.1. This item presents the recently released supplementary report titled Central Government Co-investment in Flood Protection Schemes (the report) by the Regional Sector (the Sector) advocating for co-investment by Central Government (Government) in flood protection/management schemes across Aotearoa New Zealand.

2. EXECUTIVE SUMMARY

2.1. The Sector prepared and submitted a business case seeking a Government co-investment contribution of $150 million per annum to enhance the integrity of flood protection schemes to Government officials in 2019. Government did not support the request as base funding for the Sector at that time, however, it did support a three-year programme of climate resilience (post-Covid) projects (including funding) in support of Regional Councils' efforts to respond to the challenges that climate change presents. Whilst the Sector acknowledges and appreciates the climate resilience funding, it is concerned that such funding is finite and provides no financial certainty beyond 2024/25.

2.2. The report (Annex A) draws on case examples from recent flood events in Ashburton/Canterbury/Westport and Marlborough and how those events alongside other more historic events have impacted on communities.

2.3. The report notes that while infrastructure remains of critical importance, avoiding risk through appropriate land-use, planning is vitally important. This includes hazard assessment, mapping and zoning, locating new development in low-risk areas, restrictive planning in high-risk areas and managed retreat.

2.4. Co-investment in flood management infrastructure is vitally important to ensure New Zealand responds to New Zealand's number one natural hazard risk – a risk that is escalating with climate change. Regional Councils and Government need to be mindful of how our communities respond to this increasing threat in a way that is both effective and affordable in the short and long term.

2.5. Currently there is not a mechanism to rate the Crown for flood protection even though their assets receive benefit (for example state highways). The position being advocated by the Sector is fairness and equity, not to mention logic, of investing in protection (where appropriate) rather than clean up.

3. RECOMMENDATION

That the Committee recommends that Council:

a. receives the information contained in Report No. 22-45 and Annex.

b. notes that the report has been endorsed by all Regional Council Chief Executive Officers and Local Government New Zealand.

c. notes that the report has been shared with Ministers and Central Government Officials.

d. endorses the ongoing conversation with Central Government for permanent co-investment in flood protection.

4. FINANCIAL IMPACT

4.1. There are no immediate financial implications as a result of the report, however, if Government was to include a permanent budget line for flood protection in the 2023/24 budget, this could boost capacity to maintain the region's flood protection levels of service. Additional funding from Government could well redistribute some costs and consequently lessen future financial impact on ratepayers.

5. COMMUNITY ENGAGEMENT/COMMUNICATION

5.1. Engagement with Ministers, the Sector nationally, our partners and stakeholders is currently taking place to ensure the report findings are shared with Government as well as articulated locally, including to the wider community via a media campaign.

5.2. A two-phase release strategy for the report is currently being prepared starting with a national level media release, key messages and additional collateral to be shared with Regional Council Chairs, Chief Executives and communications staff.

5.3. The communications plan seeks strongly aligned national and local messaging that underscores the significant role that flood protection plays in community resilience – this is more than hard infrastructure and includes social, cultural, environmental and economic wellbeing and benefits.

6. SIGNIFICANT BUSINESS RISK IMPACT

6.1. Flood management infrastructure is one tool available to lessen the risks and impact on communities. As we look to a climate change impacted nation, the interventions need to be thought through with a wider lens. Other tools such as managed retreat, statutory powers and land use change all play an important role in future approaches to flood hazard management. However, there will always be a place for appropriate infrastructure intervention measures. The risk as we look ahead is the challenge to ensure such interventions are both affordable and financially sustainable. New Zealand is currently debating the challenges surrounding the Three Waters infrastructure. Like flood management much of the Three Waters infrastructure that is nearing end of life today was initially funded with support from Government. The Sector wants to ensure that flood management infrastructure that was invested in by communities spanning a generation is fit for purpose for future generations. There is a very real risk of community expectations around flood protection being unaffordable without additional support.

7. CLIMATE IMPACT STATEMENT

7.1. There is a very clear and direct relationship between flood risk and flood risk management to climate change. Flood risk management and the intervention tool of infrastructure is a legitimate mechanism to manage risk arising from climate change consequences. That said, it is not the only tool as we look forward and as such needs to be deployed in concert with other measures such as land use change, statutory instruments, emissions reduction and risk education.

7.2. Climate change will substantially increase the risk of severe and frequent flooding. The challenge is to make sure the existing schemes are managed and enhanced in a way that enables them to continue to play a vital part in New Zealand's approach to building climate resilience. Seeking co-investment from Government as part of a nationwide solution to a national problem is a key part of this response.

8. DISCUSSION / COMMENT

8.1. A Sector business case seeking a Government co-investment contribution of $150 million per annum to enhance the integrity of flood protection schemes was presented to Government officials in 2019. Whilst at that time Government did not support the request as base funding for the Sector, it did support a three-year programme of climate resilience (post-Covid) projects (including funding) in support of Regional Councils' efforts to respond to the challenges that climate change presents. The sum of the funding roughly equated to $150 million that was assigned to a number of projects across the county. Horizons' proportion of the climate resilience funding was circa $30 million for four projects. Whilst the climate resilience funding was welcomed by the Sector, the need for on-going Government commitment to co-investment remains. Hence, the Sector embarked upon the preparation of a 'supplementary report' as a further means to advocate for Government support.

8.2. The report draws on case examples from 2021 – with a focus on the 31 May 2021 Ashburton/Canterbury flooding, but also draws on information from the July 2021 Westport and Marlborough events. The report describes the nature of the flood events, the schemes that provided mitigation or not, the community responses and details about the on-going impacts of the flood events. Most importantly, the report also provides event-specific details about the many millions of dollars of valuable Crown assets protected from the 2021 floods by flood protection schemes. Over 100 towns and cities in New Zealand are in flood risk areas, with flooding being the nation's number one natural hazard.

8.3. The report notes that while infrastructure remains of critical importance, avoiding risk through appropriate land-use planning is vitally important. This includes hazard assessment, mapping and zoning, locating new development in low-risk areas, restrictive planning in high-risk areas and managed retreat.

8.4. Cost and benefit applies equally to all land/asset owners protected by flood schemes and that includes the Crown. Currently there isn't a mechanism to rate the Crown for flood protection, even though their assets receive benefit (i.e. state highways). The position being advocated by the Sector is fairness and equity, not to mention logic of investing in protection (where appropriate), rather than clean up.

8.5. Floods are New Zealand's most frequent and cumulatively most significant and avoidable hazard. They are the natural hazard most able to be mitigated through application of a well-proven package of flood protection schemes. They are also the natural hazard with the best return on investment from measures contributing to active 'risk reduction'. Horizons' asset cost is $300 million, providing $15 billion worth of benefit value.

8.6. Much of flood protection infrastructure in place today was constructed with support from Government prior to 1989. The levels of government contribution toward some schemes was as high as 75%. With the formation of regional councils in 1989 Government funding

ceased leaving ratepayers to carry the cost of new schemes as well as maintenance of existing ones. In the case of Horizons, the value/cost of our flood management infrastructure has increased significantly since 1989. Prior to the major flood events in 2004, Horizons valued it flood management assets (schemes) at around $150 million. In 2022 the value of the assets (due to investment by ratepayers) has grown to around $800 million.

8.7. The costs of flood events on communities do not land evenly. Costs such as damaged houses and loss of contents are obvious and immediate, however, other related costs such as business interruption are not. The 2004 Manawatū floods provide an illustration of the extent of the types of costs incurred in rural areas because of this damage. Insured losses from that event were $112 million. However, the costs to the agricultural sector alone in uninsured losses (lost production and uninsurable rehabilitation costs) was calculated at $185 million.

8.8. Often the communities at greatest risk from flooding are those with the least capacity to pay. This brings a social wellbeing dimension into considering the impact of flood risk to not only physically vulnerable communities but also to the socially and economically vulnerable. This points to a further rationale for Government investment in flood infrastructure when applying a societal wellbeing lens to the co investment proposition.

9. SIGNIFICANCE

9.1. This is not a significant decision according to the Council's Policy on Significance and Engagement.

Michael McCartney
CHIEF EXECUTIVE

ANNEXES

A Central Government Co-investment in Flood Protection Schemes Supplementary Report

Te Uru Kahika Regional and Unitary Councils Aotearoa

A CALL FOR NATIONAL LEADERSHIP AND URGENT ACTION TO MEET THE FLOOD HAZARD RISKS ARISING FROM CLIMATE CHANGE

Central Government Co-investment in Flood Protection Schemes

Supplementary Report

RIVER MANAGERS SPECIAL INTEREST GROUP
JANUARY 2022

Central Government Co-investment in Flood Protection Schemes
Supplementary Report

January 2022
CONFIDENTIAL DRAFT

Preface

Purpose

The **purpose** of this report is to add weight to a 2019 regional council co-investment business case for central government co-investment in flood protection schemes. This is because the evidence continues to grow supporting the importance and urgency of government returning to the table to resource and help focus purposeful, timely and meaningful actions that result in practical flood protection scheme improvements.

Outcome

The outcome sought from these co-investment decisions would be New Zealanders having assurance that suitable 'fit-for-the-future', risk-aligned, climate change resilient and environmentally sensitive flood protection schemes are in place throughout New Zealand. This is the priority action to respond to the increased magnitude and frequency of climate-change-induced flood events. It sits alongside the need to apply a full suite of other actions e.g., spatial planning and integrated catchment management, to enhance community resilience against flood risks.

Vision

The vision underpinning this outcome is higher levels of safety, security and community resilience, enhanced protection of local and national assets and more sustainable regional economic activity. The **refocus** inherent is this vision is a necessary shift in central government attention from disaster relief and rehabilitation towards necessary 'top-of-the-cliff' mitigation of flood risks, with reduced all-up costs.

Audience for this report

The intended **audience** for this report is the Ministers for Local Government, Finance, Regional Development and Climate Change, alongside senior officials from MBIE (Kānoa) DIA, NEMA, MfE and Treasury, Environment Canterbury (who co-sponsored this report) and Regional Council CEOs and Chairs.

Requested action

The sought-after immediate action is central government urgently agreeing to co-invest in flood protection schemes. The subsequent and necessarily focused next step is to form a central government / region council group to define the quantum, timing, principles, framework, criteria, and priority projects for central government co-investment into flood protection schemes. We urge that central government commit to taking these steps.

Jenny Hughey

Chair, Environment Canterbury

Doug Leeder

Chair, Bay of Plenty Regional Council and
Chair, Regional Sector Group, LGNZ

JANUARY 2022

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Executive summary

Higher magnitude and more frequent floods are occurring

The 31 May – 2 June 2021 Ashburton / Canterbury flood event was extreme. Both branches of the Ashburton / Hakatere River burst their banks. The Defence Force was deployed to assist with potential evacuations. The State Highway One Bridge over the Ashburton / Hakatere River was closed because of concerns about its structural stability. Other Canterbury flood protection schemes were stretched to their maximum.

The Canterbury storm event and flooding caused extensive damage to farmland but little damage to residential properties. Thankfully, there was no loss of life. The town of Ashburton was largely saved from greater damage by a well-designed urban flood protection scheme. Further damage was averted by timely community leadership.

Similarly, the foresight of the Marlborough District Council was such that flood protection investments, made after the major 1983 flood, worked largely as expected. These protected Blenheim, and its extensive surrounding wine growing district, from the potentially much greater damage that could have occurred with the July 2021 flood.

Not so fortunate were other rural areas of the Marlborough District that were not protected by flood schemes. Roads and farms in the Rai Valley were extensively damaged. Five months later, transport disruptions caused by Marlborough-wide storm-induced slipping and related on-going recovery work, are still occurring six months after the event.

Westport was also not as fortunate. A relatively modest early investment ($10 - $20m) in flood protection works at Westport would have saved the area from the over $100m in direct flood damages to property it is currently enduring. It would also have avoided the substantial and on-going effects on the physical and mental wellbeing of the whole Westport community. The impacts of the July 2021 flood on Westport will take many years to recover from. The Government, insurers and the people of Westport will carry that cost.

The 2021 Canterbury, Westport and Marlborough floods are all examples of an increasing series of recent major flood events experienced throughout New Zealand. Other examples of extreme weather events have also occurred in 2021. The Kemeū area, west of Auckland, experienced its second wettest day on record on 31 August 2021. Up to sixty homes were evacuated. On 5 November 2021, Gisborne received three times the average rainfall normally received in the month of November. Widespread flooding, evacuations and 16 slips occurred but the CBD of Gisborne was largely protected.

Other major events have occurred in the last two years. The biggest of these were in Southland, Otago, West Coast, Northland, and the Bay of Plenty regions.

International precedents

New Zealand is not alone in facing the challenge of addressing the effect of extreme weather events and associated flood hazards. All countries are facing similar challenges. The United States and the United Kingdom have recently acted with urgency to significantly ramp-up their investment into flood protection schemes. The nature of New Zealand's landscape and our location in the 'roaring 40's' makes the challenge we face of even higher magnitude than in many other countries.

Flood protection schemes make a significant contribution to community resilience

The above New Zealand examples provide a stark reminder of the important role flood protection schemes play in defending 'at-risk' communities from the full impact of extreme weather events.

What is vital, is that the lessons learned from these latest disasters do not fade away. Putting in place substantive changes to improve the long-term resilience of communities, by – among other things, enhancing the role played by flood protection schemes, requires priority attention.

Flooding is the number one natural hazard in Aotearoa. New Zealand now faces, on average, one major flood event every eight months. Flood protection schemes are the first line of defence. They provide protection to around 1.5 million hectares of our most intensely populated and used land. They also provide safety, security and protection to the families, Marae, livelihoods, and communities living alongside our rivers in over 100 towns and cities. In total, these schemes currently provide an estimated annual benefit of over $11 billion each year. This is over five times the capital replacement value of the schemes.[1] The schemes have been some of the best value public investments ever made in New Zealand. Addressing contemporary challenges will require a step change in investment to occur like that made half a century ago. This investment will prove to be similarly valuable.

The challenge to be addressed

The challenge is this. Regional council[2] current annual maintenance and capital investments in flood protection schemes total close to $175m[3]. This is not a sufficient level of investment to provide for the level of security desired and now required by New Zealand communities. Regional councils intend to increase their investment by a further $25m in future years to total $200m. This will not be enough. They estimate the annual capital cost of building further resilience into flood protection schemes would be at least $150m beyond their current intentions.

Community tolerances about levels of acceptable risk are increasingly being tested. Regional councils now have improved knowledge about how schemes perform during severe floods and the flood levels they should be designed to withstand. These were not contemplated when the schemes were constructed decades ago. They are certainly not adequate to address climate change. The $200m of regional council increased investment is primarily to enhance[4] the ability of existing schemes to withstand the increased frequency and magnitude of climate-change-influenced future flood events. The need for $150m of additional central government funding must urgently be addressed.

There is no question that greater use of a 'multi-tool'[5] approach to building community resilience against the effects of flooding is required. More focus on the more effective use of improved planning tools to define where and how development occurs, will be particularly important. However, a focus on the use of planning tools cannot replace the fundamental importance of further investing in flood protection schemes. They will always remain the first line of defence against extreme flooding.

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[1] The total estimated capital replacement value of the 367 flood protection schemes throughout New Zealand is $2.3 billion.
[2] We use the term 'regional council' throughout this report to jointly encompass New Zealand's five unitary district / Auckland City Council and the eleven regional councils.
[3] Regional council Long Term Plans for the period 2021-31are currently being interrogated to provide a more precise figure of committed future investment. Work carried out as part of the previous flood protection report confirmed that planned investment was more than $175m per annum.
[4] In general terms, flood protection schemes should now be designed to withstand a flood with a return frequency of 200 years.
[5] We use the term 'multi-tool to encompass all of the approaches needed to manage floods. This may include district and regional plan requirements, building requirements, managed retreat alongside flood protection schemes and all other parts of a full suite of flood management approaches.

Equitable co-investment in flood protection is required

Present regional-council focused funding arrangements are neither equitable nor sufficiently sustainable to address present and emerging needs on their own. There is a strong case for central government to return, as a legitimate and justifiable co-investor, in improved flood protection schemes. For the past three decades, Crown-owned and related assets have received flood protection at a cost to regional and targeted local ratepayers, with little contribution from the Crown.[6]

These protected Crown assets include rail and road infrastructure, communication and electricity transmission infrastructure, some airports and education and health facilities etc. The Crown also has substantial contingent liabilities associated with public assets that it does not own, but significantly funds, such as local roads. Also protected by flood schemes is the capacity to sustain the efficient functioning of affected communities and their economies, in the face of significant flood events.

All up, Government has a broad and critical stewardship responsibility to protect and improve community resilience by reducing the risk of the failure of existing flood protection schemes. This responsibility extends far beyond their current focus on responding to flood events and assisting with recovery.

Previous regional council work to secure central government co-investment

A business case seeking a central government co-investment contribution of $150m per annum was presented to officials in 2019 by all New Zealand regional councils.[7] This business case has not yet achieved the task, nor central government attention, it was intended to achieve.

The business case was however valuable in helping to secure a one-off and very much welcomed central government commitment of $217m for expenditure on 55 'shovel ready'[8] / community climate resilience flood protection' projects throughout New Zealand[9]. Work to construct these scheme enhancements is now well underway. The progress being made confirms the capability and proven reliability of regional councils – in partnership with central government, to partner to deliver these projects, even with quite short notice and in despite the on-going challenges posed by Covid-19.

The earlier business case also had some influence on the content of a July 2020 Cabinet paper. This paper provided a welcomed indication of government willingness to develop a set of principles and a decision-making framework to guide further central government co-investment in flood protection schemes. But then in June 2021, the Minister of Local Government, the Hon Nanaia Mahuta, resolved to 'suspend' the contribution of central government resources toward progressing this work. Correspondence to LGNZ from Minister Mahuta suggested the was because budget 2021 constraints meant that resources were not available to '*continue a dedicated work stream on flood risk co-investment*.' Instead, the Minister advised the sector to focus their efforts on the National Adaptation Plan being led by MfE. The Minister also invited the regional sector to '*engage on the lessons learned and options for enabling greater resilience to flood events in the Buller region*'.

[6] In the past, (prior to the early 1990s), the capital cost of substantial river management and flood protection schemes was commonly supported at levels of 50% to 75% by central government. Maintenance and operating costs at rates of around 25% were also provided. A review of documents from the time suggests this national support typically amounted to over $114m per annum in today's dollars.
[7] Central Government Co-investment in River Management for Flood Protection: Critical Adaptation to Climate Change for a More Resilient New Zealand, July 2019
[8] The 'shovel ready' projects that received funding were not necessarily those projects sitting at the top of a list of national priorities. They were simply those projects that were 'ready to go'.
[9] Regional councils throughout New Zealand are now delivering these projects – within expected timeframes and budgets. When regional council funding contributions are added in, these projects have a value of $315m. 55 projects were initially agreed. More recently, some projects have been joined together and one project (the 'Muggeridge' pump project in Waikato) is now not being funded.

Regional council chairs and other community leaders have some sympathy for the workload currently being carried by central government officials but were nevertheless extremely disappointed by this decision. It ignores the reality that increased flood events and hazards are not 'on pause'.[10]

Community leaders are also conscious of the importance of all parties applying more attention to a multi-tool / broad fabric approach to the future protection of homes, buildings, and community assets from floods. Regional councils have worked with DIA and MfE over the last 12 months to contribute to the development of this broad fabric of initiatives. However, they are of the view that extending the toolbox of community protection cannot and should not be progressed without giving priority focus to flood protection schemes as the 'first line of defence.' This is the role played by flood protection schemes. Flood protection schemes remain the number one critical existing asset protection tool.

Without further investment in flood protection schemes, the risk of communities continuing to get flooded will be exacerbated. In addition, insurers will increase the premiums they charge for protecting flood prone areas. In some instances, they insurers withdraw coverage.[11]

Real events from 2021 demonstrate the need for urgent action

This report provides information drawn from 2021 case examples - with a focus on the 31 May 2021 Ashburton / Canterbury flooding but also drawing on information from the July 2021 Westport and Marlborough events.

The report describes these flood events and flood protection scheme locations and performance assessments, community responses, details about the on-going impacts of the flood events and scheme 'value propositions'. Most importantly, the report also provides event-specific details about the many millions of dollars of valuable crown assets protected from 2021 floods by flood protection schemes.[12] Protection of these assets is just one of the many reasons for significant government investment in flood protection schemes, as presented herein.

Re-purposed approach to flood protection

Regional councils know the flood protection schemes of the future, compared to those of the past, must satisfy a wider spectrum of community, environmental, cultural, climate change and economic objectives. The sector is aware of the role played by schemes in supporting integrated land uses, enhanced ecological outcomes and water quality improvements. They are also aware and are responding to the role played by schemes in potentially assisting to resolve 'drought-influenced' water resilience challenges[13] and contemporary iwi / Te Mana o te Wai objectives.

These objectives and challenges are real, substantial, and present right now. Regional councils have already demonstrated their ability to meet these needs. However, the high cost of meeting them, alongside the cost of increasing the 'climate change resilience' of existing flood protection schemes, adds to the burden for regional ratepayers to carry on their own.[14]

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[10] See correspondence from the Canterbury Mayoral Forum to the Minister for Local Government (appendix 1)
[11] Tower Insurance has already announced their intent to increase premiums in flood prone areas. Further details are provided in the body of this report. Enhanced investment in flood protection schemes, to keep this 'risk' to an acceptable level, is one of several critical actions required to keep insurers in the market.
[12] This information has been generated using valuation methods developed by economist Julian Williams.
[13] This may include by creating wetlands to enhance ground water recharge.
[14] Regional councils have already clearly displayed the need to extend their flood protection toolbox beyond simply constructing and maintaining flood protection schemes. They have applied the new principles to this area of their work. They have engaged with iwi / Māori – and will continue to actively participate in central government processes to develop a national planning framework – noting this will encompass the more extensive use of spatial planning and managed retreat tools (where appropriate).

Apportioning co-investment funding

As noted previously, central government annual funding of at least $150 million is required. This is proposed to sit alongside the $200m per annum to be committed by regional councils.

A long-term funding formula is proposed as a starter for a discussion about how central government funding should be apportioned. This recommends central government make:

- Co-investment of up to 75% assistance toward the cost of works to recognise the importance of adopting a **whole catchment climate change adaptation** approach, alongside achieving a wide range of other objectives.
- Co-investment of up to 50% toward the cost of the capital works required to **upgrade existing** river management and flood protection works.
- Co-investment of 33% of assistance toward the **maintenance** of existing scheme works.
- Co-investment of 75% of assistance towards the emergency repair of flood protection assets where substantial damage occurs from major storm events.

The above cost-share formula is offered as a start point for discussion. It is realistically and fairly determined and is focused on achieving the necessary step-up in protection, within a reasonable timeframe. The July 2020 community resilience / flood protection Cabinet paper offered a set of cost-share principles that should also be considered.

National leadership and urgent action required

The Government has an important and urgent role to play in leading and adequately resourcing the purposeful, timely and meaningful actions to help deliver practical scheme improvements. These improvements are fundamental to the task of greatly increasing community resilience against flooding and generally sustaining community well-being.

Details about the preferred design of a co-investment model should be prepared by a joint central and local government officials group, supported as needed by external advice. This group should be invited to provide recommendations to core Ministers and regional council chairs within three months of the receipt of this supplementary report. These recommendations should include decisions about the budget allocations required to meet immediate 2022 investment priorities[15] as well as the sums that should be included in budgets for each year extending from 2023 to 2033. The recently announced 'Climate Emergency Response Fund' is the likely and very appropriate source for these funds.[16]

For more than half a century, regional councils have demonstrated they have the capability and capacity to ensure flood protection schemes deliver flood protection to New Zealanders. Regional councils have further demonstrated their ability to deliver necessary improvements by their recent performance in rolling-out the fifty-five-flood-protection scheme improvement projects.[17] These selected projects were those that were 'shovel ready' at the time.[18]

Regional councils fully support government's December 2021 decision to establish a new Climate Emergency Response Fund (CERF). It is critically important for New Zealand to commit significant financial resources to respond to the climate change challenges that are with us now, noting these will

[15] The River-Link project in the Lower Hutt Valley and the proposed 'multi-tool' approach to flood protection at Westport are two current proposals lending themselves to immediate central government co-investment.
[16] The $1 Billion per year 'Climate Change Emergency Fund' was announced by the Minister of Finance on 15 December 2021. The purpose of the Fund is to assist to meet the cost of assisting communities to adapt to climate change and to build resilience against its effects.
[17] These were provided with the assistance of one-off funding through Kānoa as part of the Covid related Climate Resilience Programme.
[18] There are many more improvement projects requiring similar urgent action. Central government co-investment is essential if this is to occur.

increase in the future. Regional councils urge that central government give priority to expenditure of CERF-funding on necessary upgrades to flood protection schemes throughout New Zealand. Adaptation actions such as improvements to flood protection schemes are required immediately, regardless of the success or otherwise of international mitigation / decarbonisation measures.

The proposed 2022 National Adaptation Plan may be the instrument to guide expenditure of the CERF. Regional councils are participating in an MfE 'Local Government Adaptation Advisory Group.' One of the objectives of this participation is to ensure appropriate flood protection scheme investment provisions are considered by this Group and thereby included in the National Adaptation Plan. However, regional Councils fear the Local Government Adaptation Advisory Group deliberations will not be enough on their own to guide the necessary decisions. Councils therefore also urge central government support for the establishment of a working group with Treasury, DIA, MfE, NEMA and other officials (for example officials from MBIE's Kānoa Group) to develop the principals, priorities, and a project funding allocation framework to guide the necessary $150m per annum of additional central government co-investment expenditure decisions on flood protection schemes.

Back-work to achieve this objective needs to be underway now. Without necessary co-investment decisions being made immediately, then the flooding risk to our communities will continue to incrementally increase. The consequences of not acting do not bear thinking about.

National interest in flood protection – a summary of the case for co-investment

Flood protection schemes are nationally important. They underpin the integrity of public and private assets and lifelines and provide resilience and security to communities and their investments. Central government co-investment is vital because it:

- Is fiscally **responsible and fair** to make such investments.
- Reflects Treasury's **Living Standards Frameworks**.
- Is supportive of wellbeing and social inclusion and is likely to reflect **equity / ability to pay** considerations.[19]
- Is supportive of **job creation, protective of previous regional economic development investments** and contributes to the desire to lift the future productive potential of the regions.
- Contributes to the security of **access routes** (rail and road) and the communication infrastructure that is vital for commerce and community functionality.
- Directly protects significant **crown assets** such as hospitals, schools, infrastructure etc.
- Contributes to investment '**opportunity costs**.'
- Diminishes the risk of escalating **insurance** premiums, the reduction in the uptake of private insurance and the associated risk of insurance companies refusing to provide insurance cover in flood risk areas – leaving the Government as the 'bottom of the cliff ambulance'.
- Contributes to the **environmental** and water quality expectations of our communities and iwi / Māori partners.
- Provides for resilience and adaptation against the effects of **climate change-induced** 'above-design' storm events.

