



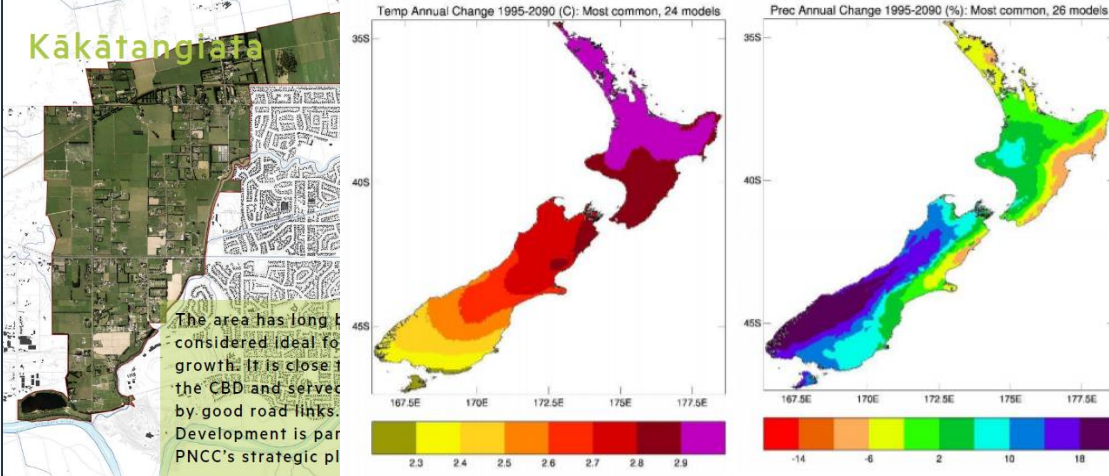
2021 SCHEME MEETINGS

Rangitikei River Scheme



\$650M of assets

- 1,270km of river channel
- 1,100km of drain
- 23 pump stations with a total discharge capacity of 43m³/s
- 54 detention dams that can store 4.3M cubic metres of floodwater
- 500km of stopbanks



SIGNIFICANT RIVER MANAGEMENT ISSUES

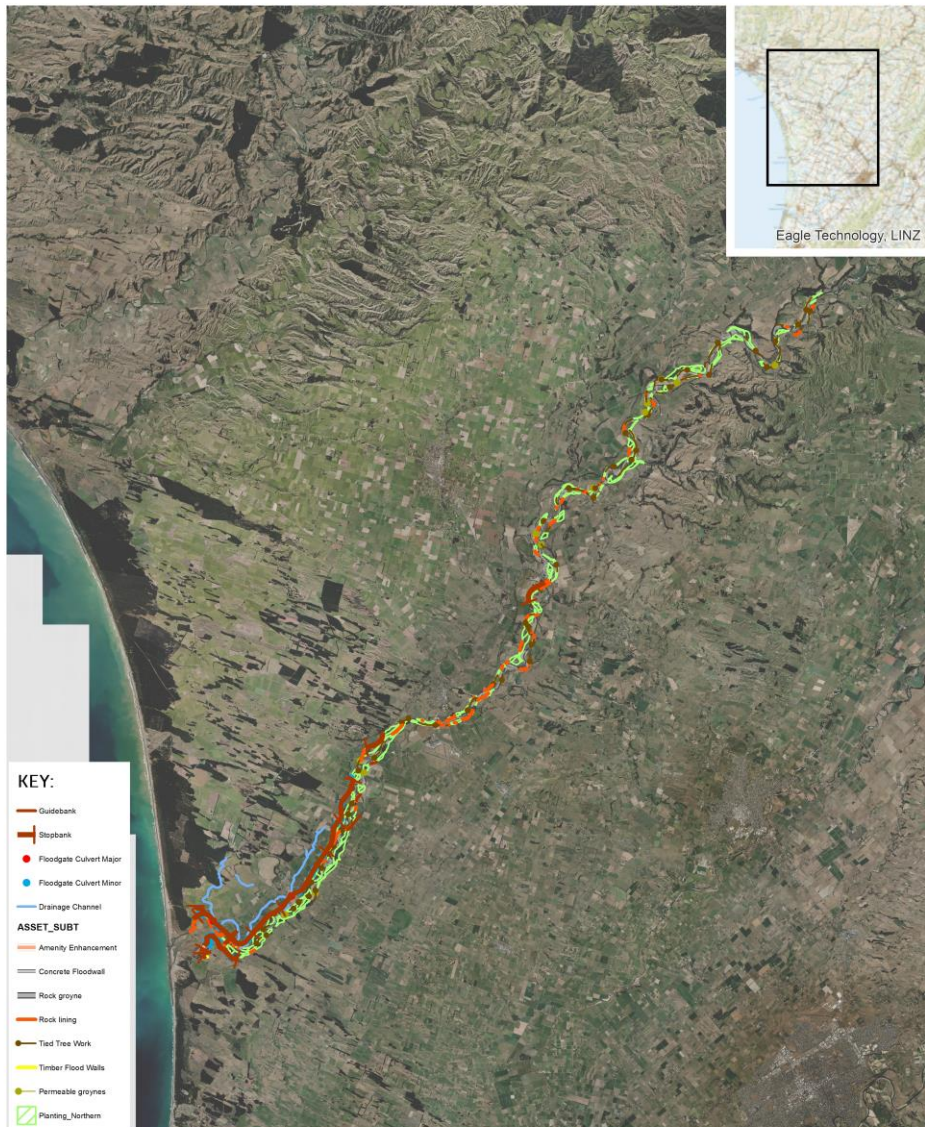
- Accelerating land use change
- Unsustainable land use
- Climate change
- Asset reliability
- Evolving community expectations