[19] Equity and ability to pay considerations are likely to be one of the many important elements considered in designing the detail of a central government co-investment programme.

The most important of the above reasons for central government co-investment in flood protection schemes is that it will contribute to the resilience and increased levels of safety and security sought by existing and future businesses, individuals, families, whanau, and communities. Central government has a duty to share in the cost of meeting this objective.

The fundamental foundations are already in place to 'crack on' with improvements to flood protection schemes. Regional council have proven they have the backbone and capability to lead this task.[20] What is missing is adequate and equitable funding. The long-term commitment of central government funding to help regional councils meet current and future climate change adaptation, and other flood protection scheme challenges, is urgently required.

[20], The 'back-bone' performance of regional councils has been clearly demonstrated by the roll-out of the Covid related Climate Resilience Programme through Kānoa.

JANUARY 2022

Central Government Co-investment in Flood Protection Schemes – Supplementary Business Case

Purpose

The purpose of this report is to provide further evidence to support the previously published[21] business case for future central government co-investment in flood protection schemes.

The paper is supported by case study examples. These display the scale of zero cost protection benefits provided to the Crown by regional council and local rate-payer investments. They also demonstrate that Government funding has been heavily concentrated 'at the bottom of the cliff', rather than being smart 'up-front' investment in risk mitigation and resilience.

Funding challenge

The essential challenge is this: the cost of upgrading, constructing, and maintaining flood protection schemes to meet future 'acceptable levels of risk' and other climate change / contemporary operational demands – including the protection provided to Crown assets, is beyond the reasonable capacity of regional ratepayers to meet on their own.

Funding solution

Central government co-investment of approximately $150m per annum is required. This investment should occur alongside an increased level of investment from regional councils and directly benefiting property owners.[22]

Frequency of flood events

As a group of small islands in the 'roaring forties', our weather patterns mean New Zealand regularly experiences high-intensity rainfall. On average, a major damage and productivity loss-causing flood event occurs every eight months.

Floods are New Zealand's most frequent and cumulatively - our most significant and most avoidable hazard.[23] They are the natural hazard most able to be mitigated through application of a well-proven package of flood protection schemes. They are also the natural hazard that has provided the best return on investment from measures contributing to active 'risk reduction'.[24]

Flood protection schemes are the first line of defence

Currently, flood damage is in most cases avoided because of the efficacy of existing flood protection schemes.

Regional council research indicates the current 367 flood protection scheme structures have generally been well maintained and managed in a prudent, professional, and efficient manner. They have also

[21] Central Government Co-investment in River Management for Flood Protection: Critical Adaptation to Climate Change for a More Resilient New Zealand', prepared by regional councils and completed in August 2019.
[22] The proposed increase in regional councils investment is from the previous $175m to $200m.
[23] Over the past 100 years, New Zealand has experienced over 1,000 serious floods. This is the most frequent natural hazard New Zealand faces (Ministry for the Environment, 2008).
[24] NZIER report to DIA, 'Investment in Natural Hazards Mitigation', August 2020.

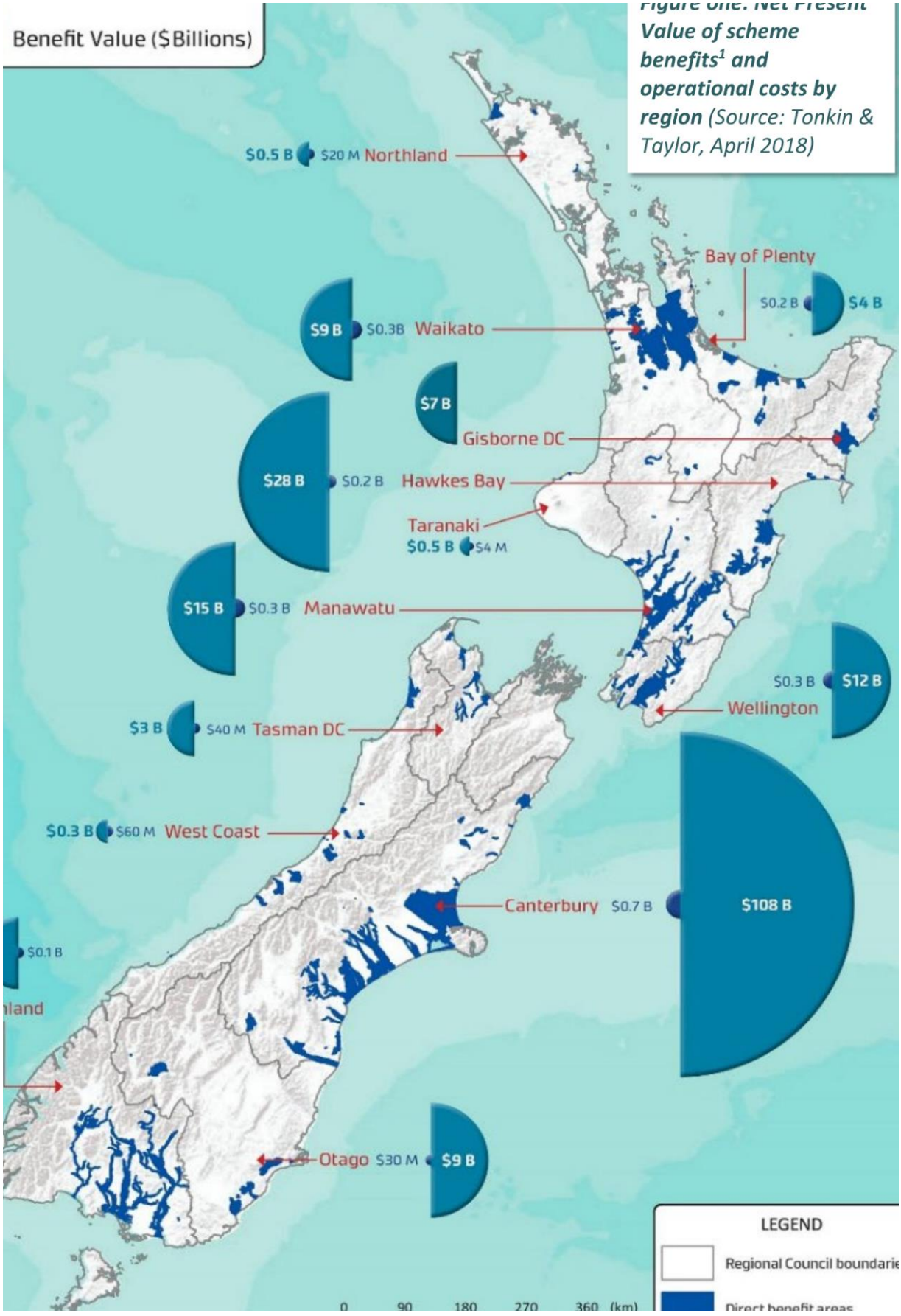

Figure one: Net Present Value of scheme benefits[1] and operational costs by region *(Source: Tonkin & Taylor, April 2018)*

provided good value for money (Figure one)[27]. These schemes provide an estimated Net Present Benefit of over $11 billion each year. This benefit value has increased markedly since the schemes were constructed because of more intensive land uses and associated increased in property values. Unfortunately, climate change impacts are effectively reducing protection service levels at many locations.[28] More people are now being exposed to more risks to their safety than previously. Significant adjustments are now required in the scope and scale of these schemes to meet the challenges of the future.

Climate change

Changes to the intensity and frequency of climate change-induced flood events is the biggest natural hazard challenge New Zealanders face. Climate change will substantially increase the severity and frequency of the risk of flooding.[29] This will cause higher levels of damage and more frequent damage to the land and assets located behind existing flood protection structures and to adjacent communities. There will be associated increased in social and environmental costs. Recent events are a salient reminder of this.[30] Climate change will also shift the area of geographical risk of floods and make new areas, not presently affected by such events, more susceptible to floods.

The severity of the consequences of not securing and enhancing the integrity and service levels of existing scheme structures, and the community resilience role they play, increases every day.[31] The increased frequency and severity of flood occurrence is influenced by several climate change-induced 'additive influencers' because:

- More intense rainstorms generate higher river flows.
- Those flows cause more soil erosion.
- Higher sea levels and more significant storm surges increase flood heights for several kilometres up many river systems.[32]

In combination, the above additive factors lead to more deposition of rocks, stone, gravel, and silt with resultant significantly increased and compounded flood event effects on communities.

[27] Tonkin & Taylor, 'Hiding in Plain Sight' (March 2018) NB the use of the 'Hiding in Plain Sight' title is appropriate. The protection provided by engineered infrastructure located at the heart of river management and flood protection schemes, is not usually visually intrusive and is not often apparent. Such schemes 'do their job,' perhaps only once or less a year. Consequently, the protection provided by such schemes is often taken for granted by New Zealanders, despite the increasing risks currently faced.

[28] Schemes are facing a 'pincer' challenge, where simply maintaining current assets is seeing climate change erode service levels. Ideally service levels should be substantially increasing to protect the more valuable public and private assets located behind the protection infrastructure.

[29] In ideal circumstances, flood protection scheme designs should provide for climate change-induced storm events capable of managing storm events that may occur between now and 2100. Such schemes would provide for an increase in peak flood flows of approximately 20% more than those expected in the period to 2000. This is based on the latest NIWA report prepared for MfE (HIRDs V4). That report states for every degree of temperature increase there is a corresponding 10.1% increase in rainfall (this is called the augmentation factor). A 10% increase in rainfall will generally translate into a 10% increase in peak flood flows. These higher flows will also give rise to increased flood heights because of higher sea levels and greater sediment flows. NB COP26 (November 2021) is aiming to reduce climate change warming by 1.5 degrees by 2050.

[30] A Climate Change Research Institute paper ('Climate Change Attribution', Luke Harrington, co-author, 2021) found virtually all major rainfall events between 2007 and 2017 were at least partially attributable to climate change.

[31] Lawrence et al (2013) suggest that what is considered a 40-year return period event now, will be reduced to the equivalent of an 8-year return period event by 2090.

[32] This includes large areas of drained land on the Hauraki Plains of the Waikato region and land adjacent to Edgecumbe, which in some places is now below sea level.

Photo one: Canterbury late May 2021 flooding eve
(photo courtesy of David Williams – Newsroom)

Scope of this report

This report focuses on natural flood water flowing from catchments via rivers and streams to the sea. The paper does not include consideration of storm water systems and the network of water related infrastructure referred to within the 'Three Waters' reform programme.[33], [34]

Rivers generally flow in a natural pattern across our landscape, although sometimes their flows are boosted by drainage works and sometimes their flows are constrained and channelled via flood protection schemes (figure two). The report does not include consideration of the works required to mitigate against coastal erosion or the mitigation of the effect of land inundation from waves breaking over a foredune and flooding urban areas behind these sand-dunes.[35]

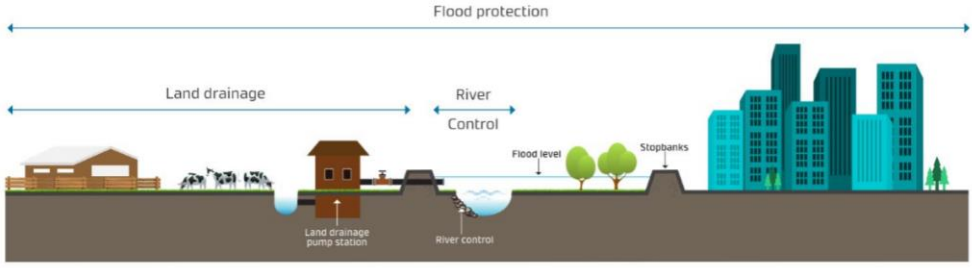

Figure two: Schematic of flood protection scheme and land drainage services (Source: Tonkin and Taylor, March 2018)

[33] The 'three waters' programme deals with drinking water / wastewater and storm-water treated and transported in reticulation systems such as sewers, pipes and street gutters.
[34]Nevertheless, the paper is entirely relevant to this reform programme. This is because of the need to manage flood water in such a way as to make it's 'interface' with stormwater systems as seamless and manageable as it can be.
[35] Addressing the effects on communities of climate change-induced sea level rise has strong parallel challenges to those addressed in this paper.

Assets protected by existing flood protection schemes

Over 100 towns and cities across New Zealand have families and communities living alongside rivers or on flood plains that are protected by flood protection schemes. In total, river and flood protection schemes protect around 1.5 million hectares of land or 5% of New Zealand's land area. This land is where a very high proportion of New Zealand's economic enterprise takes place and where community well-being is most frequently anchored. Marae are also often located in such areas.

Schemes are designed and constructed to achieve defined performance expectations. Higher levels of protection are generally provided to urban areas compared to rural areas. Where a flood event exceeds the design capacity of the flood protection scheme, there will be resultant flooding and damage.

The 2004 Manawatū floods provide an illustration of the extent of the types of costs incurred in rural areas because of this damage. Insured losses from that event were $112 million. However, the cost to the agricultural sector alone, in uninsured losses (lost production and uninsurable rehabilitation costs), were calculated at $185 million.[36]

A similar order of costs were incurred by rural communities because of the June 2021 Ashburton / Hakatere flood event. Futhermore, and as described further later in this report, recovery costs of over $100m now being faced by the small town of Westport could have been avoided by investing around 10% of that cost into a flood protection scheme.

By contrast, work undertaken by Horizons Regional Council (figure three) indicates that of the 28,730 properties in the greater Palmerston North urban area, 12,842 properties would be affected by a flood event if the existing flood protection scheme was not in place.[37]

Similar work – as undertaken by Greater Wellington Regional Council, indicates that over 6,500 commercial, residential, and industrial properties would have been inundated – including nine schools and many other Crown-owned properties if the existing scheme was NOT in place (figure four).[38]

All flood protection schemes throughout New Zealand operate in a living environment. They are subject to wear-and-tear. In addition, they must now endure increased loading because of the changing nature of climate-change-affected weather events,[39] the increasing value of the assets they protect, the larger numbers of people to whom they provide safety, and increased expectations about reducing their impact on the natural environment.

Budgeted expenditure on flood protection

The total replacement value of the 367 flood protection schemes throughout New Zealand is estimated to be $2.3 billion.[40]

Regional authority Long Term Plans for the period 2015 to 2025 show budgets for flood protection operating expenditure of at least $1 billion and capital expenditure of a similar amount. This excludes depreciation.

[36] The cost of emergency services and infrastructure repairs during the 2004 Manawatū floods was put at a further $90 million. The flood was modelled as having a 150-year return period.
[37] This scheme protects these properties and communities from a flood sourced from the Manawatū and Mangaone Rivers with a magnitude greater than that occurring with a frequency of 1:100 years.
[38] This is the number of properties that would have been affected by the flooding that would have occurred in the area adjacent to the Lower Hutt River in 2015 if it were not for the presence of the Pharayzyn and CBD stop-banks.
[39] This results in the 'design capacity' of these schemes being more frequently exceeded than in the past.
[40] Source: Tonkin & Taylor report '*Hiding in Plain Sight*' (April 2018).

These budgets are, to varying degrees, based on a continuance of the same design paradigms applied when the schemes were initially constructed. As such, they do not reflect the quantum of the changes now needed to recognise the impacts of climate change and other contemporary challenges.

Councils are aware that a 'step change' in flood scheme approaches and investment levels is required. Not only is climate change effectively reducing the service levels of current schemes, but existing service levels are in many cases in need of lifting, regardless of climate change effects. This is to better protect the greatly increased value of assets and the increased size and nature of the communities reliant on flood protection schemes.

Regional councils also know they cannot and should not be obliged to meet the cost of meeting this demand solely from their own rate-payer-focused funding sources. They are saying 'central government should pay their legitimate share - as a direct and indirect beneficiary of these works, in partnership with regional councils'. They argue that, with central government help, the necessary 'step change' can be achieved.

As part of their approach to the management of this challenge, Regional Council Chief Executives have formed the regional council 'River Managers' Special Interest Group' (SIG). This Group has developed a 'Five Year Sector Resilience, Sustainability and Improvement Plan' for flood protection. As part of this Plan, a work programme has been established to assist the sector to remain at the cutting edge of the challenges associated with their community resilience / flood protection task.

Regional councils[41] have the capacity to 'get the job done' provided co-investment funding is made available from central government to meet necessary agreed risk profile and prioritised flood protection enhancement programmes. This co-investment is now urgently required. Councils are also collectively investing in improving capacity and capability to meet the step change required to the nation's flood protection, across the full range of methodologies available for flood protection – not just schemes.

A reminder about the history of river management for flood protection

New Zealand previously led the world with its statutory recognition in 1941 that land and water management for flood protection needed to be catchment based. This need was reflected in the purpose of the Soil Conservation and Rivers Control Act 1941 … '*to make provision for the conservation of soil resources and the prevention of damage by erosion, and to make better provision with respect to the protection of property from damage by floods'*.

The need to '*make better provision'* for protection against the effects of floods clearly needs to be put back on the table. The 1941 statute led to joint investment by central government, regional communities and the directly-benefiting property owners associated with or affected by river management, drainage, and flood protection schemes.

Central government, at that time, clearly recognised it was a property and Crown asset owner directly benefiting from these flood protection schemes. It also recognised it had wider national interest responsibilities. This understanding now appears to have been forgotten.

[41] We use the term regional councils throughout this report noting that it encompasses both regional councils and unitary district councils and noting these are often more formally jointly referred to as regional authorities.

Figure three: Area of Palmerston North protected from flooding by Manawatū-Whanganui / Horizons Regional Council flood protection schemes.

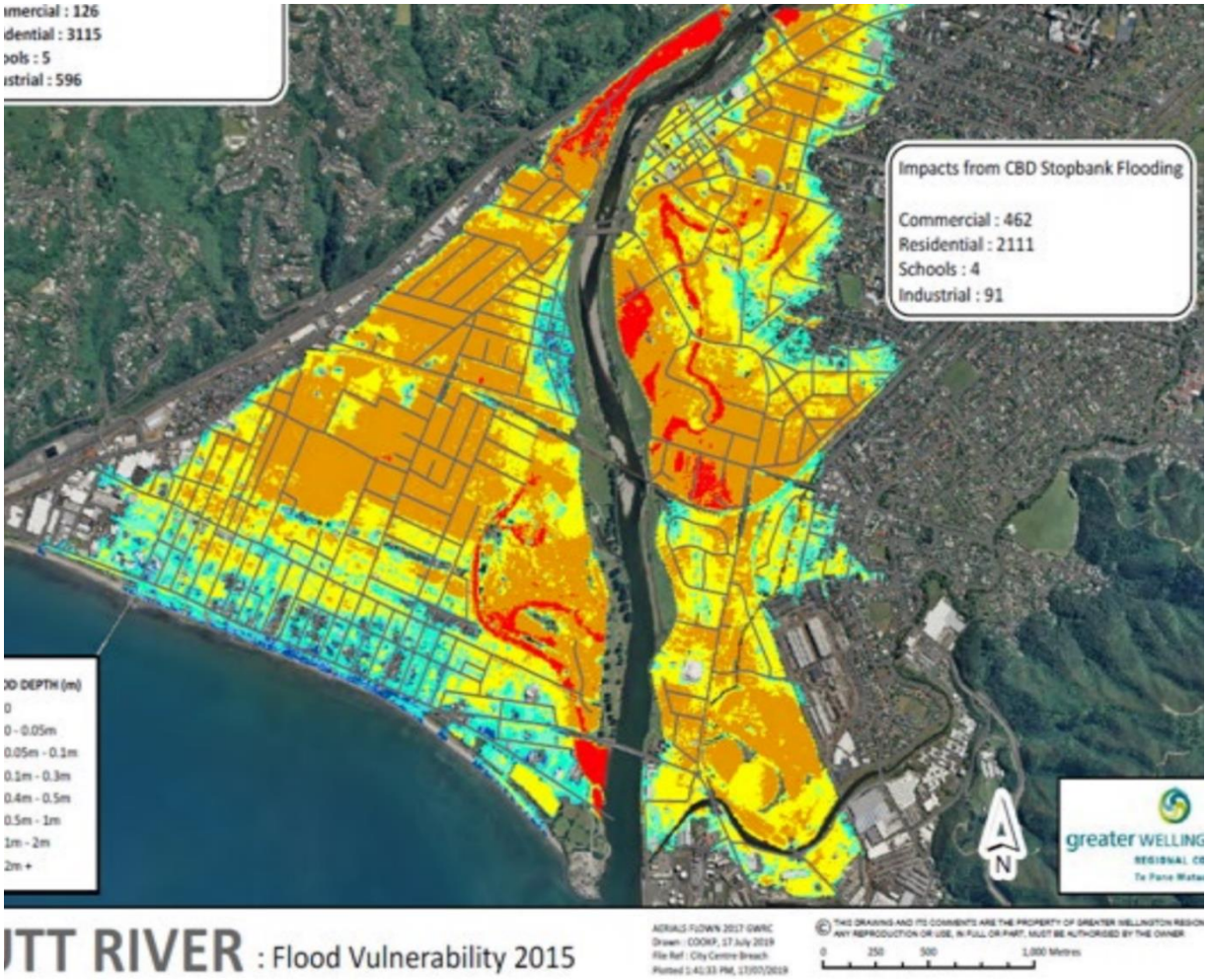

Figure four: Properties protected by Hutt Valley Flood Scheme

Refreshed perspective

A fresh perspective on the important role played by flood protection schemes is now required. Most river management, drainage and flood management schemes were constructed half a century ago. The value of the Crown, local authority and private assets protected by these schemes has incrementally increased. It is now very large. The type of land use activity carried out on this protected land is more intense than that envisaged at scheme design. In addition, the schemes are now required to operate in a more environmentally friendly manner.

Prior to the early-1990s, the capital cost of river management and flood protection schemes was commonly supported by central government at rates of 50 to 75%[42]. Maintenance, to ensure the integrity of the performance of these schemes, typically received 25% support from central government. Collectively, this level of support amounted to around $40m per annum from central government - equivalent to over $114m per annum in today's dollars.

[42] We would note for example that the Waihou Catchment control scheme – a very large whole catchment scheme (and the largest addressed in a holistic manner in the country), received an 87.5% government grant.

20

Since the early to mid-1990s, river management and flood protection schemes' funding has relied almost entirely on regional rates and the contribution of directly-benefiting property owners, via targeted rates.

By comparison, internationally, including in Europe, Australia[43], and the UK[44], most developed countries currently have substantial levels of central government funding for flood protection activities. This recognises the national benefits they provide[45]. More multi-tiered international jurisdictions also have State as well as Federal co-funding with local authorities. It is now timely for New Zealand's government to draw from these models and reconsider the very valid reasons why it initially shared in the cost of flood protection.[46]

Current central government role in flood protection

Central government currently has just two roles with effect on the protection of communities from flooding. Firstly, it has an enabling role - to ensure regional councils have the legislative power to manage hazards, including flooding. This legislation includes the Local Government Act 2002, Resource Management Act 1991, Soil Conservation and Rivers Control Act 1941, Drainage Act 1908 and the Civil Defence and Emergency Management Act 2002.

Secondly, when an event occurs of a size beyond local government's ability to cope, central government assists with response measures. It also provides financial assistance to speed up recovery. [47] This assistance is as per the parameters described in the National Civil Defence Emergency Management Plan (2006). For example, if a major flood damages critical infrastructure, then central government will meet up to 60 percent of the asset's repair cost, once damages reach a certain threshold.[48] Event responses also require ramped up activities and support from MSD, MPI, EQC, NEMA and health agencies.

Central government's role for the last three decades has been focused on disaster response, relief, and rehabilitation rather than as a preventor of damage. Central government's current role may therefore be viewed as more of the 'ambulance at the bottom of the cliff' than as a funder, protector, and advisor at the 'top of the cliff'. Funding assistance to communities is generally applied after the event rather than before the event.[49]

Just as is the case with overseas jurisdictions, and consistent with the advice of the Productivity Commission,[50] central government must also now shift its focus toward partnering with regional councils to grow the 'first line of defence' role played by flood protection schemes.

[43] On top of existing 'state' contributions, the Australian Productivity Commission (2019) recommended the Australian government increase annual mitigation funding contributions to state and territory governments by $100 million in the first year, then to $150 million in the second year and $200 million in the third year

[44] In the United Kingdom the current Environment Agency programme, which runs from 2015-16 to 2020-21, includes 1,136 flood and coastal erosion projects at a projected total cost of just over £6bn.

[45] Central / provincial government responsibilities in Europe vary from those applied in New Zealand. The principle emphasised here is that European countries tend to give higher recognition to the national benefits of river management for flood protection than in New Zealand. New Zealand could learn from their approach.

[46] New Zealand is now well beyond the need to apply the funding principles applied during the period of 'Rogernomics.'

[47] Government may also provide aid to parties affected by flood events within the terms and conditions defined in the On-Farm Adverse Event Recovery Policy administered by the Ministry for Primary Industries.

[48] We understand this level of assistance is now under review.

[49] For example, research funded by central government through the science system provides some guidance to the flood protection role played by regional councils.

[50] Productivity Commission, Local Government Funding and Financing, 30 November 2019.

Potential changes to central government flood protection responsibilities

Central government have commenced developing a refocused approach toward natural hazard policy. One of the stimulants for this was a 2020 review of the Resource Management Act (RMA) carried out by a Panel chaired by Retired Court of Appeal Judge Tony Randerson QC. Based on the Panel's advice, Government now propose replacing the RMA with three new pieces of legislation.[51] These are the:

- Natural and Built Environments Act (NBA Act).
- Strategic Planning Act (SPA Act).
- Managed Retreat and Climate Change Adaptation Act (CCA Act).[52]

The new legislation is intended to overcome 'RMA problems' by, among other things, giving more prominence to the need to address natural hazard challenges. Solutions are proposed to be put in place by, among other things:

- Establishing a binding set of positive **national outcomes** and priorities for natural and built environments rather than using the 'effects management' regime entrenched within the current RMA.
- Recognising the concept of Te Mana o te Wai and the need for more active involvement of mana whenua in resource management decision-making (including that related to the protection of communities from the effects of flooding).
- Providing better national direction by preparing a robust **National Planning Framework** that will include content about the management of natural hazards and climate change.
- Giving more recognition to the need for Plans – including newly proposed regional spatial plans, to provide for adaptation to climate change, the avoidance of the risks arising from natural hazards, and better mitigating the emissions contributing to climate change.

The need for a comprehensive approach to flood risk management is clearly encompassed in the above advice (figure five[53]). In recognition of this, regional councils have embraced and are actively applying a more comprehensive approach (figure six) to flood protection than in the past. However, they argue that providing protection by building resilience into existing flood protection schemes must remain a clear, prioritised and strong tools in the toolbox for achieving these proposed legislative requirements.

One of the proposed 'National Outcomes' likely[54] to be included in the Natural and Built Environments Act will address natural hazards and climate change. The proposed new Act will likely require the National Planning Framework and by implication, all local authority resource management plans, to promote measures to ensure significant natural hazard risks are reduced and the resilience of the environment to natural hazards and the effects of climate change are improved. This is a necessary and supported change.

DIA have played an active role in the first ten months of 2021, alongside regional councils, to develop potential flood-related natural hazard content for inclusion in the proposed National Planning Framework.

[51] Cabinet Paper, December 2020.
[52] This Act will be developed in 2023. However, the Climate Change Response (Zero Carbon) Amendment Act 2019 requires MfE to lead the process of preparing a National Adaptation Plan. Details about what it may contain are currently uncertain. Regional councils are of the view that the Plan should record flood protection schemes as the critical tool for assisting communities to adapt to the effects of climate change.
[53] This diagram was prepared by DIA and was included in a presentation to MfE and regional council river managers (3 November 2021).
[54] An indication of what may be included in the Natural and Built Environments Act was revealed in an exposure draft released in August 2021.

In November 2021, responsibility for further developing the 'natural hazards' content of the proposed National Planning Framework was transferred to MfE. In making this transfer, DIA provided the following advice to MfE about how to best address flood protection schemes going forward:

- Take a 'systems approach' to flood risk management with greater integration of existing policy and practice on a range of fronts.[55]
- Use regional spatial planning strategies under the SPA to integrate flood risk management and climate change adaptation with strategic growth planning to enable future development to be risk-informed, climate resilient and sustainable.
- Set out where flood risk reduction will be prioritised over other outcomes.
- Provide for the maintenance of flood protection schemes[56] and adaptation for climate resilience.

Regional councils endorsed this advice.[57] What remains most salient in the above supported advice is DIA's clearly stated recognition of the importance of the foundation stone protection provided to communities by the existing 367 flood protection schemes. The recent passing of the Resource Management (Enabling Housing Supply and Other Matters) Amendment Act compounds this challenge.[58]

The challenge for both central and local government to now address is how to secure the funding to enable these foundation stones to be maintained and adapted to the changed operating environment. A solution to this challenge is critical if our communities are to withstand the increased frequency and magnitude of current and future 'climate change influenced' floods. In support of this point, DIA noted[59]:

- Local government should not be required to meet the costs of developing and maintaining flood protection works on their own.
- Repeat flood events are a challenge for central government to respond to.
- Insurers are moving to risk-based pricing and will withdraw and / or increase flood insurance in high flood risk areas.
- Co-investment will be needed by central government to support local government investment in flood protection infrastructure, adaptation for climate change and retreat, and for upgrading schemes to meet new environmental and cultural requirements set by the National Planning Framework.

Central government's application of this refreshed thinking to the funding models for flood protection was recorded in the July 2020 Cabinet paper 'Improving Resilience to Flood Risk and Supporting Covid-19 Recovery.' This Cabinet paper noted:

[55] Investing in risk reduction through land use planning has been shown to be one of the most effective policy levers to reduce risk. Providing co-investment for flood protection helps with existing development but stronger national direction to limit new development in high-risk areas is agreed as being a necessary accompaniment to central government co-investment in flood protection.
[56] This underlining has been included by us to give this point necessary emphasis.
[57] This endorsement was provided by means of the active involvement of the River Managers SIG in DIA workshops and via submissions on draft documents.
[58] Government's Resource Management (Enabling Housing Supply and Other Matters) Amendment Act provides for significant intensification in Christchurch, Auckland, Wellington, Hamilton, Tauranga as of right. This will come into effect in August 2022. This will increase risk as it will allow for three dwellings on sites where there is currently one. There is some provision for exclusion of areas where there are natural hazard risks, but it is not clear how this will play out. Many of these cities have large areas of land that are prone to flooding from major rivers.
[59] This information was included in an A3 shared by DIA with river managers and MfE on 3 December 2021.

- Current funding arrangements for flood protection infrastructure were established over 30 years ago and they are no longer considered sustainable or consistent with delivering outcomes in line with (the) proposed framework and principles.
- Subject to further work, central government's funding approach to building resilience should consider the benefit principle, fairness, and intergenerational wellbeing.
- Officials will work with local government to develop a revised funding model for flood protection, based on the proposed framework and principles, which would be implemented over the longer term.

Regional councils welcomed the above commitments. They were therefore very disappointed to receive notice from DIA (June 2021) that further work on developing a co-investment framework for flood protection schemes had been suspended.

Notwithstanding, the proposed principles included in Appendix B of the July 2020 Cabinet paper remain valuable. The paper refers to an intention to use these principles to underpin the framework for central government's role in strengthening community resilience to flood risk by intervening where there is a national interest or national benefit. More explicitly, the appendix states an intention to:

- Target action where national assets and national interests warrant central government intervention and funding.
- Intervene in projects where there is a significant economy of scale or time constraints, distributional concerns, to protect health and safety, and to protect kaitiakitanga.

What is requested is the opportunity to urgently[60] work with central government to apply these principles, alongside the guidance offered in the previous regional council business case,[61] to develop a flood risk funding model that will provide co-investment support to regional councils and their communities to further enhance flood protection schemes.

Protection of Crown assets, values, national interest, and resilience – and the need to reduce Crown contingent liabilities

The cost of flood events may be counted not just in terms of the cost of replacing or restoring privately owned buildings and overcoming other property losses. There are also other tangible costs. These include the number of hours or days businesses cannot operate at full production and the cost of disruptions to the functionality of Crown assets.

In addition, flood costs have both an immediate and sometimes an on-going effect on people's lives. This includes the effect on the willingness of the residents affected by flooding to continue to live and invest in areas subject to flooding.

To avoid a worst-case flood disruption scenario, scaled-up central government and regional council investment in flood protection schemes is required. The priority reason for this co-investment is to create resilient communities and sustain economic enterprise.

[60] The 2021 Westport, Marlborough and Canterbury floods display the fact that the challenge is real and present.
[61] These are summarised in the executive summary and again toward the conclusion of this report.

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Figure five: Comprehensive approach needing to be applied to address flood protection challenges – as prepared by DIA (NB the blue circle has been highlighted by us to draw attention to the on-going critical importance of flood protection tools)

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Annex A

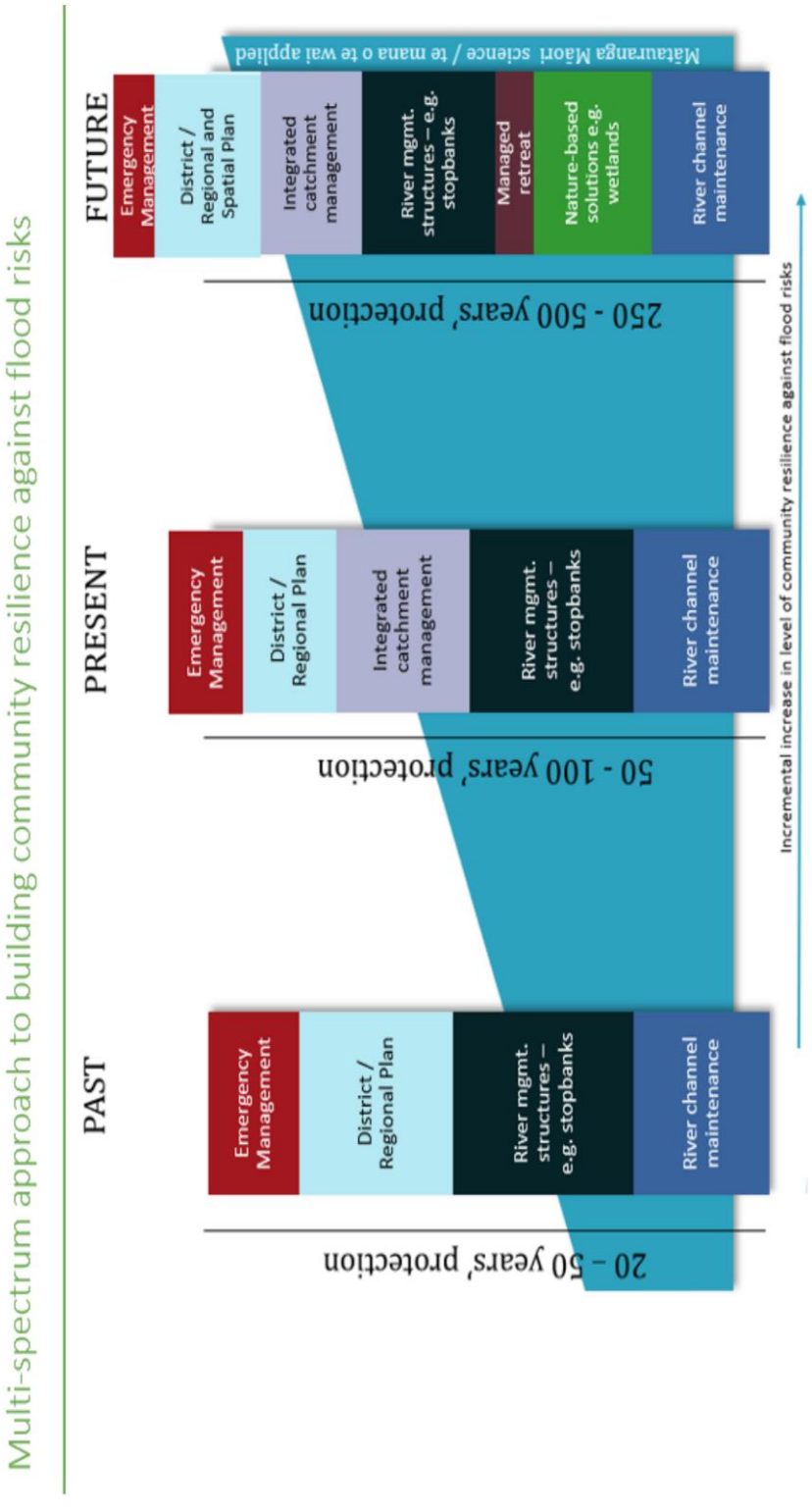

Figure six: Evolution of regional council approaches to flood protection

Companion objectives affecting the design of future flood protection schemes include the degree to which they may:

- Support well-functioning ecosystems.
- Improve water quality.
- Satisfy the expectations of our communities and Māori / iwi partners that our rivers will be managed as national treasures.
- Achieve integrated land use.
- Better reflect iwi / Māori / te Mana o te Wai and community aspirations about the management of natural systems.

Higher levels of resilience against the risks of extreme floods will also contribute to a full suite of other Government objectives, including investment certainty and social cohesion. These benefits will be expressed in all regions, not just the 'richer' regions.

One of the effects of central government's current narrow 'response-focused' role is that, for three decades, Crown owners or Crown infrastructure agency owners, have been able to enjoy the benefits of the asset protection provided to them by flood protection schemes at the cost of regional and targeted local ratepayers. Using local authority property-based rates to fund the protection of Crown assets is plainly unfair.

These protected assets include rail and road infrastructure, lifeline infrastructure such as power lines, some airports,[62] communication services, schools, hospitals, universities, and public conservation land. The Crown also has substantial contingent liabilities in respect of non-Government owned assets such as local roads where it has funding responsibilities. In addition, if adequate protection is not provided to public and private assets, when major disasters occur, the Crown becomes the funder of last resort to restore community functionality.

Estimates[63] show that for floods in Nelson and New Plymouth in 1970 and 1971, losses associated with central government works and services (roading, railways, bulk power supply, flood control and drainage works) amounted to 49 per cent of the total value of all direct losses.

A further example is provided by the 2006 Dunedin flood. The Leith Flood Protection Scheme plays a large role in protecting the Dunedin CBD from flooding. This includes the protection of education facilities (University of Otago and Otago Polytech) and the protection of the new Dunedin hospital, public reserves, residential and commercial areas. The capital value of the Crown properties and non-relatable University land and assets in the area protected by the Scheme is 35 per cent of the total assets in the area.

Further examples of the direct benefits provided to central government may be drawn from Ashburton, Blenheim / Marlborough District and Westport. These three areas were all subjected to extreme flooding in 2021. Details about these case studies follow.

Live examples of the importance of the Crown being at the 'top of the cliff'

Ashburton flood event – June 2021

Across the Canterbury region, there are 110,000 houses located in flood hazard areas. These houses have an estimated replacement value of $34 billion. The region has 112 km2 of land at risk from

[62] Airports such as those at Christchurch are located on flood plains. Many New Zealand airports are 50% owned by the Crown.
[63] Ericksen (1986) cited by the NZIER (2004).

flooding. The region also has 3,900km of roading, 800km of national grid lines, 2,204 of drinking water supplies, and nearly 3000 km2 of dairy and pastoral land.[64]

Over the three days from 31 May to 2 June 2021, the Canterbury region experienced 551mm of rain, with the greatest intensity experienced in the Canterbury foothills. The event was characterized as a 1:200-year flood event in the foothills and a 1:50-year event towards the coast (see figure seven).

Met Service's 'Ensemble Forecast System' found that compared to a climate system unaffected by human activities, between 10 and 15 per cent more rain fell in this period than usual. Using a large collection of global climate model simulations, they also found that these events are at least 20 per cent more likely to occur today than in preindustrial times when the atmosphere was about one degree colder.[65]

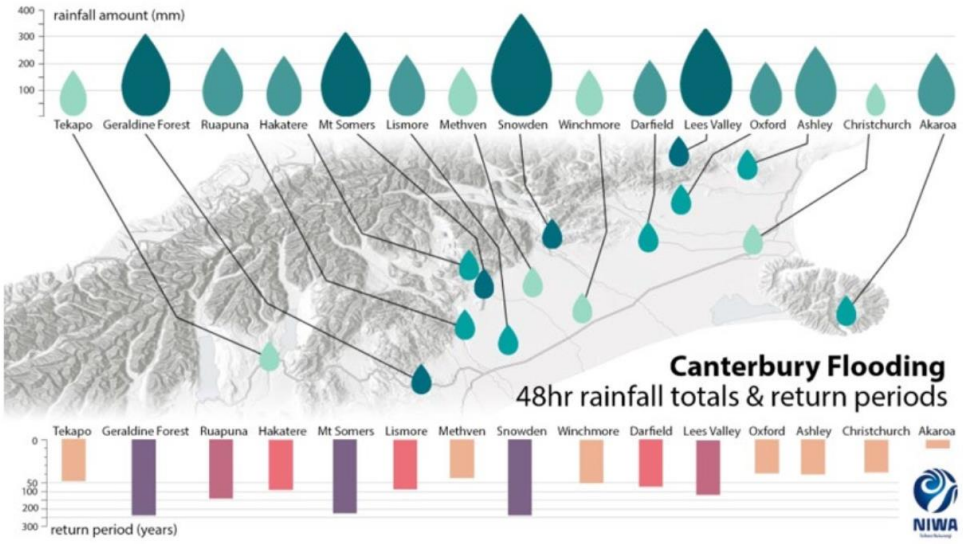

Figure seven: Canterbury rainfall event, 31 May to 2 June 2021, NIWA

River flow data showed a peak flow of 1,794m3/s in the Ashburton / Hakatere River at the State Highway One gauge. This is the highest flow recorded at that site since the gauge was installed. A total of 558 response 'needs assessments' were carried out by local authority and civil defence personnel and over 200 households / 300 persons were evacuated from five main locations around the district. All but 18 persons were able to return to their homes. A total of 32 houses were damaged by flood inundation. $5m of damage was done to local roads.

The town of Ashburton was saved from greater damage by a well-designed urban flood protection scheme. Further damage was averted by timely community leadership. The $2.5m spent a decade ago on upgrading the stop banks on either side of Ashburton town proved their value. There was little damage to residential properties in the town and no loss of life.

The focus of the flood event impacts was in rural areas, particularly in the Canterbury foothills around Mt Somers and on intensively farmed land between the two branches of the Ashburton / Hakatere

[64] The information provided in this case study was drawn from a report prepared by Pam Johnson from DIA.
[65] https://www.stuff.co.nz/environment/climate-news/127210511/climate-change-made-the-may-flooding-in-canterbury-more-severe--researchers

River. The two branches of the Ashburton / Hakatere River both suffered over-topping of stop-banks. This caused significant flooding because the event was "over design". This means there was more water than the flood protection scheme was ever designed to handle.

Farmland and rural infrastructure were damaged. This included damage to fences, bridges, irrigation equipment and stock feed etc. The safety of animals was placed at significant risk. Some evacuations were required in small rural communities including at Springfield in the Selwyn district. Other rural areas, such as Hinds, were also cut off.

State Highway One, the primary transport route for southbound travellers and freight, typically has around 24,000 vehicles per day going over it, including 2,000 trucks. Over 30,000 vehicles cross in weekends. The bridge was closed because of concerns about bridge damage and structural stability. Alternative routes south (including the rail line) were also closed by the flooding. This impacted supply chains to the whole of the lower South Island[66] with significant but difficult to accurately quantify impacts on the economy.

Nevertheless, the event gave rise to 3,800 insurance claims from the Ashburton district requesting $46.4m. The main claims may be broken down as follows:

	Number of claims	*Cost of claims $*
Domestic	2,446	$22,218,746
Commercial/material damage	889	$18,625,320
Business interruption / loss of profits	57	$1,050,779
Motor vehicle	302	$1,816,351
Other	82	$2,717,521
Total	**3,776**	**$46,428,717**

Crown-owned assets located in the Ashburton district total over one billion dollars in value. These may be categorised as follows[67]:

- Urban land and buildings $36m
- Rural land and buildings $10m
- Roads $685m
- Rail tracks $258m
- Transpower lines $28m
- **Total** **$1,100 million**

The total value of land and buildings on the floodplain in the Ashburton district is $4,867m.

The Ashburton / Hakatere river's control works consists of 76km of stop banks valued at $17.6m and other tree, rock, culvert, and flood gates valued at $62m.

[66] This was the second time that state highway one had closed due to flooding in recent times. In addition, the Rangitata bridge closed for three days in the December 2019 flood event.

[67] The dollar value of 'damage to assets avoided' has been calculated using 2020 dollars by applying level of service and scheme rating multipliers at a catchment level. This method of calculation was developed by economist Julian Williams using methods initially applied by Tonkin & Taylor - as included in their 2017 report "Hiding in Plain Sight". The method uses the capital value (rating data) of government owned property such as schools and hospitals and lineal distance in km times per km rate of national infrastructure networks (road, rail, and national power lines). For example, the current cost estimate to build 1 km of state highway is approximately $50 million.

These protection works generally provide benefits of protection to central government assets that vastly exceed their costs. The works are usually designed to provide a one in 50-year return frequency level of protection to rural areas inland from Ashburton and a one in 200-year return frequency level of protection around the township of Ashburton. As noted previously, the storm exceeded the design limit of the protection works located in rural areas but provided good protection to Ashburton town.

Other expenses will be incurred by both Environment Canterbury and NEMA[68] to restore flood protection scheme infrastructure and related vegetation (figure eight). The ratepayers of Canterbury will be required to meet unbudgeted flood recovery expenditure of around $12m.

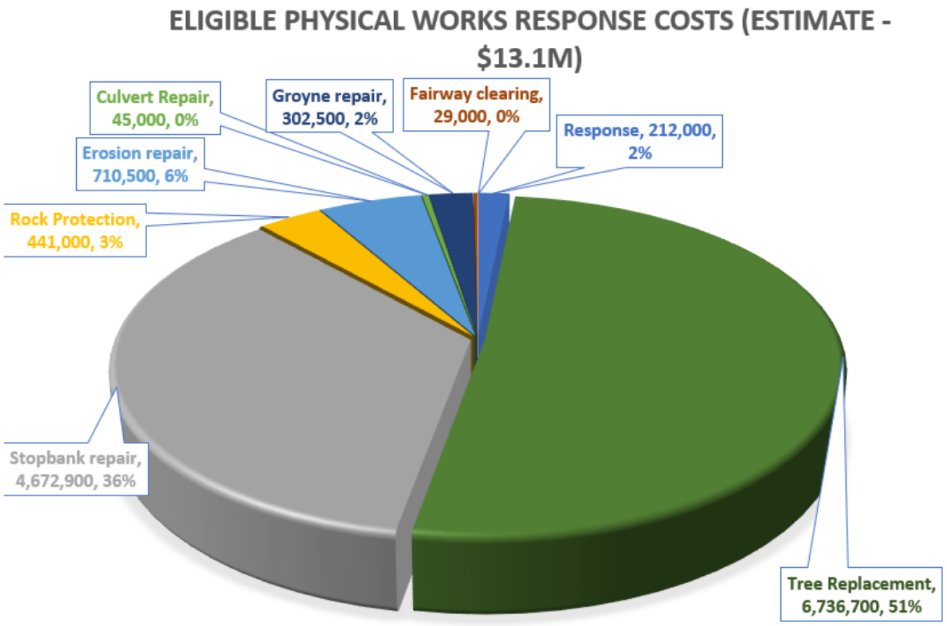

Figure eight: Environment Canterbury physical works 'response' cost estimates.

Similar, but not quite as intense flood impacts were felt in Selwyn, Waimakarere, Mackenzie, and Timaru districts.

The future state of affected Canterbury braided rivers may well be quite different to that existing prior to the June 2021 flood. This is not just because of the effects of the flood but also because of a need for Environment Canterbury and affected communities to consider the balance to be found in rural areas between:

- Providing for the tangible and intangible benefits of giving a stronger focus to river ecosystem and Te Mana o te Wai principles.
- Allowing the river more room to be a river.
- Affording the ratepayer cost of the capital works required for flood protection schemes capable of providing more than a 50-year level of protection.
- Meeting land use and ownership expectations, noting these include desires to have the opportunity for extending farming operations near river flood channels

[68] NEMA contributions are made at an average of 60% via their emergency response and recovery funding.

- Providing a fair and reasonable transition pathway, if it is agreed that intensive farming at these locations cannot continue.

Allowing the 'river to move' is a key challenge in some parts of the Ashburton catchment and elsewhere. The North Ashburton / Hakatere River narrows from around 300m between stop banks at Thompson's Track to 100m between stop banks at Shearers Road. Similarly, the Orari River narrows from around 650m between stop banks at Geraldine to around 250m near the coast.

These challenges are not matters upon which relief is sought with the assistance of central government co-investment. They are challenges, nevertheless, with farmer expectations about bedload gravel management being a salient sub-set of these issues. Regional councils are prepared to meet these challenges by encouraging managed retreat and other land use / spatial planning, where that is appropriate. In other instances, it may be the case that local landowners will increase their funding toward the achievement of a higher-level flood protection.

Rural parts of the Ashburton / Hakatere River, 31 May 2021. (Photo courtesy of Stuff).

Westport flood event – 20 July 2021

A West Coast Regional Council catchment weather station recorded 730mm of rain in the 48 hours extending through 19 / 20 July flood period. NIWA records show the last time the Buller River reached the heights experienced in the July 2021 flood was in 1926. The 7,640 cubic metres per second recorded on 20 July 2021 was the largest direct measurement of flow ever recorded in New Zealand.[69]

The cost of recovering from the effects of the Westport flood have been estimated at close to $100m. The flooding left 23 per cent of Westport's housing stock in need of repair. A total of 71 homes were severely damaged and deemed unsafe, while a further 388 homes will require significant repairs.[70] Over 1000 insurance claims were lodged.[71] A total of 2,000 Buller district flood damaged properties were assessed by the Council's Emergency Management team (figure nine).

[69] An article authored by scientists D. A Stone et al, as included in the journal 'Weather and Climate Extremes,' March 2022 (as quoted by Auckland Herald reporter Jamie Morton on 10 March 2022) found the planet's warming made the July 2021 West Coast weather event 10% more intense than would have occurred without climate warming.
[70] 'Development West Coast' Chair Renee Rooney described the flood as 'a devastating blow to Buller, damaging homes and farms, and causing much disruption to the region'.
[71] CEO Tim Grafton, Radio New Zealand, 20 July 2021.

Investment of between $10m and $20m in a flood protection scheme would likely have prevented this damage and avoided these recovery costs being incurred (figure ten).

Crown-owned assets in the Westport area, at risk of damage by flooding from the Buller River, may be categorised and valued ($2020) as follows:

- Urban land and buildings $15m
- Roads $730m
- Rail tracks $235m
- Transpower lines $13m
- **Total** **$1,000 million**

Figure nine: proposed flood protection structures for Westport. Source: West Coast Regional Council.

Additional protection to Westport communities may be provided by applying adaptation, 'working with nature' systems, relocation options, raised building floor level heights and other approaches. The relocation option involves shifting further development away from the potential flood zone to the area south-west of the current Westport township. This may be described as a multi-tool approach (figure

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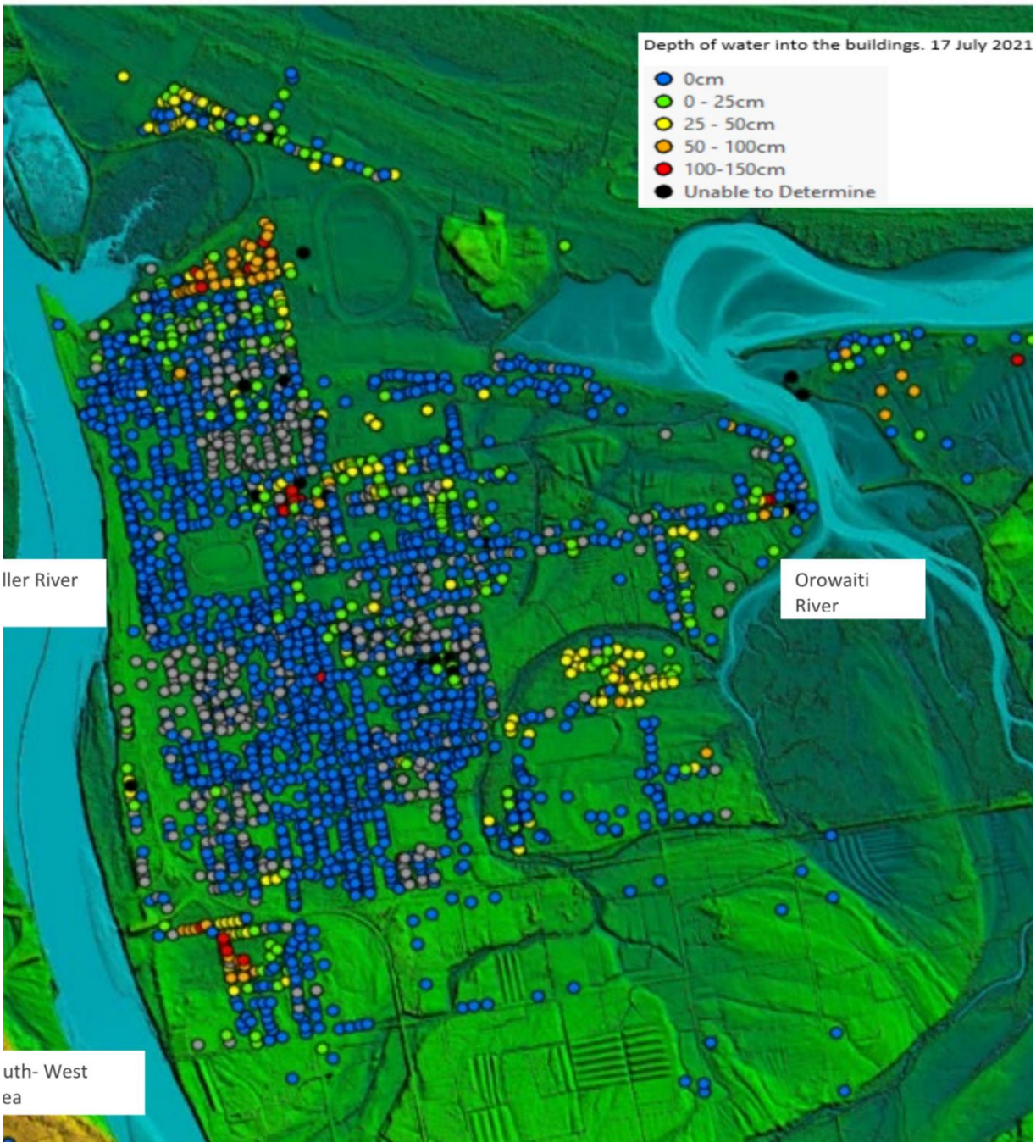
eleven). Adaptation options include improving the efficiency of the Orowaiti River as an overflow channel (and potentially creating an ecologically rich wetland), reducing the flow-constraining effects posted by State Highway 67 and Kiwi Rail structures in some areas.