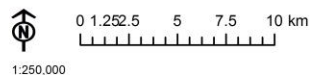


SCHEME UPDATE SUMMARY

Rangitikei River



Rangitikei River Scheme
Asset Map 2020



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Date: March 2020



Scheme Facts

Scheme Assets.

900ha erosion protection reserve
184,000 ton rock lining
19.5km of stop-banks
51,000 tons bank armouring
32km tied tree work
24 flood-gated structures
2.6km permeable groynes
22km drainage channels
Forestry

Total Asset Replacement Value: \$6,9781,422 (June 2020).

Scheme is 63km long from Rewa to the sea.

Primarily protects highly productive lower terrace land, rural and urban property and community infrastructure from flooding and erosion.



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RANGITIKEI RIVER SCHEME

Strategic Direction

The focus of the Scheme over the next 3 years is to continue to maintain existing infrastructure and to commence operationalising the Climate Resilience Rangitikei River Enhancement project along with the new 'Rangitikei River Scheme Strategic Direction'- a review of the scheme in light of the projected growth, changing land use within the catchment and a change in the river morphology.

Aim

To maintain a level of service that meets the expectation of the local community for both flood protection, drainage and recreational use.

RANGITIKEI RIVER SCHEME

Scheme Level of Service

To ensure that the assets are managed in a consistent, efficient and sustainable manner.

To maintain a clear and stable channel that provides an equitable level of flood protection to land in the Rangitikei River Scheme.

To maintain satisfactory drainage to meet stakeholders' expectations.

To manage gravel and general channel condition within the various streams included in the Scheme in line with the strategic direction of the scheme.

To contain flood flows not exceeding 2% Annual Exceedance Probability (AEP) for Tangimoana within stopbanks to protect the Tangimoana township and adjoining rural area.

To contain flood flows not exceeding 2% Annual Exceedance Probability (AEP) for the Parewanui area within stopbanks to protect Scotts Ferry township and adjoining rural area.

To contain flood flows not exceeding 2% AEP for the Kakariki terrace land.

Scheme Funding

Funding Policy

The Schemes funding comes from three revenue sources:

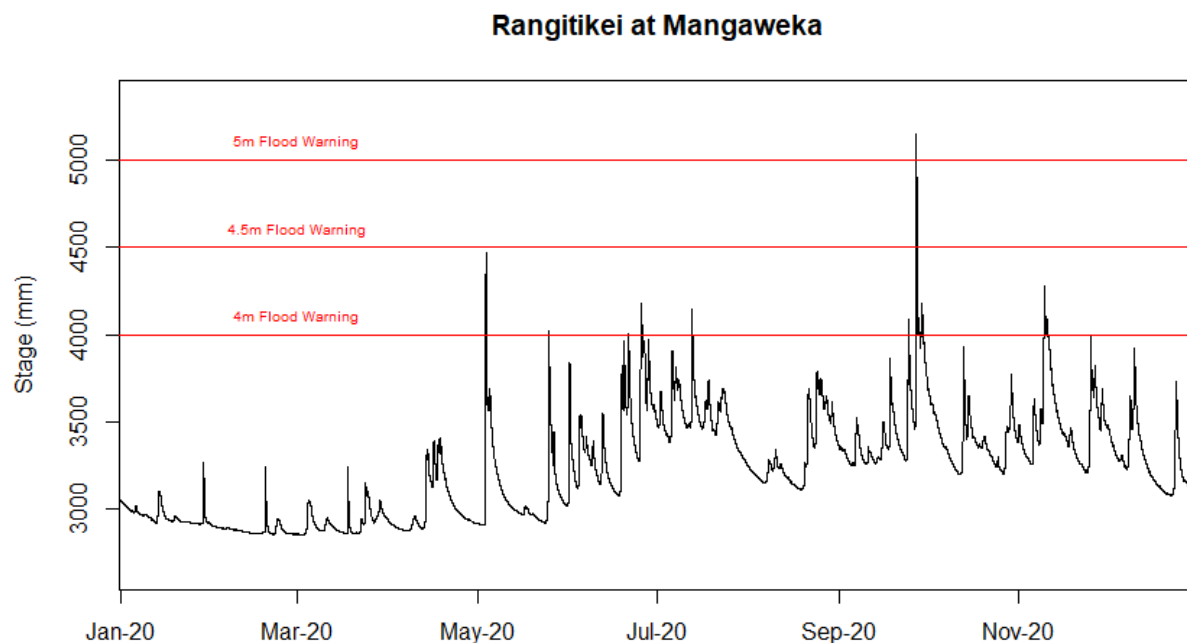
Targeted Rates – differential targeted rates levied on properties directly benefiting from or causing the need for the work.

General Rates – uniformed rate levied over all properties in the Horizons Region.

Other income – Revenue from lease land, forestry blocks, scheme reserves, etc. held by the scheme. This is used to reduce the level of the targeted rate

Rangitikei at Mangaweka

Annual maximum stage for the past decade



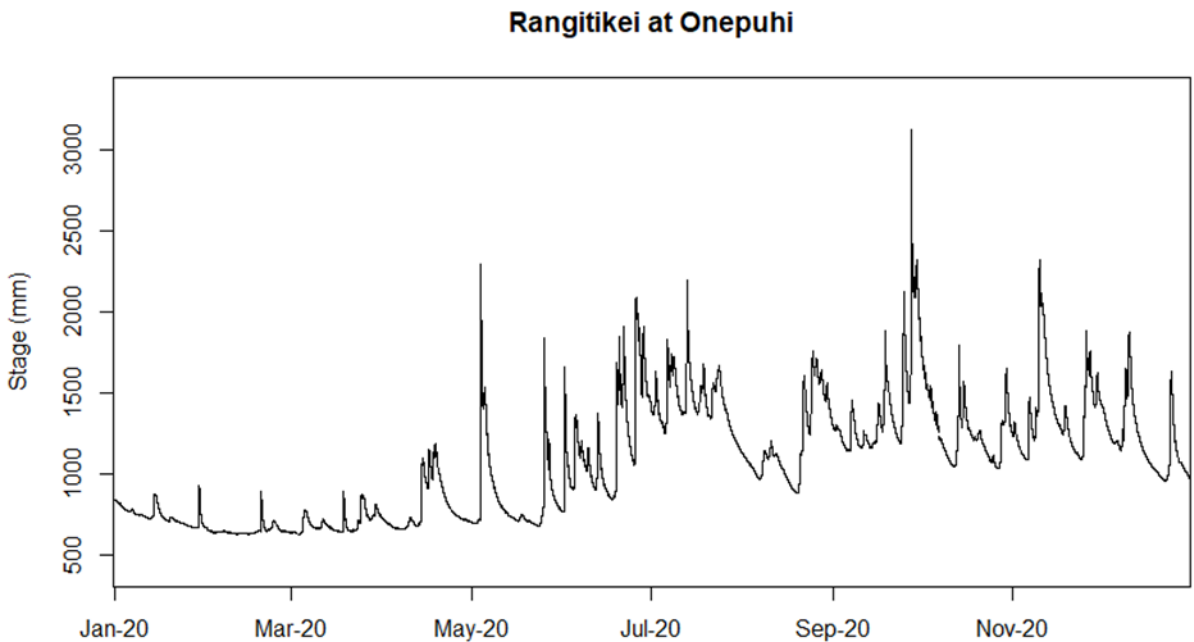
Year	Stage	Flow	Date
2010	6.046	858.710	2010-02-01 05:35:00
2011	6.533	1051.933	2011-01-24 00:50:00
2012	4.988	468.707	2012-01-02 02:05:00
2013	7.284	1370.526	2013-10-15 14:55:00
2014	5.280	537.985	2014-08-03 15:45:00
2015	6.261	914.667	2015-06-20 20:05:00
2016	4.916	403.946	2016-07-24 13:50:00
2017	5.849	749.332	2017-04-05 17:20:00
2018	7.598	1521.961	2018-06-12 15:55:00
2019	5.243	526.481	2019-07-05 03:15:00
2020	5.147	494.527	2020-09-27 19:05:00