Considering the extensive damage that occurred to Westport in July 2021, what is now taking place is a multi-party process to reach agreement on a carefully phased and central government 'co-funded' approach to the rebuild of community resilience against flood risks at Westport. Flood protection structures must be at the centre of this process. Work undertaken by West Coast Regional Council recommends immediate expenditure of $10.2 million on these structures.



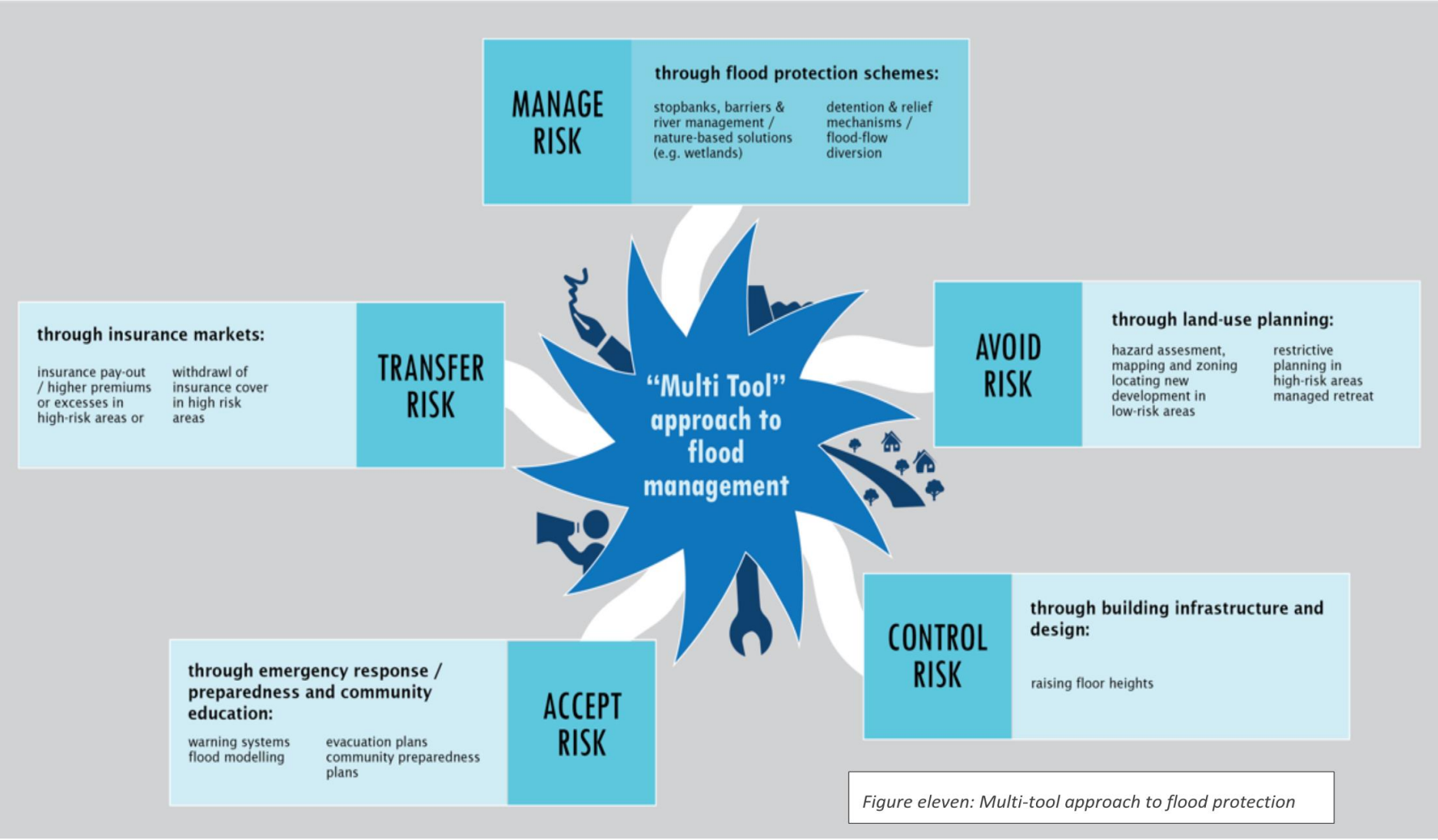


Figure eleven: Multi-tool approach to flood protection

Blenheim / Marlborough District

Almost 1000 people were evacuated from 500 properties and five people were rescued from parts of Marlborough town cut off by the worst flood ever recorded in the region. Evacuations at Spring Creek and Tuamarina were prompted by overtopping or breaching of stop banks on the Wairau River.

The effect of the flood event was exacerbated because of the flow constraining effect of the State Highway One bridge. Repairs amounting to $12m to scheme structures are now underway. Blenheim was largely protected because of flood protection scheme works constructed after the devastating 1983 flood event. This scheme was constructed with 75% funding from central government.[72] Hydrological analysis records the peak flow of the Wairau at Blenheim at 5200-5300 m3/sec, almost exactly a 1% Annual Exceedance Probability (AEP) event but slightly below the target scheme capacity of 5500m3/sec. (figure twelve).

The District's engineer recommends a new flood protection scheme peak flood capacity design is required for Marlborough's growing population, intensified land use patters - particularly viticulture, and to better manage the storm flow effects caused by climate change. The engineer suggests that such a step change will require a significant Crown involvement, both as a major infrastructure owner (including two key bridges) and as a funding partner. Excluding the cost of the replacement bridges (State Highway Six, State Highway One and the railway bridge), investment in the order of $50 - $100m may be required to make this step change.

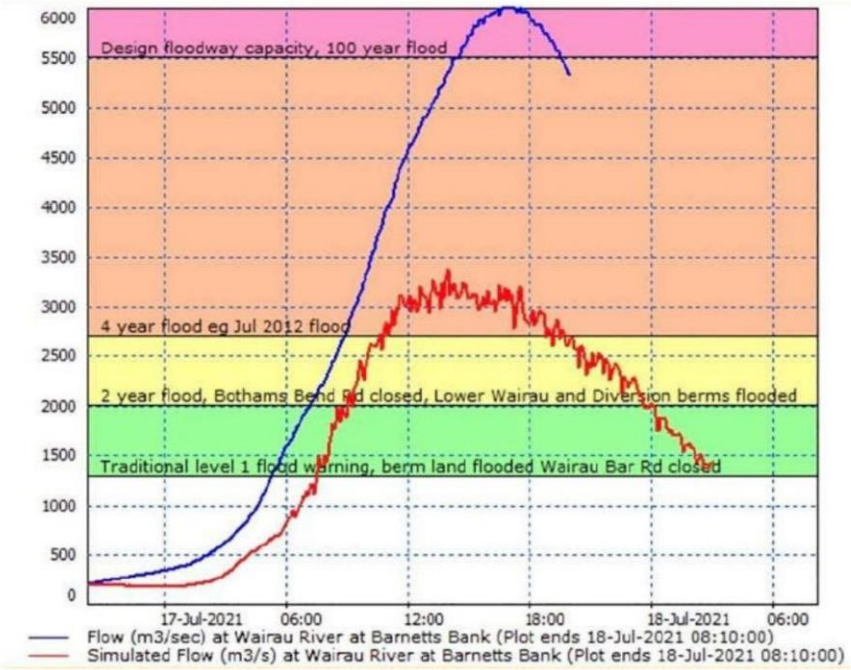


Figure twelve: Wairau River flow 17 / 18 July 2021 (Source – Marlborough District Council).

[72] This scheme is currently being enhanced with the assistance of a $3m 'shovel ready' central government grant.

Crown-owned assets in the Blenheim, at risk of damage by flooding from the Wairau River, may be categorised and valued ($2020) as follows:

- Urban land and buildings $68m
- Rural land and buildings $51m
- Roads $556m
- Rail tracks $121m
- Transpower lines $12m
- **Total** **$808 million**

Implications that may be drawn from recent flood events

The main insight from the above three cases is that the Crown is substantially exposed to flood risk damage. The Crown assets with the biggest vulnerabilities are the extensive network of road and rail assets present in these and all areas subject to flooding throughout New Zealand.

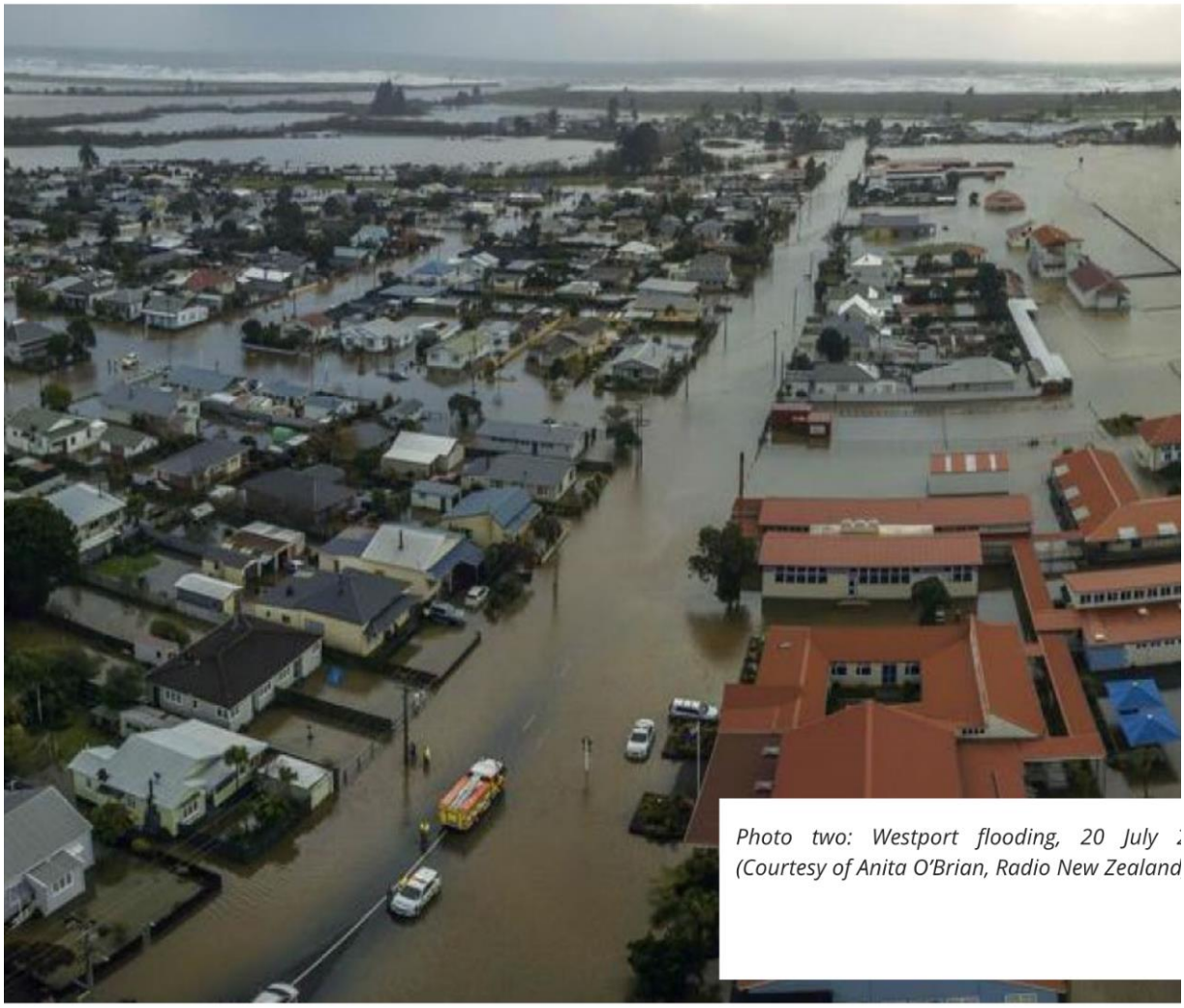


Photo two: Westport flooding, 20 July 2
(Courtesy of Anita O'Brian, Radio New Zealand

In addition, damage to Crown land and buildings such as schools may cause on-going disruptions (indirect costs) to community functionality. Other indirect Crown benefits arising from flood protection schemes include the following:

- Fiscal revenue (taxes and excise duties) is maintained.
- Regional economic activity is sustained because infrastructure networks (road, rail, power, and communications) keep operating.
- Expenditure by central government departments (e.g., MBIE, MPI), to rehabilitate industries, is avoided (refer Ashburton Flood Recovery Plan 2021).
- Expenditure by central government departments (e.g., MSD, MoH, FENZ, NZ Police) on community welfare and safety, is avoided (refer Ashburton Flood Recovery Plan 2021).
- Investments made by central government as part of the Provincial Growth Fund are protected.
- Resilience and increased levels of safety and security is provided to existing and future businesses, individuals, families, and communities.

The wine industry in Marlborough, the dairy industry in Ashburton and the fruit and vegetable processing industry in Marlborough are examples of the 'value-add' economic contributions, of national importance, from each of these regions.[73] Existing flood protection schemes in Marlborough and Ashburton enabled the national importance of these industries to be protected from the full effect of the July 2021 floods. Westport industries were not so fortunate. Seafood processing is one of Westport's main employers (120 employees in 2020). In addition, new initiatives, some of them established with the support of PGF-funded, were placed at risk. These included the high value tourism services provided by the Riverbank project and the Kawatiri Coast Trail. The PGF also supported the EPIC innovation hub and the development of a commercial fishing precinct.[74]

Photo three: Marlborough / Blenheim Fl
20 July 2021 (Photo courtesy of Stuff)

[73] In 2020, Marlborough district accounted for 72% of the total New Zealand land area planted in wine growing grapes. In 2020, Canterbury accounted for 20% of total NZ dairy cattle. Ashburton accounted for 7% of total NZ employment in dairy cattle farming. Of total employment in the fruit and vegetable processing, Marlborough accounts for 12% and Ashburton accounts for 11%. Marlborough accounts for 33% of total New Zealand employment in aquaculture.

[74] This precinct and the Westport Deepsea Fishing School are envisaged as providing further opportunity to take advantage of Westport's competitive position in the commercial fishing industry.

Other reasons for co-investment by central government

Withdrawal of the insurance sector from flood protection

The other main implication that may be drawn from recent events is that the increasing frequency of severe floods is not on the horizon – it is with us now.[75] The examples clearly demonstrate the scale of central government expenditure on responding and recovering from these events. The scale of this expenditure would be significantly reduced with investment in proactive risk mitigation and resilience improvement.

Some insurance companies have now provided notice of their intention to raise their cost of providing insurance cover over properties subject to flood risk. Tower Insurance was the first to act.[76] They have now given notice to their New Zealand home insurance customers[77] about increases to the flood risk portion of their premiums. Other companies such as AIG will more than likely follow suit. There is also the possibility that some insurers may decline cover for those properties subject to higher levels of risk.

Tower Insurance's proposed increases reflect a pricing model based on the individual risk faced by the property subject to damage by flooding[78]. Properties are to be allocated a risk rating of low, medium, or high. One in ten properties will be subjected to higher premiums of about $50 per year. Some property owners could see increases of several hundreds of dollars, upwards to $1000, depending on the risk level, size, and location of their property. Crown properties and assets will be placed in the same position as private property owners.

Tower have said they had made these policy changes because they wanted to make sure people were aware of the options, they, councils, and government had at their fingertips to reduce risk, including elevating / raising the floor levels of homes. They noted available options for reducing flood insurance premiums clearly included constructing flood protection scheme infrastructure.

Tower also said that flooding events in the last 18 months in Northland, Napier, central Otago and big storms in Canterbury, Westport, West Auckland and more recently in Gisborne and the East Coast had all influenced their decision to increase premiums (figure thirteen).[79]

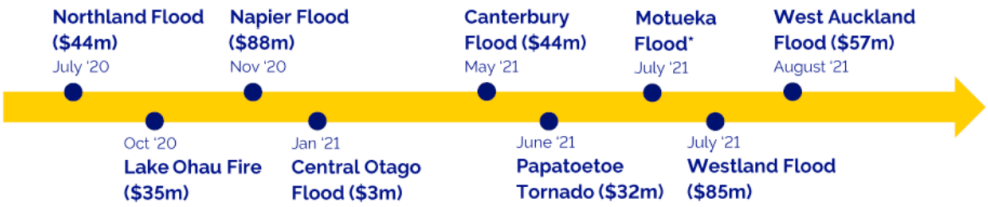


Figure thirteen: The cost incurred by Tower Insurance in assisting insured property owners to recover from recent flood events.

[75] Climate change deniers may argue that several swallows do not make a spring – in this case several flood events are not a cause for alarm because they do not have statistical validity. This could not be further from the truth – as indicated by the Tower Insurance data provided below.
[76] Tower hold 10% of the New Zealand house insurance market.
[77] November 2021
[78] Tower Insurance have used a New Zealand inland flooding model based on simulations and probabilities of difference scenarios using data obtained from NIWA, LINZ, regional councils, and the Insurance Council of New Zealand.
[79] Auckland Herald, 10 November 2021.

In addition, Tower referred to data gathered by the Insurance Council of New Zealand dating back to the 1960s to justify their decision to increase premiums (figures thirteen and fourteen). This shows an increasing trend-line in terms of natural disasters, with almost half based around floods.[80]

Of concern to Tower was not just the frequency of the floods but the severity of them. They noted, '*in the last 10 years the cost of flood damage was equivalent to the previous 45 years'*. They also noted that in the past 50 years, nearly half (45%) of all natural disasters – despite the effect of the Christchurch / Kaikoura earthquakes, were from floods.

The Insurance Council's CEO Tim Grafton telescoped the likely increase in insurance premiums in a radio interview immediately after the July 2021 Westport floods. He said, '*some flood-vulnerable communities would face difficulty getting insurance as risks of flooding increased*'. He advised '*the best path as being not just transferring risk to insurance but rather to control, adapt, avoid and be more aware (rather than be blindsided through lack of information) of the level of risk that was comfortable for each property owner to endure*.'[81]

Tower Insurance explicitly addressed this point in their recent announcements. They said that people who choose to raise the elevation of their house or be protected by flood schemes would be offered a reduced flood risk premium.

Despite awareness of the risks, some property owners will choose to not insure. The pressure and cost for local government to take preventative action will therefor increase. All 'response' actions will need to be considered by regional councils when considering their reactions to this pressure. This may include building relocation / managed retreat, requiring house floor levels to be lifted above minimum flood heights, and preventing further urban intensification in those areas subject to flooding.

The implications arising from Tower's decisions are large. Other insurance companies will inevitably follow their lead. The cost of property ownership will go up. This will remove discretionary income from other potentially more productive parts of the economy. Mitigation of flood risk by improving the integrity of existing flood protection schemes is a 'smart option' for central government and regional councils. This is better than passively accepting the obligation on the Crown and private property owners to pay insurance increases or in some cases to have to essentially act as default insurer.

In areas of existing concentrated urban development, the best option will, in almost all cases be enhancements to the level of protection provided by existing flood protection schemes. The integrity and the resilience provided by these schemes can be increased at modest cost when compared to the cumulative social, infrastructure, personal identity / security and crown-asset protection costs associated with managed retreat or raising the floor levels of potentially hundreds of buildings.

[80] Llyod's Global Underinsurance Report (2012) notes that New Zealand's local authorities operate in an environment that is highly vulnerable to natural hazard risks. New Zealand is rated as one of the most vulnerable economies in the world in terms of the impact of natural disasters, as a percentage of GDP.
[81] Radio New Zealand, 20 July 2021

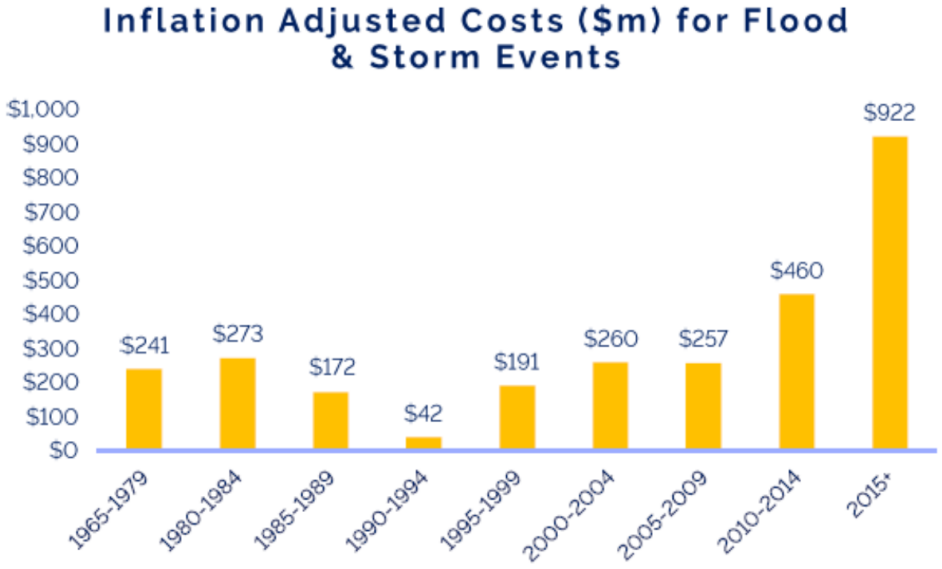


Figure fourteen: Data from Insurance Council of New Zealand about flood event costs incurred by the insurance sector

In this context, a NZIER (2020)[82] report notes that mitigation can remove hazards whereas insurance cannot. They state '*the case for mitigation depends on finding incremental reduction in exposure or vulnerability of human activities and infrastructure that avoids future hazard losses at low cost and with limited unintended effects. While insurance provides compensation for losses though risk transfer and is an important long-term element of risk management for New Zealand, it does not reduce the likelihood of such events or the risk of them happening again.* This NZIER report also noted that flooding hazards (when compared to other natural hazards) have the most scope for cost-beneficial mitigation.

Unfunded crown liability – responding after a flood event

The government's 'Thirty Year Infrastructure Plan'[83] records that the average annual costs of responding to flood events now exceeds $50 million. While necessary, this is sub-optimal expenditure compared to preventative investment. As such, it does not minimise future risk to the community or central government and Crown assets. This 'after event' focus also means government bears an excessive unfunded future liability in its fiscal accounts.

The severity of the consequences of not securing and enhancing the integrity and service levels of existing flood protection structures, and the community resilience role they play, increases every day. The fiscal consequences for government of not proactively investing at the top of the cliff are growing at a similar rate.

It is fortunate that the 2021 floods in Ashburton, Westport and Marlborough district did not result in a loss of life. It is only a matter of time before lives are lost. This is an even bigger liability and responsibility for the Crown to carry.

[82] NZIER, 2020. 'Investment in Natural Hazards Mitigation – forecasts and findings about mitigation investment', a report to DIA
[83] Treasury, Thirty Year Infrastructure Plan, 2015.

Treasury's Living Standards Framework

Treasury's Living Standards Framework has moved towards a 'four capitals' approach. These 'capitals' include:

- Natural capital, with reference to all parts of the environment needed to support life and human activity.
- Financial / physical capital, with a direct role in supporting incomes and material living conditions.
- Human capital, with reference to the things which enable people to participate fully in work, study, recreation, and society.
- Social capital, with reference to the norms and values that underpin society.

All elements of the new Living Standards Framework imply a need for more active investment by central government in the management of flood risks.

The Sendai Protocol

The Sendai Risk Management Protocols of the United Nations, to which New Zealand is a signatory, recognise the importance of investing in risk mitigation activities. The National Resilience Strategy developed by the Ministry of Civil Defence and Emergency Management aligns with the Sendai Protocols.

The Sendai Protocols reflect four priorities:

- Priority 1: Understanding disaster risk.
- Priority 2: Strengthening disaster risk governance to manage disaster risk.
- Priority 3: Investing in disaster risk reduction for resilience.
- Priority 4: Enhancing disaster preparedness for effective response and a commitment to "Build Back Better" as part of recovery, rehabilitation, and reconstruction.

As a signatory to the Sendai Protocol, these priorities clearly imply a need for central government to play a more active role in risk mitigation.

Productivity Commission – local government funding and financing

The Productivity Commission enquiry into local government funding and financing[84] selected flood protection schemes as an example of a function for a stepped-up co-investment-focused-arrangement between central and local government. The terms of reference for the enquiry, as issued by the Ministers of Finance and Local government, noted that:

- Local authority debt has grown steadily since 2006 to the point where some councils are now coming close to their covenanted debt limits.
- One of the major factors influencing local authority debt is the cost of adapting communities and infrastructure to mitigate risks and hazards associated with climate change.

The Commission favours the "benefit principle" as the primary basis for deciding who should pay for local government services. In this regard, the Commission noted '*some local assets and their associated services could benefit… national interests. In these cases, the benefit principle points to shared funding with a contribution from central government.*

[84] Productivity Commission, Local Government Funding and Financing, 30 November 2019.

In addition, the Commission identified four key areas where the existing funding model is insufficient to address cost pressures:

- Supplying enough infrastructure to support rapid urban growth.
- Adapting to climate change.
- Coping with the growth of tourism.
- The accumulation of responsibilities placed on local government by central government.

All four of these identified areas support the need for co-investment by central government in flood protection schemes. In addition, the Commission suggested the Government should extend the role of the New Zealand Transport Agency (NZTA) in co-funding local roads. This should be to assist councils facing significant threats to the viability of local roads and bridges from climate change and / or to overcome the exacerbation of flood risks because of the narrowing of river channels because of these structures.

International precedent

President Jo Biden has introduced a $1.76 trillion-dollar (NZ dollar equivalent) bipartisan infrastructure Bill to the US Senate calling for roads and power infrastructure to be made more resilient to storms.[85]

In the United Kingdom, more than 1,000 flood protection schemes will benefit from a record investment of more than $10 billion (NZ dollar equivalent) of investment over the next six years.[86]

The Australian Productivity Commission has called for the Australian government to increase annual flood mitigation funding contributions to state and territory governments by $100 million in the first year, then to $150 million in the second year and $200 million in the third year.[87]

These important precedents present a model for New Zealand to follow.

Summary – reasons for central government co-investment

In summary, the reasons for a return to active central government co-investment in flood protection schemes are that it:

1. Is more fiscally responsible than focussing on post-event response and recovery.
2. Reflects Treasury's new performance measurement and Living Standards Frameworks.
3. Is supportive of wellbeing and social inclusion.
4. Has the potential to better reflect equity / ability to pay considerations at the heart of this government's election promises.
5. Is supportive of job creation and the potential to lift the productive potential of the regions.
6. Contributes to the security of the vital access routes (rail and road) for commerce.
7. Directly protects Crown assets.
8. Contributes to investment 'opportunity costs.'
9. Works against escalating insurance premiums and the risk of insurance companies failing to provide insurance cover in flood risk areas – with the long-term consequence of Government

[85] CNN, 2 December 2021
[86] UK government press release, 2 December 2021.
[87] This recommended 'federal' commitment is on top of commitments already made at the state and local levels.

inevitably being required to step-up and stump-up to fill the gap occurring because of the absence of private insurance.

10. Contributes to the environmental and water quality expectations of our communities and iwi partners.
11. Provides for resilience and adaptation against the effects of climate change-induced 'above-design' storm events.
12. Above all else, provides resilience and increased levels of safety and security to existing and future individuals, communities, and businesses.

Moving forward

The options for the future funding of flood protection range from a 'business as usual' approach, to application of all the other options displayed in figures five and ten. These include better spatial planning to avoid flood hazards, managing the retreat of some communities from certain areas, to the construction of enhanced flood protection schemes, in association with whole-of-catchment solutions.

For all situations, options need consideration within the context of present-day reality and the circumstances applying at any one location. In most instances it is likely that the full range of risk reduction methods should be applied in tandem although as noted earlier, improving the integrity and capability of existing flood protection structures is in most instances, likely to be the most cost-beneficial and therefore priority intervention.

Do-nothing approach

Maintaining existing scheme service levels[88] is not tenable, nor practical, primarily because the influence of climate change is such that current levels of resilience will continue to be eroded. This, in turn, will result in:

- Increased risk to public and private local, regional, and national assets.
- Increased demands on emergency and recovery funding.
- Increased insurance premiums.
- Increased risks to public safety and a risk to life.
- Increased numbers of communities unable to get insurance and / or decreased insurance coverage.
- Increased community and personal hardship and distress.
- Increasingly negative impacts on local, regional, and national economies and the environment / ecological and iwi values.

[88] A 'Service Level' is calculated using one of three methods: a scope of physical works agreed with the affected community; or a scope of physical works with a target capacity e.g., a maximum channel flow and or a scope of physical works with a level of performance defined in terms of a target return period e.g., a one in one-hundred-year event.

Business as usual and do-nothing approaches are therefore not tenable. Regional councils know this. They have already committed to increase their level of future investment by $25m per annum. They are also grateful for the 'one-off' $217m investment made by central government into the 55 flood protection projects that were 'shovel ready' in 2020. However, there are many more scheme upgrade projects also requiring increased investment to meet future needs – with an estimated cost of $150m each year. Central government should co-invest this sum by making provision for a line-item in their annual budgets. Responding to location-specific requests on an ad-hoc basis is not an appropriate way to address this challenge.[89]

Community / managed retreat / planned withdrawal approaches

This option proposes to reduce risk by asking residents and businesses to withdraw from locations at risk of being flooded. As noted previously in this report, this relocation / managed retreat is extremely difficult - particularly when this involves established and well-developed urban communities. The sunk costs of existing investments are very large. Stranded assets will have zero value. The impact on landowners of moving, to allow rivers to flow more freely, will extend both upstream and downstream of the 'run free' location.

The social and political disruption and 'stranded asset' effects associated with this option are likely to make it unpalatable in most cases. Nevertheless, there will be some locations within catchment schemes where this solution may be considered an acceptable part of a more holistic approach.

Whole of catchment approaches

The desires of iwi / Māori, ecological considerations and the broader interests of regional and national communities are such that regional councils must apply their river management intentions in an environmentally benign / ecologically sensitive and whole catchment manner.

Integrated and sustainable land management or 'whole-of-catchment' approaches have always been a core part of regional council business. More substantial investment in whole-of-catchment solutions will be required in the future. Applying this option reduces the level of sedimentation, bed load deposition and erosion occurring within catchments. It also improves the water quality in rivers, estuaries and coastal waters and contributes to biodiversity values.

To successfully adopt and achieve a 'whole-of-catchment' approach requires extensive outreach work, including one-on-one collaboration with landowners. This is to help them become aware of how they may alter land use practices, adjust internal property infrastructure, and change the nature of the enterprises they apply to their land to achieve more holistic long-term water quality, soil, flood management and environmental outcomes.

Part of this work will involve planting trees. The one billion trees programme and carbon sequestration planting have played an important role in contributing to the outcomes sought from these 'whole-of-catchment' solutions. Other initiatives contributing to whole of catchment solutions include:

- Accelerating application of sustainable land use practices.
- Promoting the conversion of some areas from pastural uses into indigenous forest.
- Promoting and co-funding more extensive riparian planting.
- Accelerating careful consideration of the use of some areas for Mānuka planting and honey production.

[89] The preparation of a business case and the provision of central government funding for a multi-tool assistance package for Westport will provide a useful pilot to guide the development of a comprehensive national / central government approach to co-investment.

- Promoting expanded plantation forestry in suitable locations.

The net effect of the above initiatives is that they will help to forestall the risk of transferring this generation's flood management 'challenges' into compounded problems for the next generation. Whole catchment approaches are therefore an essential element in the 'multi tool' approach to be applied to enhanced flood protection.

The new spatial planning and national planning tools, proposed as part of the resource management legislative reform programme, are also essential. Regional councils look forward to being active leaders and participants in the development and application of these tools, but they will not be enough on their own.

Enhanced flood protection schemes, in association with whole-of-catchment and spatial planning approaches

Sustainable land use is an essential ingredient of flood risk management. Investment in sustainable land use needs to be increased. However, no matter how successful sustainable land use tools may be, they cannot and will not be enough on their own to manage the impact of significant flood events. This is because more sustainable land uses will have only a minor effect on the increasing amount of rainfall occurring from the inevitable and more intense, climate change-induced storms transported by our rivers and streams. Enhanced flood protection schemes must remain a central part of the solution.

Potential unintended consequences of Crown co-investment in flood protection schemes

The 'counterfactual' or unintended consequences of central government co-investment in flood protection schemes is a matter that has been considered by regional councils. Two primary risks have been identified, both of which are highly unlikely to be displayed:

1. Regional councils place too much reliance on flood protection schemes and fail to sufficiently invest in other flood risk management tools: Regional councils fully understand and are fully committed to the application of a multi-tool approach to flood risk management.[90]
2. Regional councils invest less in flood protection schemes because rate payer sourced funding is substituted by tax-payer sourced funding: Regional councils have committed to spend an extra $25m per year on flood protection schemes, over and above their current $175m per year commitment.

Request to central government

Regional councils seek central government commitment to co-invest in the improvement of the integrity and resilience of flood protection schemes. This should be alongside the regional council-focused wide-spread and comprehensive adoption of whole-of-catchment and planning / resource management solutions[91].

Collectively, such a joined-up approach will better achieve integrated land use, enhanced ecological values, improved water quantity and quality outcomes, decarbonisation benefits and, generally a better reflection of iwi and wider community aspirations about how natural systems should be managed.

[90] Regional council involvement in discussions about the flood risk management at Westport provide a case example of this commitment.
[91] The co-investment propositions outlined in this paper do not include provision for soil conservation planting and or steep land retirement. Budgets for these complimentary activities should be combined with flood protection scheme investments and the planning solutions outlined in this paper.

Regional communities and directly-benefiting private property owners cannot fund the necessary step-change needed to manage increased flood risks, in the more sophisticated manner set out above, on their own. Central government, regional councils and territorial local authorities must equitably share the task of addressing this challenge. This is not about failure or blame about the efficacy of current systems. Rather, it's about the overwhelming need to cement a new co-investment and funding partnership approach with central government.[92]

Regional council river engineers have engaged in an active 'foresight' process to estimate spending of $350m / year is required to ensure river management and flood protection schemes are 'fit for the future'. Regional council Long-Term Plans (2018-2028) currently indicate necessary operational and capital expenditure of approximately $200m / year. The shortfall required to make the necessary step-change in the level of protection provided by flood protection schemes is therefore estimated at $150m / year. Central government co-investment of $150m per annum is viewed as a pragmatic contribution to this necessary expenditure.

Source of revenue and possible funding formula

Regional councils have extended their congratulations to the government[93] on its decision to establish a new $1 Billion per annum 'Climate Emergency Response Fund' (CERF). The purpose of this fund is to mitigate the effects of climate change by applying adaptation interventions.

Investment in flood protection schemes should be a priority matter for attention in considering CERF expenditure options. Flood protection schemes are the intervention measure with likely greatest effect in helping communities to adapt to the effects of climate change. Adaptation actions are required immediately, regardless of the success or otherwise of international mitigation / decarbonisation measures.

The proposed 2022 National Adaptation Plan[94] may be the instrument to guide expenditure of the CERF. Regional councils are participating in an MfE 'Local Government Adaptation Advisory Group.' One of the objectives of this participation is to ensure appropriate flood protection scheme investment provisions are considered by this Group and thereby included in the National Adaptation Plan.

Regional Councils fear the Local Government Adaptation Advisory Group deliberations will not be enough on their own to guide the necessary decisions. Councils therefore also urge establishment of a working group with Treasury, DIA, and other officials (for example officials from MBIE's Kānoa Group). Their task would be to develop the principals, priorities, and a project funding allocation framework to guide central government co-investment expenditure decisions on flood protection schemes. This group should be requested to provide its recommendations to core ministers and regional council Chairs and Mayors within three months from initiation.

Back-work to achieve this objective needs to be underway now. Without necessary co-investment decisions being made in the very near future, then the flooding risk to our communities will continue to incrementally increase. The consequences of not acting do not bear thinking about.

The actual co-investment share of the CERF at any single location should reflect a range of considerations.[95] The principles outlined in the July 2020 Cabinet paper provide a starter for considering how apportionment of this increased investment may be guided. From a regional council

[92] Regional authorities acknowledge that, alongside a government decision to co-invest in river management and flood protection schemes, there is a need to establish related funding-accountability measures.
[93] Correspondence to Ministers 23 December 2021
[94] This Plan is currently being developed by MfE.
[95] Ae precedent for this is the financial assistance rate (FAR) applied to central / local co-investment in road transport solutions.

perspective, proposed central government co-investment starter thoughts were outlined earlier in this report. In essence, what is sought is:

- Co-investment of up to 75% toward the cost of **whole catchment climate change adaptation** approaches.
- Co-investment of up to 50% toward the cost of **upgrading existing** river management and flood protection works.
- Co-investment of 33% toward the **maintenance** of existing scheme works to recognise the role they play in protecting Crown assets / related infrastructure and their role in sustaining the operation of national and regional economies and communities.
- Co-investment of 75% for **emergency repair** works to schemes where substantial damage occurs from major storm events.

Although variable, indications are that for any year, approximately half of the total annual spend would comprise works in the maintenance category, with the balance being split approximately evenly between the first two categories of expenditure.

The above cost-share formula is believed to be realistically and fairly determined. It needs to be applied urgently. It clearly recognises the need for a step-change in investment to improve the 'design capacity' of existing flood protection schemes. It will result in much needed improvements to community resilience against the effects of climate change.

Annex A

Conclusion - national leadership and urgent action required

The Government has an important and urgent role to play in leading, resourcing and focusing purposeful, timely and meaningful actions that result in practical improvements to flood protection schemes. These improvements are fundamental to the task of greatly increasing community resilience against flooding.

Regional councils have successfully delivered flood protection to New Zealanders for more than half a century. They cannot continue to be expected to do this on their own. There is a strong case for central government co-investing in flood protection schemes. The Crown owns flood-protected assets and shares in the benefits provided by these schemes. The Crown currently make close to zero funding contribution to their maintenance and improvement.

The central governments of the United States and the United Kingdom have both recently committed to substantial increased expenditure on flood protection schemes. They have seen the writing on the wall. The government of New Zealand should join them by taking similar action.

The essential request to New Zealand's central government is for it to 'return to the table' to share financially in the task of providing fit-for-purpose protection against New Zealand's primary natural hazard – 'flooding.' Flood protection schemes are the first line of defence.

Now is the time when schemes need to be re-purposed, modified, upgraded, or renewed to meet increased climate change-induced flood frequency and magnitude changes, alongside other contemporary challenges. These other challenges include meeting a wider spectrum of community, environmental, cultural, iwi / Māori and economic needs.

In some cases, planning solutions and raised building-floor heights will meet these needs. However, in most cases these initiatives will be expensive and will take a long time to be effective. Flood protection schemes need to be improved immediately to enable them to help New Zealanders to go about their businesses and carry out their lives without the fear and disruption caused by floods.

The central government co-investment of $150m per annum from the CERF – as proposed in this report, reflects the national interest in protecting public safety, providing community resilience, mitigating risks to the national economy, and protecting nationally-significant publicly-owned infrastructure.

Flood risks are real, they are trending upwards and the effects of flooding on the communities who live and work on flood plains are significant and growing. A committed central government / regional council response is required so that necessary changes can be implemented in an orderly, timely, community-focused, and adaptive manner.

To achieve this objective, regional councils urge central government to work with them to reach agreement about the location-specific, principled, prioritised, short, and long-term combined flood protection scheme investments that can be made to address increasing flood risks.

The sought-after urgent action is central government agreeing to co-invest in flood protection schemes. The subsequent next step is to form a central government / region council group to reach speedy agreement about the quantum, timing, principles, framework, criteria, and priority projects for central government co-investment into flood protection schemes.

JANUARY 2022

Annex A

Appendix one: Correspondence from Environment Canterbury to Hon Nanaia Mahuta

Environment Canterbury Regional Council
Kaunihera Taiao ki Waitaha

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27 September 2021

Hon Nanaia Mahuta
Minister of Local Government
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Hon David Parker
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Hon Priyanca Radhakrishnan
Minister for Community and Voluntary Sector
Email: Priyanca.Radhakrishnan@parliament.govt.nz

Dear Ministers,

Co-investment in river management and flood protection schemes

Flooding is New Zealand's most common natural hazard estimated to cost the country $160 million per year.The 31 May – 2 June Canterbury regionwide flood event (and the flooding that followed in Buller and Marlborough) highlights the bias of our current system toward recovery and response action, rather than coordinated investment in early risk reduction and preparedness.

A new case study based on recent flood events in the South Island is now being prepared for your review asan update to the 2018 business case *Central Government Co-investment in River Management for Flood Protection* to further support the recommendation for permanent central government investment. We expect this to be completed by November 2021.

The Canterbury flood event was extreme, with Ashburton particularly hard hit. Concerns about structural stability temporarily closed the Ashburton River bridge on State Highway One, cutting off lifeline services reminiscent of the Rangitata floods of December 2019. The limits of Canterbury's flood protection schemes were tested and flooding in rural areas left many

landowners to deal with significant erosion and gravel deposition.

This event alone will take us at least two years to reinstate schemes to pre-flood levels of protection at anestimated cost of $15 to $20 million just for infrastructure replacement on a like-for-like basis.

Current funding inadequate for the challenges of climate change

Furthermore, the recent flooding is a stark reminder of our changing climate, placing flood resilience front and centre for a concerned public. The community experienced significant flow-on effects and many areas remain vulnerable to future rainfall events with landowners on high alert. We will be working alongside key stakeholders with affected communities whose lives and livelihoods have been significantly affected forsome time, even as we continue to manage the impacts of the 2019 Rangitata flood.

Together with other regional councils in the River Managers Special Interest Group, we acknowledge that meeting future flood resilience objectives is beyond the reasonable capacity of ratepayers alone, particularly when flood risks are magnified by climate change. Communities are struggling to pay for the maintenance of current infrastructure, let alone additional works required to meet the challenges of more frequent and higher magnitude weather events.

Ratepayers currently bear a disproportionate share of scheme costs when compared to who benefits. We have also noted considerable post-flood community concern regarding how current schemes are funded andhow works out of scheme are not.

Increasing complexity of river management

River management has evolved significantly in recent years. Multiple values prioritised at the national levelmust also now be supported as part of river management and flood resilience.

We work alongside iwi as tangata whenua and Treaty partners, acknowledging the special status of our relationship to ensure that Māori values and interests are protected and enhanced.

The emphasis by government, Māori, and the public on the importance of ecological, environmental, and whole of catchment considerations has resulted in an increasingly complex environment requiring community engagement, co-design of solutions with iwi, consideration of ecological and environmental issues and development of strategies for adaptive responses that must in turn be coordinated with otheragency partners.

Successful co-investment for future resilience

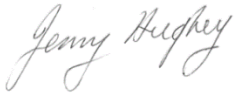
Crown co-investment with regional communities and directly benefiting property owners in rivermanagement and flood protection is required on an urgent basis.

We are confident that our $24.2 million climate resilience programme of flood protection projects, part- funded by the Ministry of Business Innovation and Employment's *Kānoa – Regional Economic Development& Investment Unit (REDIU),* will prove the case for ongoing central government co-investment. These ambitious projects are currently supporting transformative initiatives that improve the resilience of our communities and support multiple values.

To consider the details of crown co-investment in flood protection, we reference the recent Local Government New Zealand (LGNZ) Regional Sector meeting with Ministers Mahuta and Shaw on climate resilience. Council fully supports the LGNZ request to establish, as a priority, a joint working group of officers who would report to Resilience Ministers in time for appropriate provisions to be included in the 2022 budget.

JANUARY 2022

Investment at this critical time will pay dividends in the future to secure the intergenerational health and wellbeing of all New Zealanders and ensure that we have a resilient economic network ready to adapt to thechanges we know are coming. We look forward to your response.



Yours sincerely
Jenny Hughey
Council Chairperson

This report has been compiled by John Hutchings
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Partner, HenleyHutchings
Phone 021 679 654

Contributions to the report have been made by:

- Basil Chamberlain, Consultant Advisor.
- Julian Williams, Economist.
- Flood Protection Managers from Environment Canterbury, West Coast Regional Council, Marlborough District Council, Otago Regional Council and Greater Wellington Regional Council.

Te Uru Kahika Regional and Unitary Councils Aotearoa

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Report No.	22-46
Information Only - No Decision Required	

ANZAC PARADE FLOOD RESILIENCE STRATEGY

1. PRESENTATION

1.1. Council's current Long-term Plan outlines, amongst other things, the development of a resilience strategy for part of Anzac Parade in Whanganui exposed to the Whanganui River flooding.

1.2. On behalf of Horizons Regional Council, Massey University has been engaging with Anzac Parade residents and other key stakeholders to co-design a strategy to reduce flood risk and increase community resilience in the area. Massey University Professor and EQC Chair in Natural Hazards Planning Professor Bruce Glavovic is leading the strategy development, assisted by post-doctoral fellow Dr. Martin Garcia Cartagena. An update on progress as at 1 April 2022 is provided in Annex A. Both Bruce and Martin will provide an update and present their report to Council from the research and public consultation including meetings with residents in April 2022 and a Public Hui in May 2022.

1.3. This research and public consultation for the ANZAC Parade strategy has investigated a range of options for further protection to the ANZAC Parade area including increasing the stopbank height, raising the existing houses and purchasing affected properties.

1.4. A key finding from the engagement has been around the early warning system and evacuation protocols. Horizons staff are currently reviewing this feedback and scoping potential improvements and communications around this.

1.5. Massey University will deliver their final report including, a recommended strategy, at the 28 June 2022 Regional Council meeting.

2. RECOMMENDATION

That the Committee recommends that Council:

a. receives the information presented on the Development of an Anzac Parade Flood Resilience Strategy.

3. SIGNIFICANCE

3.1. This is not a significant decision according to the Council's Policy on Significance and Engagement.

Kyle Russell
OPERATIONS MANAGER

Dr Jon Roygard
GROUP MANAGER CATCHMENT OPERATIONS

ANNEXES

A Anzac Parade Resilience Strategy Massey University Update 1 April 2022

Annex A

MASSEY UNIVERSITY
TE KUNENGA KI PŪREHUROA
UNIVERSITY OF NEW ZEALAND

Anzac Parade Resilience Strategy Update: 1 April 2022

This brief 'update note' summarises key new information about options to reduce flood risk and outlines next steps for preparing the draft strategy.

This is part of an ongoing effort to co-design a resilience strategy that assesses feasibility of practical options and makes recommendations to reduce flood risk along Anzac Parade in the face of climate change in coming decades.

Your ongoing involvement and contribution to this process is greatly appreciated.

Next steps

As previously agreed, our next step is to providing feedback to residents to continue building shared understanding about options and prepare a co-designed strategy; and to share information with iwi authorities, Horizons and the Whanganui District Council before sharing information with and seeking feedback from the Whanganui public.

The proposed next steps with indicative timing are:

- **Resident and home-owner consultation meeting** (Confirmed: Hakeke Library - 20th April, 2022)
- **Public meeting** – for information and feedback on the strategy (Date to be confirmed late - April / early May 2022)
- **Initial Draft Strategy** to project partners for feedback, including iwi authorities, Whanganui District Council and Horizons – with meetings set up as appropriate. This synopsis will be presented to the Horizons Catchment Operations Committee (Confirmed: 11th May, 2022) and guidance sought on final steps to prepare and disseminate the Strategy.
- **Final Draft Strategy** to be circulated for feedback (end of May, 2022).
- **Final round of meetings and information sharing** to complete Recommended Strategy (June, 2022).
- **Submission of recommended Strategy** to Horizons and other project partners, and to residents, homeowners and the Whanganui public, as well as a wider group of stakeholders consulted through this process, including government agencies, critical infrastructure providers, insurance bodies, etc. (end June, 2022).

Emerging information about options

Since our last briefings and communications, we have secured more detailed information about the costs and implications of options to reduce flood risk. There remain some areas in which more detail and corroboration of information is being sought. The information below is a very succinct summary. More detail will be provided in upcoming meetings and briefings, including GIS mapping to show flood risk, etc.

1. **Stopbanks:** Previous information provided by Horizons that is to be independently verified: $6-7m for 1:50y protection; $10m for 100y protection; 200y protection – unclear due to detailed geotechnical information required. Horizons is finalising its assessment of these initial estimates and is seeking independent review. Questions remain about what level of protection is effective, feasible and affordable – and who pays?
2. **Lift / raise houses:** 1:100y protection (>1m) 37 homes about $12m [base cost per home >$300k]. Feasibility is dependent on property specific conditions; and it is neither cost-effective nor affordable to raise all at-risk homes. Furthermore, there are significant aesthetic, practical and service-related complications with this option. Hence, it offers a partial solution for modest levels of flood risk, perhaps focused on the most at-risk properties.

3. **Buy-out homes:** 1:100yr (>1m): 37 homes @ rateable value of about $10.8 million and current market value about $21 million. Consideration is being given to whether there are alternative parcels of land that could be considered as potential relocation sites, taking into account planning priorities, the housing crisis and other relevant local factors. There is considerable uncertainty about the full-scope of potential costs, the extent of such a buy-out, and who would pay for it. Among other things, this option eliminates flood risk and opens up public amenity that cannot be achieved by the foregoing options.
4. **Legal and other implications:** We have established that it is possible to set up voluntary covenants with homeowners to provide Horizons with a first right of refusal to purchase properties – and in this way create a pathway towards buy-out. Questions remain about establishing the purchase price. This option may have limited appeal to homeowners but needs to be explored because compulsory buy-out through the Public Works Act 1981 is not under consideration. Another flood event may shift 'risk appetites' and the feasibility of this option. There are important legal ramifications to account for the legal personhood of the awa.
5. **Climate change projections** for the area and its implications for flood risk associated with the Whanganui awa are being assessed for the medium- to long-term. Initial assessment is being refined to assess the implications for each option prior to preparing the initial draft Strategy.
6. **Early Warning System and evacuation protocols:** Both of these measures are crucial regardless of decisions about the way forward. Notwithstanding improvements over the years, there are important opportunities to enhance these systems and practices, including:
   - ***Improving Anzac Parade resident and wider public awareness:*** 41.4% of the residents surveyed indicated that they were not aware of the existence of an early warning system and did not use it. Ongoing targeted communication and active awareness raising is necessary, especially because there is a high turnover of people living in this area and everyone is reliant on these systems and protocols.
   - ***Improving usability:*** 18.4% of the residents surveyed (n=87) indicated that they were aware of the system but did not use it due to difficulties enrolling and interpreting the information provided by the early warning system. Given the number of people ignorant about these systems, a relatively small proportion of people is likely to make adequate preparation in the face of a major flood event. Making it easier for residents to enrol in the system; providing guidance about how to interpret the early warning system; and innovations in effective ways to deliver relevant information to targeted at-risk people and communities need to be actioned on an ongoing basis. Some feedback suggests that there is a perception that the Early Warning System is geared towards the needs of rural dwellers, like farmers who may need to move stock, and not to the needs of urban residents like those along Anzac Parade. More careful consideration needs to be given to accessibility to and use of these systems by those with poor internet access; and to the diversity of potential users, including different cultural backgrounds and risk perceptions. The 2015 and 2017 warning and evacuation experiences yielded important lessons. Proactively distilling and documenting these lessons is an important action that may help to improve future practice across the emergency management sector as well as in local government-community interactions more generally.
7. **Insurance:** It is very difficult to get a clear indication of future increases in insurance rates and prospects for withdrawal of insurance – both of which are possible as climate change impacts intensify. Proprietary information and corporate policy changes make it hard to predict what lies ahead on this issue but insurance will be a key driver of actions taken by home-owners in future; especially in the aftermath of major flood events.
8. **Matarawa stream:** Concern has been raised about the compounding influence of flooding from this stream. It is clear that this is not a major contributor to overall long-term flood risk for Anzac Parade. However, in coming decades this may become more of an issue as the climate changes. Those affected by Matarawa flood risk tend to live higher up in Whanganui East, and consideration is being given to how best to reflect the concerns raise in the Strategy recommendations.