Tangimoana flood action begins at 7.2m at Mangaweka



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Rangitikei at Onepuhi



Annual maximum stage for the past decade

Year	Stage	Flow	Date
2010	4.433	869.333	2010-09-19 16:15:00
2011	4.595	942.045	2011-01-24 08:50:00
2012	3.416	498.550	2012-01-02 09:55:00
2013	5.185	1232.211	2013-10-15 23:10:00
2014	3.598	550.689	2014-08-03 22:50:00
2015	4.722	956.798	2015-06-21 02:50:00
2016	2.848	398.463	2016-07-24 21:25:00
2017	3.758	595.782	2017-04-06 00:30:00
2018	4.795	948.807	2018-06-13 01:30:00
2019	3.295	458.741	2019-07-05 10:05:00
2020	3.127	436.432	2020-09-28 02:45:00

Key Activities and Issues: 2020-21

Works Activity

- Annual Asset Inspections
- Scheme Strategic Direction- Ground truthing Mobility Corridor
- Willow Planting
- Willow Nursery Extension
- Native Planting
- Rock protection maintenance (spraying) and repairs- Scotts Ferry (shovel ready project)
- Vegetation clearance multiple locations
- Stopbank mowing- Long reach mowing
- Stopbank Repairs- tracking, low over ramps
- Tied tree work
- Layering
- Ground Spraying
- Aerial Spraying (late March, early April)
- Floodgate inspections and maintenance
- Drain cleaning, Spraying improving access.
- Gravel Resource Management i.e. pre and post consented extraction inspections
- Beach Clearing & removing in river blockages

Scheme Expenditure

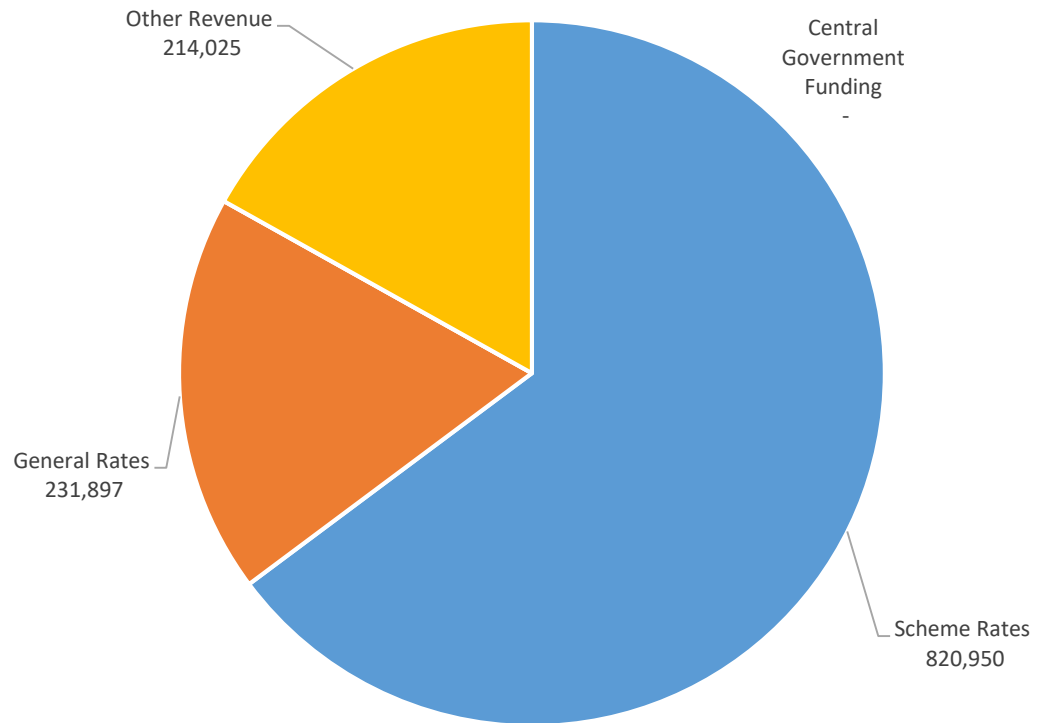
Expenditure is on track to finish year within budget