Bruce Glavovic and Martin Garcia Cartagena
Massey University

Report No.	22-47
Decision Required	

FORESTRY REPORT

1. PURPOSE

1.1. This report provides Council with a high-level summary of the 10 Forestry Right (FR) forests established under the Sustainable Land Use Initiative (SLUI) and other forests established and managed through the river schemes.

1.2. The report updates Council on the timber and carbon values of these forests and seeks guidance on the management of the assets, including approaches from landowners (Forestry Right partners) and other parties to purchase forests or share carbon revenue.

2. EXECUTIVE SUMMARY

2.1. Horizons has interests in 10 individual FR forests established through the SLUI programme. In total the FR forests relate to an area of 1,762 hectares and a net stocked area of 1,387 hectares. River Management 'scheme' forests also account for approximately 68 hectares.

2.2. The focus of this report is on the SLUI forests but the River Management forests will be overviewed in terms of their extent and value.

2.3. Each forest has an expected timber or harvest value and most also have carbon value from accrual of New Zealand Carbon Units (NZUs) through the Emissions Trading Scheme (ETS) or from allocation of units for pre-1989 forests. The 10 FR forests within SLUI are valued annually as required by accounting processes. As at the 2020-21 valuation, the current assessed Horizons share of the value was $4.545 million for the timber component and the projected net harvest value that will return to Horizons – after landowner share and replant – was identified as $15.760 million. Horizons' share of the carbon value associated with these forests was assessed in late 2021 and estimated to have a value of $20.007 million. Further detail is provided in the sections below.

2.4. A consideration for Council regarding the ability to access the value of carbon is the concept of liability to the landowner at the end of the forestry right; specifically, if there is liability associated with all carbon credits (if the land is deforested there is a liability to pay back all credits accrued) or if liability is considered under the assumption the land stays as forest and therefore a portion of the carbon credits accrued can be sold without liability.

2.5. For the SLUI forests the shares of the harvest value and carbon units vary according to the individual forestry right agreements.

2.6. Horizons have recently reviewed the accounting treatment of the forests and the carbon through a report from PricewaterhouseCoopers (PWC). Recommendations from this process were implemented in the Annual Report for the 2021-22 financial year and are currently being reviewed by audit. The key changes included accounting for the carbon value within Horizons' accounts (which has not previously occurred), and accounting for the replanting costs post-harvest.

2.7. This paper is a follow-up to a workshop held with Council in February 2022 and provides a high-level summary of the 10 SLUI forests, with further information added regarding Horizons 'river management' forestry. This paper seeks Council guidance on approaches by the Forestry Right partners in relation to buying out Horizons' share of the agreements related to forestry on their land and the overall management of the forestry assets,

including the timber and carbon value. This paper also incorporates information following discussions with one Forestry Right partner representative regarding carbon and liability (presented in Annex A).

3. RECOMMENDATION

That the Committee recommends that Council:

a. receives the information contained in Report No. 22-47 and Annex.

b. instructs staff to present, any written offers of purchase from Forestry Right partners to Council for consideration via public excluded items.

c. notes the issues raised in Annex A, as a Forestry Right partners representatives perspective of how registration of carbon credits and potential liabilities should be considered.

4. FINANCIAL IMPACT

4.1. This item does not have a direct financial impact but does update Council on Horizons' forestry assets within the SLUI and River Management programmes. This includes assessments of current and projected values as assessed in the 2021 calendar year, noting such estimates are subject to change over time. The paper also discusses issues raised by a Forestry Right partner representative in relation to carbon credits and landowner liability. The paper seeks guidance on offers made by FR partners to purchase Horizons' interests in forestry on their land. In the event such agreements were entered into there would be a financial impact for Horizons.

5. COMMUNITY ENGAGEMENT

5.1. This paper is a public item and Council may deem this sufficient in terms of public engagement. It is recommended that any decisions from this item be clearly communicated to Horizons' Forestry Right partners.

6. SIGNIFICANT BUSINESS RISK IMPACT

6.1. This item is not considered to have a significant business risk impact.

7. CLIMATE IMPACT STATEMENT

7.1. This item relates to the management of approximately 1,455 hectares of forestry by Horizons, which include a range of forestry species but predominantly radiata pine. The item provides information for timber harvest and carbon credits associated with this forestry. The item is not deemed to directly have an impact on climate impact.

8. INTRODUCTION

8.1. The following section overviews Horizons' forestry interests, including a brief summary of their history (section 9). The subsequent sections of the paper discuss how the forests were funded (section 10), the current value of the timber (section 11) and carbon assets (section 12) and a summary of the estimate of the combined value of the timber and carbon assets (section 13) including information on the Forestry Right arrangements with our landowner partners. The final sections of the paper discuss risks and opportunities and raise some discussion points for Council to consider in relation to these assets. Annex A provides key points regarding Forestry Rights as provided of one of the partners representatives.

9. SUMMARY OF HORIZONS' FOREST INTERESTS

This paper focuses primarily on the SLUI forestry interests and mentions the River Management forests in order to complete the picture of the forestry assets that Horizons holds.

SLUI Forests

9.1. Between 2008 and 2012 Horizons acquired Forestry Rights (FR) for 1,762 hectares of land considered to be at higher risk of erosion (Map 1). Forests were subsequently established on 1,387 hectares (net stocked area), with the remaining land either not planted, riparian zones, existing bush, or regenerating bush.

9.2. The forestry rights were established at a time when interest in new forest establishment was low. Each FR is on a farm where a Whole Farm Plan had been prepared. Each FR included a financial assessment and had to meet a Council-approved 3% rate of return (Council noted there were environmental benefits as well as financial returns). All FR agreements were approved by Council resolution.

9.3. The FR areas were larger blocks on farms where landowners were not considering implementing forestry without the assistance of Horizons. Landowners were reluctant to sell land and the FR system offered a way to fund land-use change. The forests were established on "top and high" priority land for erosion control works where permanent land-use change from pasture to tree cover was considered the most appropriate land use. The FR agreements included a requirement to replant in forestry in order to ensure the ongoing land-use change after harvest.

9.4. Horizons are projected to receive a financial return on these rights when the forests are harvested for timber between 2035 and 2042.

9.5. The rights also state that the landowner must consent to Horizons entering the forest into the ETS.

River Management Forests

9.6. Horizons 'River Management' plantation forests currently cover an estimated 67.7 of an original 109 hectares across numerous forestry blocks (Table 1). Some plantation areas have reduced over time, especially in the Rangitikei District where forests have been lost due to flooding and bank erosion. The larger blocks are Coulter's Gully and Kumeti Gravel Reserve. The Rangitikei River area currently consists of nine blocks ranging in from 0.7 to 3.3 ha.

Table 1: River Management allocation of NZUs as pre-1990 existing forests.

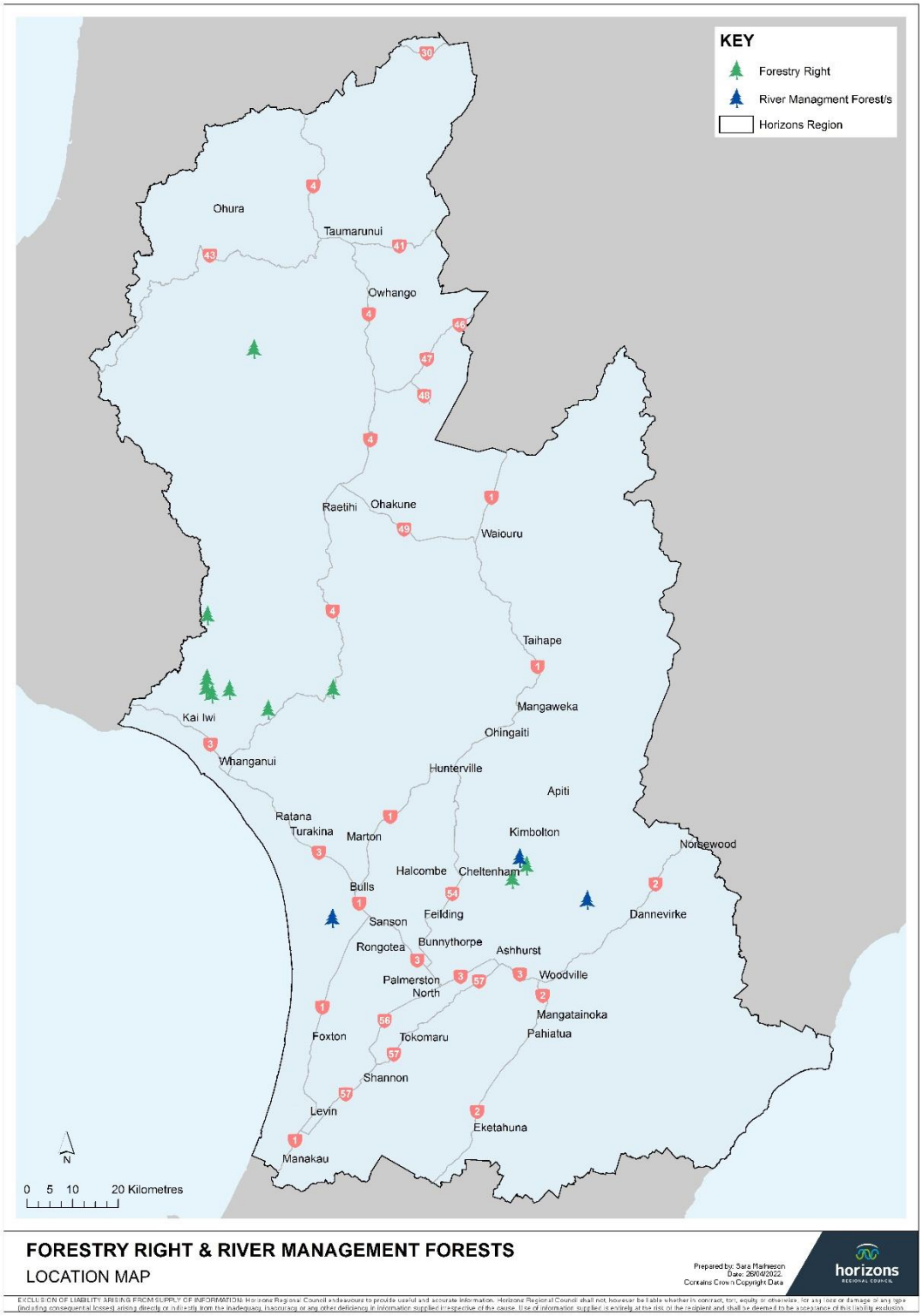
	Hectares Approved	1st Tranche	2nd Tranche	Total NZU
FAP-014171 – Coulter's Gully	37	851	1369	2,220
FAP-019985 – Kumeti Gravel Reserve	**17**	**391**	**629**	**1,020**
FAP-019780 – Rangitikei River Forests	46	1,058	1,702	2,760
Total	**109**	**2,300**	**3,700**	**6,000**

9.7. The bulk of these forests are in mid-rotation and are due to be harvested in 2030-35. The timber value of some of these forestry blocks have recently been valued, Coulter's (31.5 out of the original 37 ha) and Rangitikei (19.2 of the original 46 ha). The full area of these forests are planned to be assessed in the next financial year.

9.8. Under the ETS, these areas were determined to be "Pre-1990 forests" when the ETS began and received an allocation of NZUs to a total of 6,000 units (Table 1), which are in the Horizons account. These NZUs were partial recognition or compensation for the accompanying liability that now exists with that forest. Should it be deforested and returned to a non-forest state Horizons would be liable for all the accumulated carbon within that forest. Some of the allocation relates to poplar, willow and native plantings that were clear

land in 1990, but forested when the ETS began in 2008 with these forests receiving an allocation of units.

9.9. The Kumeti forest has an NZU allocation based on 17ha of forest with 13.5ha described as poplar, willow and regenerating native bush, and 3.5ha is radiata pine. The timber value of the pine block has not been valued and the valuation in this report has used an estimated net harvest value similar to the current value of the Rangitikei forest, at around $25,000 per hectare.



Map 1: Forestry Right and River Management forest locations.

10. How the SLUI forests were funded

10.1. All SLUI forestry agreements were subject to Council decision-making and approved by Council at the time of entering the agreements.

10.2. In total there are 10 SLUI FR forests. Five of these forests were established, in full or part, with funding from Central Government through the Afforestation Grants Scheme (AGS) totalling $881,760. Entering the AGS provided obligations related to successful establishment of the forest through a 10-year agreement. During this period these forests could not be entered into the ETS and had no liability under the ETS.

10.3. The remaining five FR forests were funded through the SLUI programme, within SLUI budgets rated at the time of, or prior to, the agreement (i.e. they are not loan funded).

10.4. Forest establishment cost, loans to farmers, legal costs, ongoing maintenance and capital cost (silviculture) continue to be funded from SLUI budgets through rates. They are kept separate from the Hill Country Erosion Fund (HCEF) portion of the programme funding.

10.5. Ongoing funding is budgeted in Annual Plan (AP) and Long-term Plan (LTP), with forecast operational costs at around $50,000 per year and capital (silviculture) planned to be largely completed in the next two financial years. Recent cost increases have resulted in the silviculture budget being revised and the programme will be spread over a longer period than earlier planned and outlined in the February workshop. Silviculture totalling $300,000 has been budgeted for next financial year.

10.6. Rates expenditure on establishment, maintenance and silviculture (net of the AGS received) to date is $3,471,765 with forecast expenditure until harvest of another $2-3 million. This forecast expenditure consists of annual rates, insurance, valuation and audit costs, forest measurements for both timber and carbon, and site maintenance such as tracking and fence repairs. Pre-harvest and harvest costs will be additional.

10.7. In addition to the forestry establishment costs identified above. Horizons provided an interest-free loan to landowners, totalling approximately $4.209 million. The loans enable Horizons to control the activities carried out on the forest land and are to be repaid following harvest. The value of the loan was calculated based on the loss of grazing revenue the landowner could have expected to receive over the term of the forestry right. An independent agricultural consultant carried out this valuation.

10.8. The cost to ratepayers of the interest on these loans to date and projected into the future has been indicatively calculated as part of this item. As an indication of cost, if an average interest rate of 3% per annum was applied to the $4.209 million loan balance over 30 years, the compounding impact would result in a loan balance of $10.216 million – an addition of approximately $6.0 million interest costs, assuming no other repayments were made during that period. For accounting purposes the arrangements are best characterised as an operating lease of land by Horizons from the FR partner. The upfront payment made by horizons represents a prepayment of the minimum lease payment due to the FR partner under the lease. The lease prepayment is amortised over the FR period on a straight line basis.

10.9. While the loans are to be paid back out of the harvest proceeds there is a clause in the contracts that if the loan cannot be repaid due to insufficient revenue then Horizons will cover the difference (likely from Horizons share of harvest profit).

10.10. Current projections indicate the loans will be fully recovered from the harvest proceeds if the repayment option as outlined in 11.5 occurs.

10.11. All expenditure to date has been paid from within the SLUI budget and the AGS fund.

11. Current value of the SLUI timber assets

11.1. Horizons has different shares in timber and carbon in the 10 different forests (Table 2), and the values will be realised over projected harvest from 2035-42.

Table 2: Summary of the 10 SLUI FR forests and some of the agreement terms.

Forest	Net Stocked Area (ha)	FR Start Date	FR End Date	FR Term (yrs)	Primary Species	Horizons Timber Net Proceeds %	Landowner Timber Net Proceeds %	ETS Registered	AGS $ claimed	Horizons Carbon Share %	Landowner Carbon Share %
1	164.6	1/03/08	30/06/42	34	mixed	90	10.00	Landowner	No	0	100
2	110.9	1/07/08	30/06/41	33	radiata	82	18.00	HRC	Yes	50	50
3	107.6	1/07/08	30/12/42	34	radiata	90	10.00	HRC	Yes	50	50
4	121.6	1/07/08	30/12/42	34	radiata	90	10.00	HRC	Yes	50	50
5	109.3	1/09/08	1/09/43	35	redwood	90	10.00	HRC	Yes/part	50	50
6	20.4	1/09/09	1/07/42	33	radiata	90	10.00	HRC	Yes/part	50	50
7	157.8	1/08/10	1/08/40	30	radiata	90	10.00	HRC	No	0	100
8	321.9	1/07/12	30/06/45	33	radiata	90	10.00	HRC	No	0	100
9	168.2	1/10/12	31/12/46	34	radiata	90	10.00	HRC	No	0	100
10	104.9	1/10/12	31/12/47	35	radiata	85	15.00	HRC	No	0	100

11.2. The discounted present value of the expected timber harvest value for the combined 10 forests, based on the Valuation Report completed for June 2021, is $5,103,003; Horizons' share is approximately $4.5 million.

11.3. The timber harvest dates are projected to be between 2035-42 with scheduling decided closer to the time based on market values, growth and other factors. The FR term allows some flexibility with harvest time, with the last FR expiring in 2047, when the last harvest will need to have been completed. The summary below provides an overview of projected harvest revenue and associated costs.

11.4. The projected timber harvest value, costs and revenue sharing are outlined below. The final bottom line figure relies upon the projected harvest value which is currently based on the annual valuations completed to meet Audit requirements. In the early stages of a forests growth the valuations largely rely on projected growth rates with limited forest measurements. It is not until the forests reach mid rotation (around 15 years) that more accurate on ground measurements typically feed into a more detailed harvest value. The current cost of harvesting also uses reasonably broad assumptions on issues such as forestry roading, location of landing sites, transportation methods and the port for export. The most recent valuations have tended to reflect the strong export demand for logs (increasing the expected timber revenue over the last five years) somewhat offset by expected increases in the harvest costs. The valuations are based upon harvest of the "commercial species" and assume all these trees will be harvested. There are small areas of alternative species not included in the harvest value, and potentially areas at the time of harvest that may not be economic to harvest or be able to gain a consent. As noted in earlier sections these forests are established on difficult erosion prone sites, their primary role was to achieve land use change.

11.5. The breakdown of net harvest income, and revenue sharing are:

a.	Projected harvest value (2035-42)	$24.977M	(net of harvest cost)
b.	Loan repayment (as in legal agreements)	$4.209M	
c.	Net proceeds	$20.768M	
d.	Landowner share (range 10-18% -Table 2)	$2.254M	
e.	Horizons net share of harvest revenue	$18.514M	
f.	Replanting cost (Horizons to pay assumed at $2,000/ha)	$2.754,M	
g.	Net to Horizons after replanting	$15.760M	
h.	Total to Horizons (net from harvest + loan repayment)	$19.969M	

11.6. As outlined in the numbers above, the current projections of costs and revenues related to timber harvest and replanting indicate that all of the interest-free loans will be able to be repaid out of the harvest revenue. It is noted that the agreements could be interpreted to provide the cost sharing arrangements differently to that shown above by following an approach where the net proceeds of the harvest are distributed between the landowner and Horizons before the loan payment is accounted for. Then the landowner share of the net proceeds is used to re-pay Horizons the loan amount. If this interpretation is used based on the current valuations nine of the ten landowners would receive no revenue from the forests. The revenue sharing interpretations were outlined in the PWC report, along with the interpretation by the Horizons lawyer who prepared the agreements, in their opinions the revenue sharing outlined in Section 11.5 meet the original intent of the FR agreement. The alternative revenue sharing provides the following breakdown:

a.	Projected harvest value (2035-42)	$24.977M	(net of harvest cost)
b.	Landowner share (range 10-18% -Table 2)	$2.741M	
c.	Horizons share after landowner	$22.236M	
d.	Loan repayment (as in legal agreement)	$4.209M	
e.	Landowner share after loan repayment	-$1.468M	
f.	Replanting cost (Horizons to pay assumed at $2,000/ha)	$2.754M	
g.	Net to Horizons after replanting	$19.482M	
h.	Loan top ups (grant from Horizons to write off loan) *	$1.501M	
i.	Total to Horizons (net from harvest + loan – top ups)	$22.190M	

**as* per *the agreement terms e is different to h due to the way the 10 individual arrangements work, one landowner does receive a profit after repaying the loan.*

11.7. As outlined in the numbers above, the current projections of costs and revenues related to timber harvest and replanting indicate that all of the interest-free loans will be able to be repaid out of the harvest revenue. It is noted that the agreements could be interpreted to provide the cost sharing arrangements differently to that shown above by following an approach where the net proceeds of the harvest are distributed between the landowner and Horizons before the loan payment is accounted for. Then the landowner share of the net proceeds is used to re-pay Horizons the loan amount. This interpretation is projected to reduce the revenue for the landowners.

11.8. Any carbon revenue is additional to this and is discussed in the following section.

Changes in value of the timber assets since 2008

11.9. When each forest was established the net future timber harvest value was a combined $16.368 million and the Internal Rates of Return (IRR) ranged between 4% and 7.6%.

11.10. The average net return per ha projected originally was $11,799 (for timber Horizons and landowner shares combined), while the current harvest value net return per hectare is estimated to be $18,440 (based on the valuation in 2021). This return is 60% higher than the predicted timber returns when the forests were established. The IRR was calculated at a 6% interest rate.

11.11. A new valuation will be completed in late May for the 2021-22 Annual Report and will provide an update to the projected returns from timber harvest.

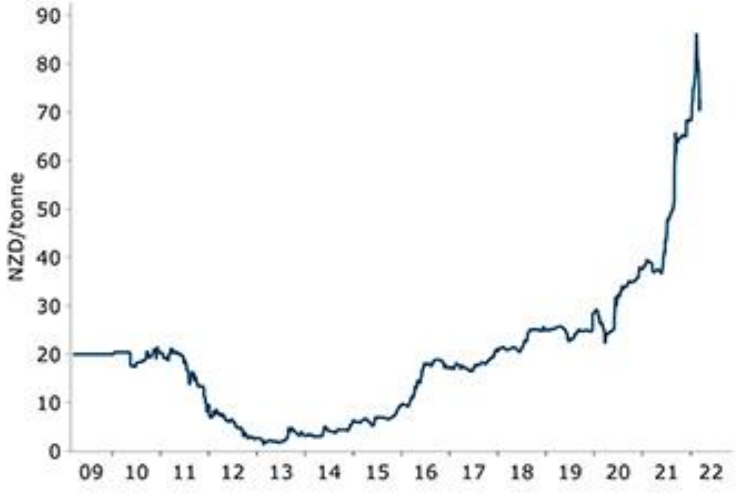
12. Value of the carbon assets

12.1. An overview of carbon accounting is available via the MPI website.

12.2. All trees will grow and sequester carbon and each tonne of Carbon Dioxide sequestered is equivalent to one New Zealand Unit (NZU). Eligible forests can be entered into the ETS, which is run by the Environmental Protection Authority (EPA), but the forestry sector is administered by the Ministry for Primary Industries (MPI). The EPA runs the trading register and is responsible for tracking the surrender, allocation or trading of NZUs. NZ is currently a closed system, only allowing trade within NZ although, offshore units were at one time able to be traded.

12.3. The spot price of NZUs around the time of the establishment of the ETS in 2008 was $20, but in 2013 this had dropped to under $2 per unit (Figure 1). In late February this year the price exceeded $85 per unit and by 31 March 2022 were approximately $75 per unit. Prices change daily and are influenced by a number of factors, including government policy. The FR forestry agreements were established between 2008 and 2012 with the last of the forests planted in 2014.

Figure 1. Carbon spot market price



Source: Bloomberg, Macrobond, ANZ Research

12.4. This paper has used a current value of carbon of $70 per NZU. The total carbon presented in this item is based on NZUs within the Horizons carbon account as at 31st December 2021 and the next update for Horizons' account will be at the end of the 2022 calendar year. The SLUI registered forests had accumulated 285,817 NZUs, and at the price of $70 these units have a value of $20,007,190, and the 6,000 units in the River Management forests would have a value of $420,000.

12.5. Current regulations treat forests grown for timber under a "stock change" or "sawtooth" model (Figure 2). This model acknowledges that when the forests are replanted after harvest they will always retain some carbon. This retained carbon is commonly referred to

as low-risk, “safe”, “enduring”, or “non-obligated” carbon. This is the equivalent of about 10 years growth for a timber forest. Horizons oldest registered FR forest is now 14 years old (so this forest will be accumulating carbon which would have to be surrendered upon harvest). Forests less than 10 years old are still accumulating low-risk carbon, assuming the land will continue to be a forest into the future. At this stage no calculation has been made as to the allocation of these units or liability post-harvest.

12.6. Carbon continues to accumulate over the life of the forest (and current MPI look up tables span 50 years) but at harvest carbon is lost in wood product and decay. The difference between the carbon on site at harvest and the carbon considered to remain on site (the low-risk carbon) will need to be accounted for. These ‘harvested’ units will have to be repaid (either through units in the carbon account or by purchasing units at the market price at the time). An example of the stock change accounting approach is provided in Figure 2, sourced from the MPI website.

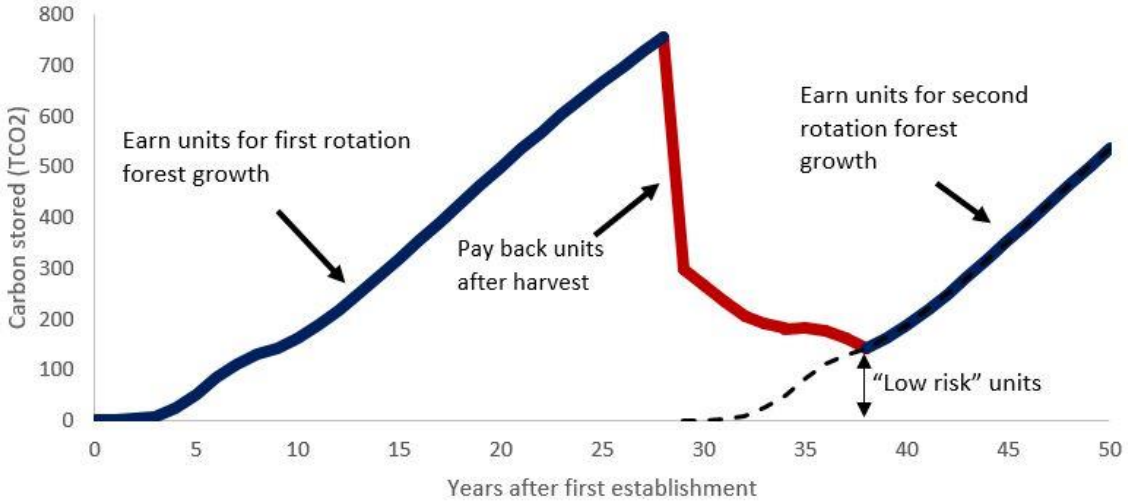


Figure 2: An example of carbon stored by a forest over time. A line graph shows the amount of carbon stored by a forest over time. The carbon stock increases from zero to approximately 750 tonnes while the forest grows from age 0 to age 28, and under stock change accounting the forest earns units during this time. The forest is harvested at age 28, at which point the forest’s carbon storage drops steeply to around 300 tonnes and around 60% of the units must be paid back at this time. The forest’s carbon storage continues dropping for another 10 years as the above-ground residual wood and below-ground roots decay. Eventually the replanted forest overtakes the decay of the old forest, and units are earned again. Image and text sourced from the Ministry for Primary Industries website.

12.7. As Horizons has more than 100 hectares of forest the ETS rules require these forests to have field measurements undertaken which will result in specific carbon tables. These measurements have been undertaken on the Horizons forests and the results provide Horizons- specific “look up tables” for allocating the accumulation of NZUs registered. The accumulation of NZU’s for radiata forests is higher than what is currently being recognised through the default tables and the extra carbon being accumulated will be recognised at the end of the next allocation period (end of 2022).

12.8. An estimate of the carbon accumulation over time was provided by a forestry consultant in November 2020. This indicated that by 2030 Horizons will accumulate 779,159 of carbon as NZUs in its account, 456,753 of which is “low-risk”, as long as the forests are replanted. NB this estimation is to 2030 and the harvest window is identified as between 2035-42, allowing further carbon to accumulate.

12.9. The carbon accumulation above includes registering the Afforestation Grants Scheme (AFS) forests. Under new rules of “averaging”, these forests can be registered and potentially will be able to accrue low-risk carbon up until year 16, rather than year 10 as is the case in the other forests. Technically as these forests were registered between 2019 and 2022 Horizons has the choice of using the “stock change” or “averaging” model

(Figure 3) going forward. The MPI website states *"If your forest is registered, under averaging accounting, it will earn units based on the long-term amount of carbon your forest will store on average. This is based on the average amount of carbon stored over many planting and harvesting cycles (rotations). This approach differs to the existing stock change [sawtooth] accounting method, where forests earn and surrender units based on the actual carbon stored in the forest at the time".*

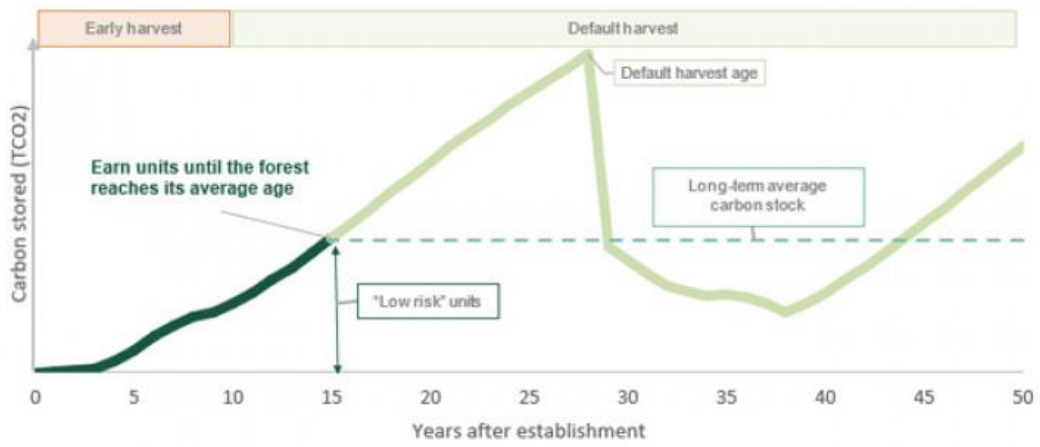


Figure 3: A line graph shows the units earned by a radiata pine forest over time using averaging accounting. The carbon stock increases while the forest grows, earning units during this time until the forest reaches age 16. This is the age equivalent to its long-term average carbon stock. The forest stops earning units from this point. When the forest is harvested at age 28 no units need to be paid back. Image and text sourced from the Ministry for Primary Industries website. Compared to Figure 2, the stock change accounting method, the averaging method provides for an additional six years of low risk carbon.

12.10. The 456,753 NZUs of enduring carbon has a projected value of $31.973 million at 2030 based on current prices of $70 per NZU. The value of carbon that is available to Horizons depends on the interpretation of the clauses around carbon liability and arrangements in the individual forestry agreements. For the section below, the assumption is that the value shown is that of the "low-risk" carbon prior to harvest, noting the comments above regarding the interpretation of carbon liability and the clauses in the majority of the contracts regarding sharing carbon at the end of the FR.

12.11. The current value for carbon is based on the NZU's within Horizons' carbon account as at 31 December 2021. The next update for Horizons' account will be at the end of the 2022 calendar year.

13. Summary value of the combined timber and carbon assets

13.1. The assumed value of the timber and carbon for both the SLUI and River Management forests is shown in Table 3. A number of assumptions about future timber and carbon pricing are involved in these projected values. These are gross values and do not account for the ongoing cost of managing the assets.

Table 3: Current and projected Timber and Carbon Values (based on repayment schedule 11.4).

Timber and Carbon Values $1,000	Current	Projected
SLUI Forests		
Timber *1	4.600	15.760
Loan	4.209	4.209
Carbon (majority is low-risk) *2	20.007	31.653
	28.816	**51.622**
River Management Forests		
Timber *3	0.614	1.149
Carbon (pre 89 units)	0.42	0.42
	1.034	**1.569**

**1 net to Horizons after replanting completed and landowner share (section 11.5 g)*
**2 using carbon value at $70 NZU.*
**3 based on valuation completed for Rangitikei and Coulters, estimate harvest value for Kumeti.*

14. SLUI forestry right arrangements

SLUI forestry right arrangements for timber

14.1. The agreements with landowners provide Horizons with rights and obligations to:

- Plant, manage, cultivate and harvest the trees to be grown on the land;
- Install the necessary roads, bridges, fences and gates to carry out the forestry activities;
- Enter the land from time to time to carry out the forestry activities; and
- Pay any costs relating to the activities, including rates and silviculture.

14.2. Accompanying the forestry rights, Horizons also agreed with each of the landowners to provide a loan as it provided the ability to control activities on the land, ensuring the erosion benefits were realised.

14.3. At the end of the arrangement, Horizons is required to return the land in a condition free of weeds, planted and released in a recognised species of trees agreed between both parties.

14.4. Typically, the agreements split the net timber proceeds after harvest cost between 80-90% Horizons and 10-20% landowner (Table 2).

14.5. The loan is to be paid back out of the net proceeds of the harvest value and if there is insufficient revenue to repay the loan, the difference is to be provided by Horizons by way of a grant.

14.6. The loans are protected by a General Security Agreement, which provides Horizons with security over the landowner share of the forestry profit up to the amount of the arrangements.

SLUI forestry right arrangements for carbon

14.7. The value of any carbon from forestry assets has not been recognised in the Horizons accounts prior to the 2020-21 year. A Pricewaterhouse Cooper (PWC) report was commissioned to assist with this. The valuation of carbon as it appears in Horizons' accounts is lower than the values noted in Table 3. This is due to the fact that the accounting practices require carbon to be valued at the date the units were issued to the Horizons ETS account and, as can be seen in Figure 1, the value of the units has varied considerably over time.

14.8. Under current ETS rules and calculations, any carbon that accumulates over the first 10 years of that forest is considered 'low-risk', provided the forest is re-established after harvest. Replanting of the next rotation is a condition of the Forestry Right agreements.

14.9. At the expiry of a Forestry Right agreement, liability for ongoing carbon will rest with the landowner. This should not be an issue if the land remains in forest but any proposed land-use change from forest to pasture (non-forest) will carry a liability to repay any carbon "lost" from the area.

14.10. If the forest is not re-established, all carbon (NZUs accumulated in the ETS account relating to that forest) would have to be paid back to the government. If there were insufficient NZUs in the account to cover the liability, then these would have to be purchased at the market price at the time.

14.11. Horizons has rights to register the carbon in nine of the 10 forests. The forests or parts of forest that were established using AGS funding have only recently been registered in Horizons' account.

14.12. Of the nine FR forests registered by Horizons, Horizons has access to the carbon that accrues until harvest. At the end of the FR, any remaining carbon that is not obligated is either split 50:50 Horizons: landowner (five forests) or returned fully to the landowner (four forests).

14.13. This potentially provides an incentive for Horizons to sell all the non-obligated carbon prior to harvest.

14.14. The FR agreements are not particularly clear on the final obligations regarding carbon liability to which Horizons agreed in the FR to replant following harvest, ensuring continued land-use change (i.e. no deforestation liability for that rotation). Changes in the ETS over time have meant definitive statements on carbon liability are difficult to make. This has been noted by our forest valuer during valuation reports, especially when the ETS brought in the averaging forestry accounting model. This paper describes some interpretations of carbon liability above.

15. Risks and opportunities

Risks

15.1. The net harvest revenue can be impacted by a range of factors including the following:

- Value of trees at harvest: The value of trees essentially has been driven by the export price of logs, largely in a commodity cycle and the value received could be strongly influenced by this cycle. There are some mitigations to this with the FR agreements having a term that gives a harvest window of 25-35 years, which enables the timing of the harvest to align with commodity prices within that timeframe; and
- Harvest cost increases: It is important to note that the valuations increased between 2015-20, but decreased in 2021, mainly due to assumptions about increasing costs of harvest. The current valuation doesn't reflect a recent drop in log prices (returns) and the next valuation will be completed to meet audit requirements for June 2022. It will likely reflect ongoing strong export returns against higher harvest and freight costs;

15.2. Disruption to the forest: Fire, wind, pest, disease – any of which result in the need to replant. In some cases if replant was required, timelines for harvest of replanted areas would exceed the forestry right expiry. There are challenges in obtaining some insurance for forests including being unable to obtain cover for weather-related landslip and infrastructure this year, further windstorm cover is only available through one underwriter, so there are no choices around terms and conditions. Current insurance will only cover the value at the stand at the time of the claim, so full harvest value would not be realised (this has implications for any loan repayments). This year's premium increased by more than

14% and Horizons are paying more for less cover. At the moment Horizons do not carry any carbon loss cover, but having units in our ETS account offsets this potential liability.

15.3. The pre-harvest cost being accounted for but no funding put aside: Roading, consent requirements and other costs pre-harvest will need to be provided for if harvest is to occur. These can be managed through loans, selling and buying back carbon within a permitted time period, or arrangements with forestry companies.

15.4. Changes to regulations that could affect Horizons share of forest and carbon value: For example calculations of safe carbon could change with legislation changes or changes to the National Environmental Standard for Production Forestry could affect our ability to harvest or replant areas of forest (potentially leaving carbon obligations).

Opportunities

15.5. There is potential to investigate the economic and environmental opportunities to grow some species or parts of forest to accumulate carbon rather than for harvest. This is not being pursued at this stage due to uncertainty around changes to the ETS settings for permanent forests. Potentially, in some areas (redwood forest or difficult harvest sites) this would offer a lower return, but a lower risk. There would be a large staff time commitment if this was to be explored as each forest and each agreement would need to be revisited with the FR partner.

16. DISCUSSION POINTS

16.1. The following section provides a short summary of Council's feedback on the discussion points from the workshop presentation.

16.2. It has been noted in section 12.7 that the "field measurement tables" for the ETS have been registered and this will allow Horizons to account for the extra carbon accrued. This will be accounted for in the next emissions return at the end of 2022.

16.3. There is potential to investigate the option for some or parts of forest being carbon only. This will remain on hold until the changes to the ETS concerning permanent forestry become clearer. Any realistic opportunity for this would involve discussions and negotiations with our FR partners.

16.4. Council were asked to consider their position on selling forest assets, including marketing these forests proactively or reactively in the event FR partners offers. Options noted included:

a. selling prior to harvest/or not;

b. selling the forestry right interest in timber, carbon or both; and

c. considering sale to forestry right partners or on the open market.

16.5. In summary, Council indicated a preference for a status quo policy on forestry but were open to consider offers from FR partners.

16.6. Council also considered how to respond to FR partner requests to buy out Horizons interest in the forestry right. Council have indicated they would require a fair sale price, without defining what return on investment Council would consider fair and how would carbon be treated. It was also noted that options on repayment of the loan would need to be considered should repayment be triggered with sale of the FR. This paper recommends a resolution that Council request staff to bring forward written offers to purchase from FR partners as they arise in Public Excluded items.

16.7. Council discussed potentially using carbon credits to generate income to support costs for timber harvest. It was noted there were a range of measures by which this could be funded and decisions could be made closer to harvest.

16.8. The risks and opportunities were noted.

17. CONSULTATION

17.1. Depending on the outcome of Council's decisions in relation to this paper there may be a need for further consultation or discussion with the FR partners.

18. SIGNIFICANCE

18.1. This is not a significant decision according to the Council's Policy on Significance and Engagement.

Grant Cooper
LAND MANAGER CATCHMENT OPERATIONS

Dr Jon Roygard
GROUP MANAGER CATCHMENT OPERATIONS

ANNEXES

A Landowners report

NEW ZEALAND PINE MANAGEMENT LIMITED

I write on behalf of my clients who farm 195 hectares near Wanganui.

Their parents signed a forest right agreement for the establishment of approximately 20 hectares of Radiata pine Forest with Horizons Regional Council on the 9th November 2009, My clients have since purchased the farm where they run a dairy support/ beef dry operation.

They now want to claim the carbon credits for themselves hence my engagement and I have found that they have signed that right to claim carbon over to Horizons.

With the council about to decide what happens to the carbon credits that they have claimed from these Forest Rights I feel that there are points that they should consider.

- Establishment of the trees was under the AGS, where the government covered the establishment costs but took the carbon growth from the forest for the first 10 years. After this period according to the brochures the land owner could then claim the carbon from the forests if they wished. **There was no liability to the land owner from the carbon the government claimed for the first 10 years.**
- When the original agreement was signed the focus was on the return from harvesting with the net income split being 90% Horizons 10% landowner, which I consider to be generous to Horizons as there were minimal preparation costs.
- Since the establishment costs were covered by the government the cost of this forestry right to Horizons has been approximately; pruning $50,000 and thinning $18,000 and an upfront payment of $44,694 for the clients share of the harvest. Ongoing costs include a portion of the rates and insurance.
- For this outlay at harvest at a net return of $25,000 per hectare Horizons will receive $494,694 and the clients $5,306 as the original advance is repaid at harvest and they are allowed the balance of the 10%.
- I consider this to be very good for Horizons but not so good for my clients.
- On top of this Horizons now wish to claim the carbon credits until harvest.
- When the forest right was signed most people knew very little about carbon and little about the liabilities involved in claiming carbon. The forest right has no mention of this future landowner liability.
- This is in contrast to the AGS where liability for claiming the credits is discussed and retained by the government. Clause 4.2(b) of the forest right.
- **When you claim carbon credits the landowner has a liability attached to the land.**
- **Even the so called free carbon attaches a liability** which becomes apparent if the land use is changed from forestry or the land is sold.

- In land sales I have been involved with where the land is registered with the ETS the amount of liable NZU's is either repaid to MPI to make the land liability free or the value of the NZU's on the sale date is deducted from the sale price and the liability is taken on by the new owner.
- Horizons claiming the carbon credits from the forest rights effectively devalues the landowners land and they are left with a future liability.
- I feel the only persons that should claim the carbon credits should be the landowner as then they are accepting the future liability on their land for a capital gain to them now.
- If the landowner was permitted to claim the carbon credits, the income could be used to purchased back the forest right from Horizon's, without it my clients would not have the ability to buy the forest right from Horizon's.
- They could also use it to plant out more erosion prone land which after all is what Horizon's is really concerned about not maximising profits from farmers.

Peter Lissington
Forest Manager
New Zealand Pine Management Ltd.

6th April 2022

Report No.	22-48
Information Only - No Decision Required	

LAND MANAGEMENT PROGRESS REPORT

1. PURPOSE

1.1. This report covers work by the Catchment Operations – Land Management Activity during the period from 1 February to 31 March. It focusses on the Sustainable Land Management Initiative (SLUI), Regional Land and Coast, and Nursery activities. The item provides updates on Horizons Annual Plan (AP) 2021-22 targets for these activity areas and the contract targets for the Hill Country Erosion Fund (HCEF) contract with central government via Te Uru Rakau (TUR) that co-funds the SLUI programme. The item also updates on Whanganui Catchment Strategy work that is co-funded by Whanganui River Enhancement Trust (WRET).

2. EXECUTIVE SUMMARY

2.1. The SLUI programme is largely on track. The Whole Farm Plan (WFP) programme is behind in delivery compared to earlier years, but the plan contractor has engaged additional support and maintains he and his team will meet the year-end targets. The SLUI works programme remains on track to meet or exceed both hectare and dollar targets, with the usual end of year push into final claims now ramping up.

2.2. The Regional and Coast programme grant and Whanganui Catchment Strategy work is on track to meet its targets. Industry Partnership programmes are largely delivered and Soil Health site work is programmed for this autumn.

2.3. The Council nurseries are being set up for winter harvest, with the first stock-take complete and pole numbers are estimated to be approximately 28,000 from nursery and our Matatoa supplier. Farmer nursery supply will add more poles to the final number this winter and the current projection is that the 30,000 pole target for the year will be met.

2.4. The period from February to March has seen long dry conditions broken by short wet spells for most of the region. The Tararua District has been an exception to this with the season being continually wet with coastal areas receiving 200-250 mm rainfall in March, causing damage to roads and farms. This damage has resulted in some landowners rethinking their winter afforestation programmes. An example of the damage is shown in Photo 1.

2.5. For the final quarter of the 2021-22 financial year the focus for work will be to prepare a bid for the next round of Hill Country Erosion Fund (HCEF) aiming for funding to commence in July 2023, as well as completing the claims programme and preparing for the pole season.

2.6. While all work looks to be on track, the main risk areas are weather and Covid-19. Both could hamper completion of field works or inspections. The biggest risk is probably in Whole Farm Plan (WFP) delivery where the contractors' labour pool is small and specialised.

3. RECOMMENDATION

That the Committee recommends that Council:

a. receives the information contained in Report No. 22-48.

4. FINANCIAL IMPACT

4.1. There are no direct financial impacts associated with this report, however it does update members on a number of financial matters associated with SLUI, Regional and Coast, and Nursery activities. Te Uru Rakau has a key role in part-funding and overseeing the SLUI section of this activity. Whanganui River Enhancement Trust has key role in part-funding the Whanganui Catchment Strategy works. Landowners are significant co-funders of the works programme. For example landowners have funded over 50% of the works programme over the life of the SLUI programme.

5. COMMUNITY ENGAGEMENT

5.1. Consultation was carried out through the 2012-22 Long Term Plan (LTP). Delivery of the SLUI and broader land management programme involves considerable community engagement, including discussions with landowners, catchment groups, meetings with farmer and industry groups (including the SLUI Advisory Group) and supporting forums/events through the Industry Partnership component of the programme.

6. CLIMATE IMPACT STATEMENT

6.1. This item reports on Horizons' activity in relation to our Annual Plan (AP) targets and is not considered to have a climate change impact. The Land Management activity includes a range of planting programmes, the benefits of which have been reported to Council in various items.

7. SIGNIFICANT BUSINESS RISK IMPACT

7.1. There are no significant risks inherent in the adoption of the recommendations contained in this report.

Photo 1: March storm damage at Marainanga Station, Akitio, Tararua District. Photo: Tammy Cooper.

8. ANNUAL PLAN AND CONTRACT TARGETS

8.1. Progress on the AP and HCEF contract targets for the 2021-22 financial year are shown in Table 1 below. The work programme is on track to meet all targets. Adverse weather and Covid-19 impacts still provide some risks to completing works programmes.

Table 1: Annual Plan and HCEF contract targets 2021-22.

MEASURE	ANNUAL PLAN	HCEF CONTRACT	TARGET	YEAR TO DATE	PROVISIONAL RESULT
Sustainable Land Use Initiative (SLUI)					
Erosion reduction works programmes in targeted SLUI catchments (ha)	3,100	3,425	3,425	2,164	4,200 proposed[1]
Whole Farm Plan properties mapped per year (ha)	20,000	22,500	22,500	11,077	25,799 allocated
Farm or paddock assessments mapped per year (ha)		2,000	2,000	135	2,462 proposed
Case study completed (number)		1	1	0	Under way
Feasibility reports (number)		6	6	0	Under way
Sednet report completed			1		Contracted
Regional and Coast					
Manage grant programmes to deliver erosion reduction works (ha)	175		175	87	191 allocated
Support industry initiatives that promote sustainable land use (number)	5		5	5	PWRT, BFEA, FLRC, SFFF & BLNZ
Operate Council nurseries and source additional commercial pole material to deliver poplar and willow poles to control erosion (number of poles).	30,000		30,000	33,429	Distributed within Horizons Region in winter 2021.

[1] – 4,200 ha of work allocated, Council decision on allocation levels and reserves made in December 2021.

9. SUSTAINABLE LAND USE INITIATIVE

SLUI Programme

9.1. The Sustainable Land Use Initiative was initiated after the 2004 storm event which caused widespread damage across the region. The programme focuses on reducing hill country erosion to:

i. Build resilience to adverse events in the rural sector and Region

ii. Protect downstream communities and extend the life of flood protection assets; and

iii. Improve water quality in the Region's waterways

9.2. The context for the programme is that compared to other Regions, Horizons Region has the most hill country farmland, and the greatest amount of Highly Erodible Land (HEL) in New Zealand. Over time Horizons and its many partners have established SLUI which is one of, if not, the largest erosion control programme in the country.

9.3. SLUI with support from HCEF over four contracts has an established with landowners over 832 Whole Farm Plans covering over 604,364 hectares, representing 56% of the priority area.

9.4. The initiative has implemented more than 5,144 environmental works jobs totalling 50,356 hectares since it commenced operating in 2006, including the planting of over 26.4 million trees.

9.5. Significantly in this reporting period SLUI has exceeded 50,000 hectares of erosion works completed.

9.6. Afforestation makes up the largest proportion of treatment by work type at about 22,823 ha (45%), followed by retirement 19,543 ha (39%). On-farm conservation is predominantly space and gully planting with poplar and willow poles but also includes structures and earthworks. It consistently totals 500 - 1,000 ha per year and pole supply is the main limitation to more of this work being done. About 7,863 ha of this work has been completed during the programme to date.

9.7. At the current rate of progress, analysis suggests it will take 112 years to carry out works on all the top priority land that is currently in pasture. This calculation is based on completing approximately 3,000 ha of work per year with 1,000 ha on top priority land, about 500 ha of which is in pasture. The other 500 ha is retirement of existing tree-covered land. All the high priority land that is currently in pasture is estimated to take 252 years of works.

9.8. The current SLUI contract with TUR through the HCEF provides more than $6.4 million of government funding over four years. This is the third year of the four year contract, with the TUR contribution being $1.656 million (an increase from $1.388 million last year) and Horizons' contribution of $3.792 million. The landowner contribution is estimated to be at least 50% of the grant expenditure, or approximately $2.4 million and $480,000 of in-kind cost. A further application to the HCEF is currently in development.

SLUI outcomes

9.9. This report focuses on a range of outputs for the Land Management Activity including whole farm plan production and completion of erosion control works. An important component of the overall work programme is establishing how these outputs relate to outcomes. SLUI has a range of benefits including increased resilience to storm events, and water quality outcomes.

9.10. Water quality outcomes from SLUI programme have been modelled in a range of projects over the life of SLUI in collaboration with Manaaki Whenua Landcare Research (MWLCR). An example of this work was reported in Horizons in the 2019 State of Environment Report (SOE) at page 19. In summary the SOE report noted, SLUI works to date are estimated to have reduced sediment load in rivers by 835,000 tonnes (6 per cent), with the greatest reductions (up to 19 per cent) in Kai Iwi, East Coast and Lower Rangitīkei. With ongoing implementation of SLUI works similar to our current pace, the annual average sediment load could be decreased by 27 per cent and visual clarity improved by 29 per cent by 2043. Climate change, however, is likely to alter annual rainfall patterns and impact rates of hillslope erosion and river sedimentation, particularly in the northern and western areas of the region. Modelling suggests that this could result in a potential change to the predicted reduction in sediment load from 27 per cent by 2043 to just 19, 12 or 5 per cent under minor, moderate and major climate change scenarios with the amounts varying across the region. Modelling also shows that New Zealand's largest hill country erosion programme, SLUI, may not offset the increases in sediment load from climate change in the longer term, as heavier rainfall events are predicted to increase sediment loading in the region's rivers. The modelling indicates sediment loads in rivers could increase by between 40 and 180 per cent by 2090.

9.11. Over the reporting period, staff have met with the Landcare Research team undertaking further research to update projected water quality outcomes for SLUI into the future. This project building on previous work, is focusing on modelling the outcomes of SLUI in relation to sediment in rivers, including the new targets of the National Policy Statement for

Freshwater Management (NPS-FW). The work is scoped to investigate the impact of SLUI life-to-date, if it continues at a similar pace or if it were doubled in pace, and what the impact of climate change would be on the mid-century and end-of-century outcomes. This is understood to be the first piece of work in New Zealand linking a land management programme with the NPS-FW targets and climate change. The project is on track to deliver the report in June 2022.

New Whole Farm Plan production

9.12. WFP's are a tool for bringing new land into the programme and for allocating grants to farms on various land types (priority land). This year 40 plans totalling 25,799 ha are allocated to the contractor and a further 18 plans (2,462 ha) where extensions, farm or paddock maps are being completed by Horizons Land Management staff. There are 12,496 ha of plans on the list for next financial year.

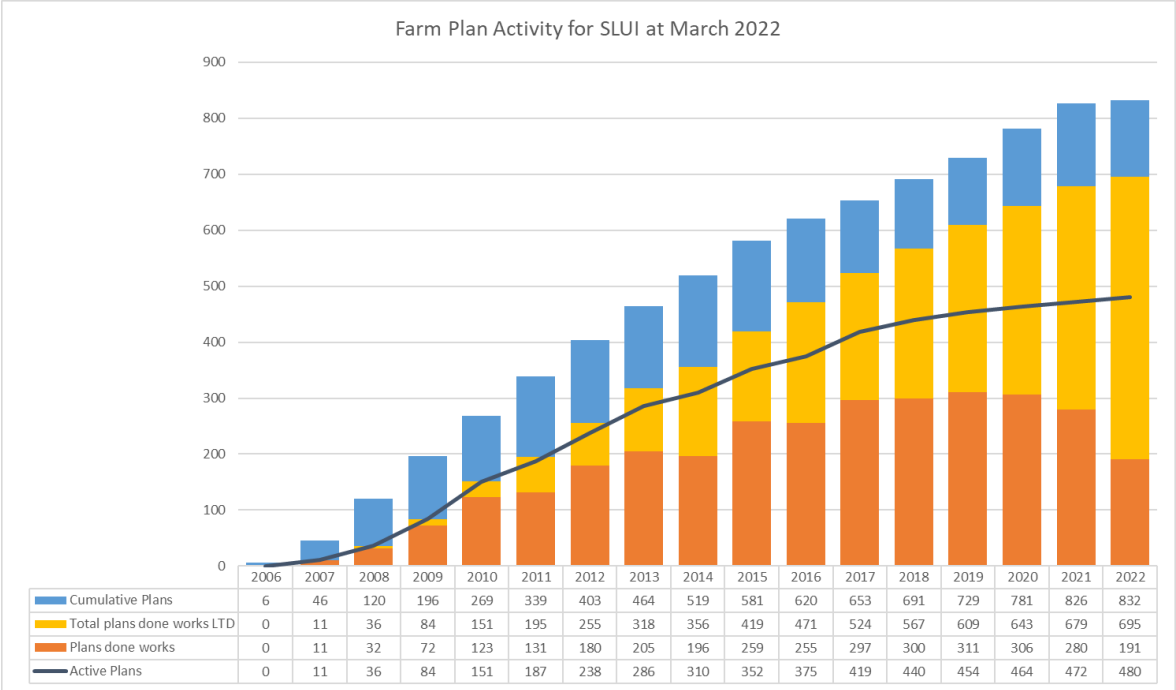
9.13. Twenty plans totalling 11,077 ha have been mapped by the contractor to date. Field mapping is behind schedule but the WFP contractor has employed new staff and is working on making up time over the later part of the year.

9.14. Demand for WFP's remain high, especially as farmers consider the new central government requirements for Fresh Water farm plans. Options for changes to WFP delivery are being considered for the next SLUI application including potential options for transitioning the current WFP's towards meeting the requirements of the new Fresh Water farm plans (noting the requirements of these new plans are currently being developed).

Assessment of active farm plans

9.15. At 31 March 2022, 199 farms had completed 333 jobs. This is well ahead of March 2021, when 134 plans had completed works.

9.16. There are 480 active plans where landowners have completed works within the last three years (58% of the 832 WFP's). The figure for active plans slowly grows, as new plans coming into the programme and doing works outstrips older plans becoming "inactive". During this reporting period, two previously inactive plans completed work (one due to a change of ownership and one carrying out riparian fencing).



Graph 1: Farm Plan Activity to date. Note the 2022 year is partial, and in progress.

Grant works completed this year

9.17. The 2,164 ha of works completed and claimed to date (Table 2) is 63% of the TUR contract target and 70% of the LTP target. At present the programme is still on track to meet the contract targets (Graph 2) despite covid related impacts on the programme.

9.18. The amount of work (hectares) completed by land type (Table 2) shows 1,020 ha (48%) of work claimed to date this financial year is on High priority and Top priority land.

9.19. There have been 330 SLUI claims completed on 199 farms (Table 2 and Map 1). At this time of year, the claims for space planting continue and fencing claims will increase over autumn. If all claims were to be completed there would be another 419 claims, but this is unlikely to eventuate.

Table 2: Works year-to-date completed and claimed, by grant amount and land priority.

					Hectares by Land Type					
Worktype	Claims	Farms	Grant $		Other (ha)	Not Erodible (ha)	Erodible (ha)	High Priority (ha)	Top Priority (ha)	Total Ha
Afforestation	53	30	$	729,572	7.7	66.5	480.3	369.3	184.6	1,108.4
Retirement	44	40	$	259,529	11.2	11.0	226.5	150.6	140.5	539.9
Riparian Retirement	77	55	$	505,356	2.5	35.8	80.3	17.8	60.4	196.8
Wetland Retirement	27	21	$	98,484	0.0	18.5	7.1	-	1.4	27.0
Managed Retirement	1	1	$	21,000	-	0.7	8.0	33.1	-	41.8
Pole Planting	120	116	$	195,924	13.9	14.6	158.8	47.0	15.5	249.8
Structures/Earthworks	1	1	$	433	-	-	-	-	-	-
Other	7	6	$	19,382	-	-	-	-	-	-
Total	**330**	**199**	**$**	**1,829,680**	**35.5**	**147.1**	**961.0**	**617.8**	**402.3**	**2,163.7**
% of Total					**2%**	**7%**	**44%**	**29%**	**19%**	

Grant works projected to be completed this year

9.20. Table 3 shows the contract versus allocated work in hectares and dollars up to 31 March 2022. Graph 2 shows that jobs allocated for this year sit above the contract target at 4,261 ha (5,000 ha reported in February, 4,729 ha in December, 4,639 ha in September and 3,569 ha in August).

9.21. The allocation of work has dropped from over 5,000 ha in February to just over 4,000 ha in April. The biggest drop in allocated work relates to afforestation where more than 200 ha has been rolled over into 2022-23 as farmers couldn't source seedlings last winter as a result of covid impacts and in some cases not ordering seedlings in advance. A mix of smaller amounts of other works have also been removed from the proposed allocation of works this year. The vast majority of the works dropping off this year is being rolled over to the 2022-23 financial year.

9.22. The total forecast hectares to be completed is continuing to change as is usual at this stage and the numbers in Graph 2 and in Table 3 differ due to timing of when the information was updated. Overall, however, the work forecast now is dropping as we confirm works that will not get completed. As explained below the programme is considered on track to deliver on targets.

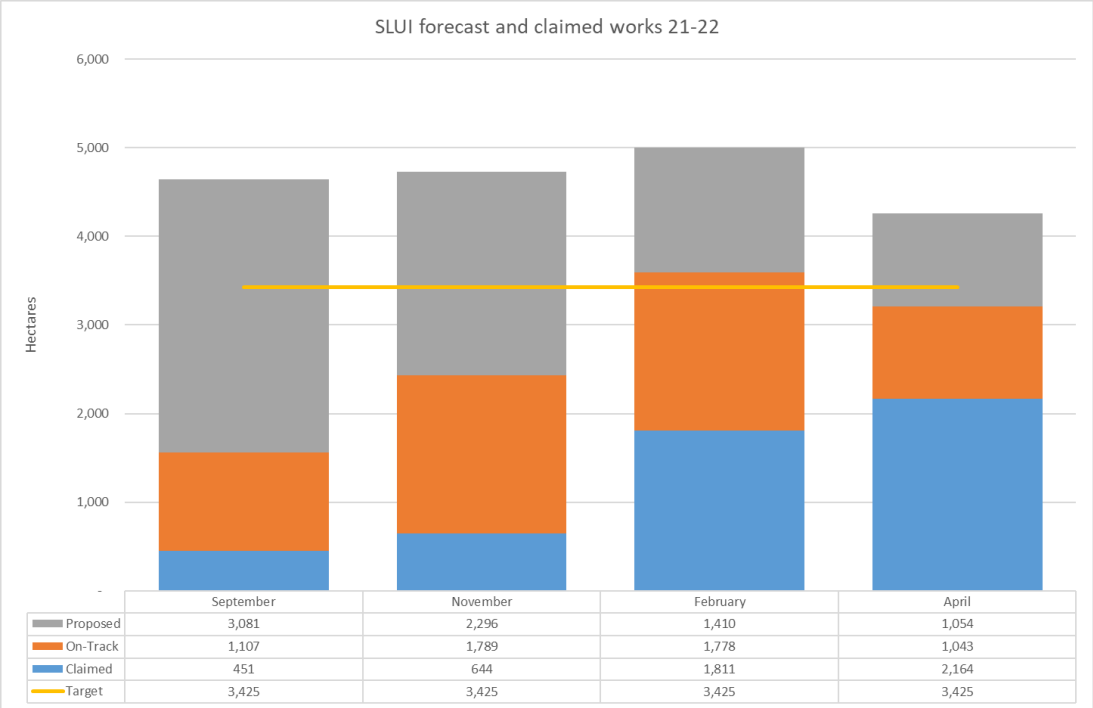
9.23. The contract target for SLUI is 3,425 hectares. If all the work allocated at the end of March were completed there would be 4,374 ha completed (Table 3). To date, 2,164 ha (or 50% of the total allocation) has been completed. If all the claimed and on-track work was completed then we would reach 3,207 ha (Graph 2). In reality, we need all the on-track work and approximately 200 ha of the over 1,000 ha of proposed work to be completed to meet our contract target (Table 3). This appears feasible at this stage and the current projection is that a mix of the proposed and on-track work will be claimed by year end to meet and exceed the targets.

9.24. At this stage of the year the grant spend has been $1.830M against a budget of $2.368M and an allocation of $4.374M (Table 3). As noted above, the allocated hectares of work dropping from February to March by approximately 800 ha. The dollars allocated have also reduced. Current projections are that the final spend on works will be approximately $3.0M, leading to the use of SLUI reserves as approved by Council in December 2021.

Table 3: Work during 2021-22 financial year (contract, forecast and actual by hectares and dollars).

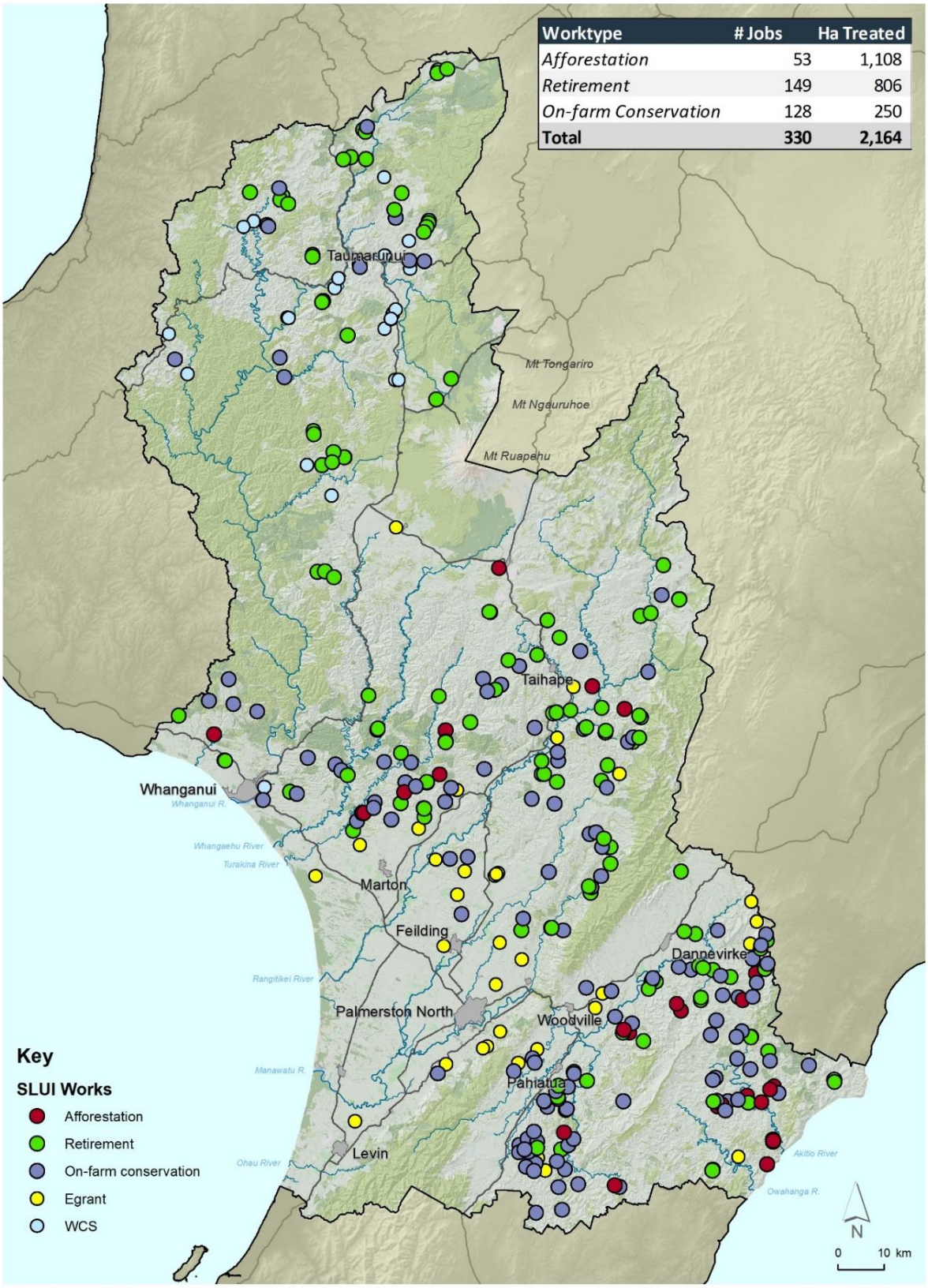
Work Type	Hectares				Dollars $ x 1,000			
	Contract Target	Allocated	Actual	Actual vs Contract	Contract Target	Allocated	Actual	Actual vs Contract
Afforestation	1,600	1,447	1,108	-492	1,199	1,134	730	-469
Retirement	595	1,353	540	-55	241	1,151	260	19
Riparian Retirement *A	220	420	224	4	407	1,659	603	196
Managed Retirement	0	53	42	42	85	38	21	-64
Space Planting & Gully Planting	1,000	716	250	-750	396	358	196	-200
Structures/Earthworks	10	1	0	-9	10	8	0.5	-10
Other (inc. blank)	0	32	0	0	30	30	19	-11
Total *B	**3,425**	**4,022**	**2,164**	**-1,261**	**2,368**	**4,374**	**1,830**	**-538**

**A – includes wetland retirement*
**B – Annual Plan target is 3,100 ha while the SLUI contract target is 3,425 ha.*



	September	November	February	April
Proposed	3,081	2,296	1,410	1,054
On-Track	1,107	1,789	1,778	1,043
Claimed	451	644	1,811	2,164
Target	3,425	3,425	3,425	3,425

Graph 2: Changes to SLUI job status during the year and works allocated for the next financial year. "On-track" means the Land Management Adviser has re-confirmed the work with the landowner or is confident the work will proceed.



Map 1: Location of all grant works completed this financial year (SLUI and Regional and Coast). Note the hectares total does not include Regional and Coast Environmental Grant.

Forestry Right – Forestry work programme

9.25. Horizons has interests in 10 forests covered by registered Forestry Rights (FR) with a net stocked area of 1,387 hectares. Maintaining the forests as outlined in the FR document results in operational and capital expenditure. Operational work includes rates, insurance, measurements, legal issues, liaising with landowners, fence and track maintenance while capital work relates mainly to forestry silviculture required in order to deliver the asset at the completion of the timber rotation.

9.26. A workshop on the FR forests was held with Council in February this year, and is followed up with a paper in this agenda.

9.27. Work completed in this period includes:

- Silviculture Contract: Penetito contractors have 29.5 ha left to thin in one stand, the crew have been affected by Covid. It is currently unclear if this will be completed before planting begins in May. If unfinished, this area plus the remaining stands at two FR forests have been budgeted via the proposed Annual Plan to carry over into 2022-23.

- Trees along fence lines and roads at three sites were pruned. This was relatively high cost but was necessary to reduce shading on pasture and mitigate fence damage from overhanging limbs.

- Contractor earthworks – work is set to start on track maintenance in three FR forests. Recent weather events have resulted in extra remedial works being required in these forests

Photo 2: Forestry Right forest, AhuAhu Valley, Whanganui District. Photo: Phil Hodges.

10. REGIONAL AND COAST PROGRAMME

10.1. The Regional and Coast programme is funded through the General Rate, targeting advice and grants for erosion control works, working with industry to support sustainable land use, delivering the soil health programme and providing erosion and land-use consent and compliance advice.

Environmental Grant Programme

10.2. The Environmental Grant funding aims to support landowners to undertake works that will reduce erosion and protect the environment. The Regional Land and Coast (RL&C) environment grant is slightly broader than SLUI and can include work on sand country dune stabilisation and on smaller holdings and lifestyle blocks. The Whanganui Catchment Strategy (WCS) grant is supported by the Whanganui River Environmental Trust (WRET). This enables a greater variety of work to be funded and at higher grant rates in targeted areas in the upper sub-catchments of the Ohura and Waimiha.

Table 4: Work area and budget expenditure 2021-22.

Grant Type	WORK AREA (ha)				BUDGET ($)			
	AP Target	Allocated	Complete	AP % Complete	AP Budget	Allocated	Complete	AP % Complete
WCS	75	112	33	44	113,000*1	169,547	42,563	38
RL&C	100	79	54	54	80,000	118,081	65,784	82
Total	**175**	**191**	**87**	**50**	**193,000**	**287,628**	**108,347**	**56**

**1 - this is $50,000 Horizons and $63,000 WRET*

10.3. The budgets are over-allocated as a mechanism to ensure funds are fully spent and, as with SLUI, not all jobs will be completed. Some jobs allocated to Environmental Grant will also meet SLUI criteria and there is Council approval (December 2021) to move these to SLUI if the budget for Whanganui Catchment Strategy and/or Regional and Coast are over spent.

10.4. There are 134 individual projects allocated (estimated at 191 ha) and to date 64 (87 ha) are complete with 28 space planting, 10 riparian retirement, eight retirement, seven afforestation and seven wetland projects making up the bulk of the work.

10.5. The support through WRET allows for more projects to be completed and with more emphasis on projects directly connected to water. All the wetland and the bulk of the riparian projects have been completed under the WCS/WRET work programme.

10.6. WRET have provided additional support to the Poplar and Willow Research Trust (PWRT) trial, through funding individual tree-guard protection for the bare-rooted poplars planted.

10.7. WRET have been provided a written update on progress up until the end of February.

Regional and Coast – Industry Partnerships

10.8. Judging has been completed for this years' Ballance Farm Environment Awards (BFEA). The awards evening is confirmed for 7 July but the format is still to be confirmed.

10.9. The BFEA national showcase event is scheduled for 24 November in Christchurch.

10.10. The PWRT ran an online workshop, "Bioengineering with Poplar and Willows", in late March, which well attended by Horizons Land team. The format changed from an in-person and in-field event to online due to uncertainty around Covid.

10.11. The PWRT general manger has responded to general enquiries from land staff in other Councils around removal of willows in riparian margins.

10.12. Land staff in Ruapehu checked on the poplar trial near Taumarunui, which aims to compare survival and growth of poles, stakes and rooted cuttings in an on-farm situation.

10.13. Council provided sponsorship to the Farmed Landscape Research Centre (FLRC) workshop held in late February.

10.14. We received an update on the Sustainable Food and Fibres Futures Fund – Sheep Forage Crop Trials being undertaken in Otago. This winter will conclude the trial, which is aimed at measuring nutrient, sediment and bacteria losses from winter grazing of sheep. This follows a similar trial some years back involving winter grazing of cattle.

10.15. Staff have attended Beef and Lamb and He Waka Eke Noa workshops on greenhouse gas emissions.

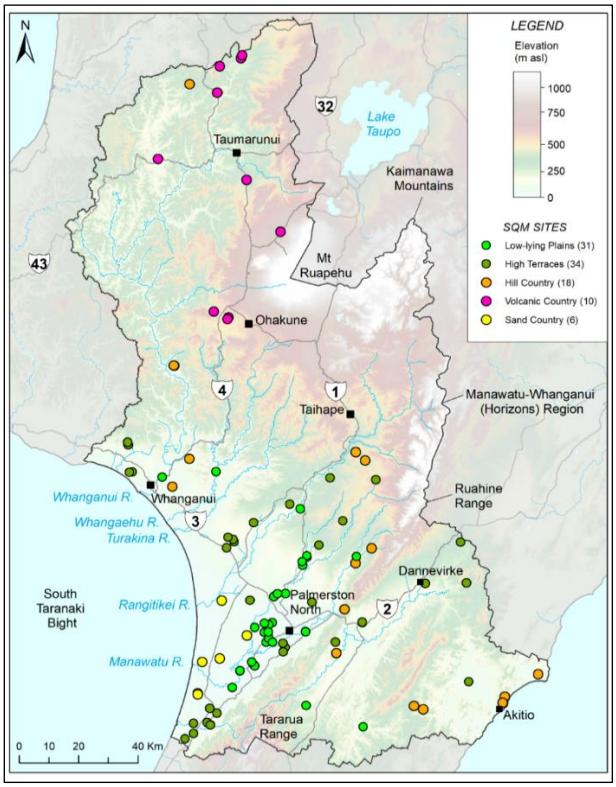
Soil Health

10.16. The Soil Health programme maintains the Regional State of the Environment soil quality monitoring programme through a regional network of soil health assessments and a general advice programme around soils and soil health.

10.17. Twenty-five Soil Quality Monitoring (SQM) sites were visited in spring 2021 and more sites will be completed this autumn (April – June depending on soil moisture levels). Of the 25 spring 2021 sites, 15 were new sites covering a range of different farm and soil types and 10 sites were repeat visits, first visited in spring 2015 and 2016.

10.18. In total, we now have 99 SQM sites spread across a range of representative land use and soil types within the region and we aim to increase this over the next five years. We have conducted a total of 124 site visits since 2015, including 24 repeat site visits. The site location and land types are shown in Map 2 below.

10.19. Samples from the spring 2021 run have been sent to Landcare Research for analysis. Once these results are back, letters will be written to the landowners to present the results. Visual Soil Assessments (VSA) conducted on the spring 2021 SQM sites have been completed.



Map 2: Location of soil monitoring sites showing the distribution by location and land form.

NURSERIES

10.20. Horizons owns two poplar and willow pole nurseries (Woodville and Bulls) to produce planting material for erosion control programmes. With funding support from WRET, Horizons also provide management to a number of farmer-owned nurseries in the Ruapehu District. The aim is to produce and source 30,000 poles per season and Horizons is on track to do this again this year.

10.21. A preliminary stocktake has been completed for the Northern, Bulls and Woodville Nurseries and, when combined with a stocktake from Matatoa (private supplier), 3m A-Grade supply is estimated at 28,000 poles and on-farm supply will add to the final pole supply. A final stocktake is to be completed at the end of April. Production is down slightly this year as a larger proportion of new stools are harvested for the first time, and first rotation growth can be variable. We also have a new stand of Tangoio willows to be harvested this year, and their establishment 3 years ago was impacted by pukeko damage to the new plantings.

10.22. The contractor and general work programme thinning and pruning was completed for the season, with contractors due back for harvest in June. Work in Woodville and Bulls nurseries included:

- Clearing old blocks for replanting with more than 5,000 stools removed at Woodville and Bulls. These will be replanted in the spring.
- Both nurseries have had problems with silverleaf, mostly in Maxi-Nigra and Shinsei varieties at Woodville and Veronese at Bulls. Staff are researching fungal sprays and harvesting techniques to combat this disease, which can lower stool production and spread throughout a nursery.
- There has been a lot of rust this year at Bulls, especially in Veronese and to a lesser extent in some willow. Staff have had to undertake six copper sprays this summer as rust in the poles on the stool can affect survival in new plantings.
- Remaining blackberry along fence lines at Bulls has been cleared using a digger. This will need follow-up spray.
- Despite repeated contact, the contractors engaged to undertake shelterbelt trimming at Woodville, including some roadside work, have not turned up. It appears this work will need to be completed next year.
- Pole prices are set for winter 2022 with a 3-metre A-Grade pole priced at $13.40 excl GST compared to $12.50 last year.

Photo 3: Rust in Veronense poplars, Bulls Nursery. Photo: Sara Mathieson

10.23. Irrigation – Staff met with a dam builder from Hawkes Bay at Woodville and canvassed other irrigation suppliers. A meeting was held at the nursery with staff from the River Management team to look at irrigation options, and a Request for Proposal has been sent to a consultant looking for a review of the investigations to date and to manage the project going forward.

11. PROGRAMME ACTIVITY

11.1. Since the last report staff have:

- Continued to complete claims for SLUI and other grant works, with about 140 claims completed between the end of January and the end of March. Approximately 50% of these claims were for space planting of poles;
- Given advice to landowners on the coming winter's planting programmes, including space planting, afforestation and erosion planting;
- Received and answered queries about afforestation and space planting and the Emissions Trading Scheme. Advice has also included how and where to find historical photos to prove the eligibility of land to enter the ETS;
- Provided land-use consenting advice regarding vegetation clearance, culverts, rules around drainage, and land-use change to dairy support (passed onto Rural Advice);
- Provided technical advice to the consents team regarding the National Environmental Standard for Plantation Forestry (NES-PF) red zone land;
- Three staff attended the Land Inventory and Land Use mapping course, two new staff were due to start on 4 April; and
- Viewed a Rural Delivery television story featuring SLUI and sediment screened on TVNZ. The programme included the landowner Justin Vennell, with Horizons Land and Science staff discussing SLUI, erosion, sediment and water quality. The episode is available on TVNZ OnDemand, and then as a stand-alone story on the Rural Delivery website https://www.ruraldelivery.net.nz/.

11.2. In the next three months, until the end of the financial year, staff will:

- Continue to contact landowners to update their work programmes for this year and next, including confirming they have ordered trees for their afforestation projects (one landowner has advised they believed they had ordered but the supplier has insufficient stock for this year);
- Continue finalising claims and with fencing programmes being completed, retirement and riparian retirement will increase in the SLUI database;
- Allocate and confirm pole orders;
- Complete the 2022 SLUI field audit (8 of 10 sites completed) and writing up the 2019 desktop audit. The results of the field audit confirm what was already in the SLUI quality control report 2021 i.e. that afforestation is the most accurate and the most effective method for removing sediment, particularly on the most erodible land. On-farm measures, mainly poplar planting, are the least accurate and effective. Riparian, bush and other retirement is in between. We currently have 8% of jobs and farms randomly audited – down slightly on the 10% reported 2021;
- Liaise with Freshwater and Biodiversity teams about joint projects, supporting funding to the correct programme;
- Complete contract Milestone reports for SLUI for May and June. This will include one case study and six feasibility reports for works within the SLUI programme;
- Support the regional response to Central Government's Freshwater Farm Plan programme; and
- Continue to work with the Science Team and Manaaki Whenua Landcare Research on the SLUI sediment project with a report due before the end of the financial year.

11.3. A significant focus over the next reporting period will be an application to the next round of funding for the Hill Country Erosion Programme, with applications due to MPI by 16 June.

12. SIGNIFICANCE

12.1. This is not a significant decision according to the Council's Policy on Significance and Engagement.

Grant Cooper
LAND AND PARTNERSHIPS MANAGER

Dr Jon Roygard
GROUP MANAGER NATURAL RESOURCES & PARTNERSHIPS

ANNEXES

There are no attachments for this report.