Upgrades

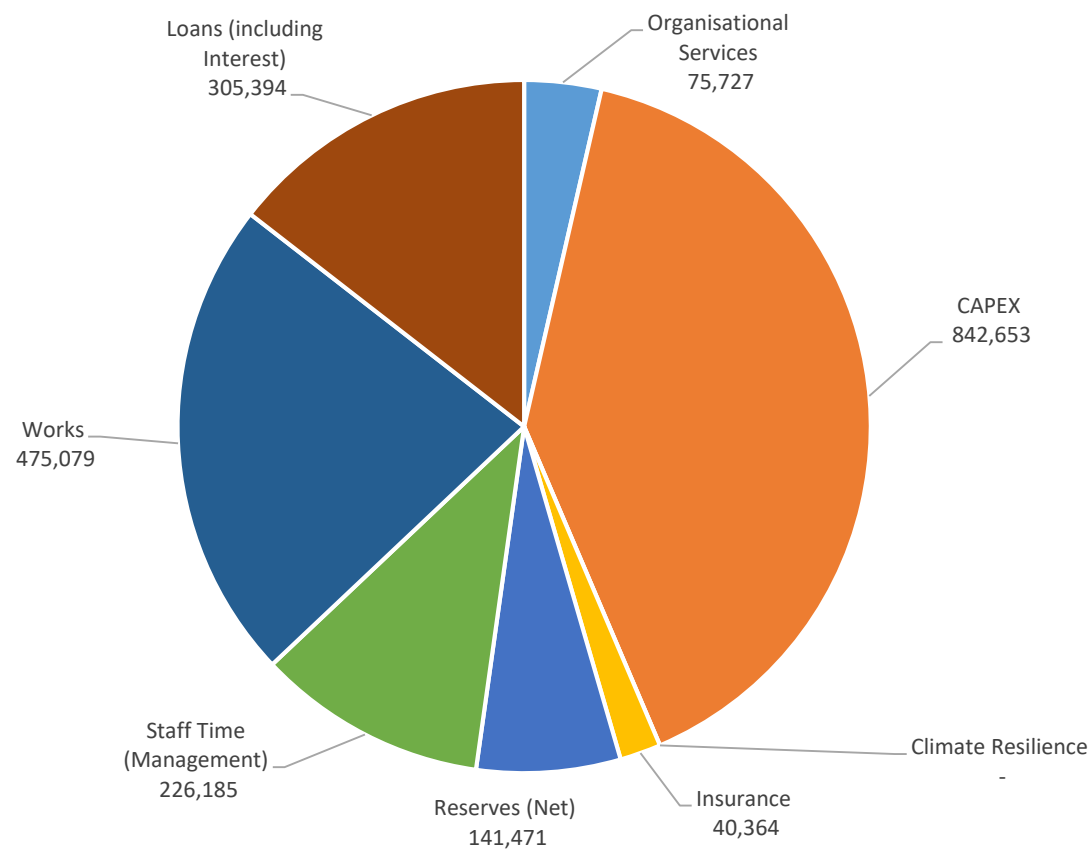
- NEW Parewanui Gas Pipe Concrete Wall
- Completion of Parewanui stopbank upgrade
- NEW Aerial Spray Consent
- Engagement Stage of Gravel Extraction Consent Kakariki Bridge
- Engagement stage Global Gravel Extraction & Associates Activities Consent (Bulls Bridge to Sea)
- Commence lower river (below Bulls bridge) climate resilience project upgrades

Income and Expenditure 2020-21

Scheme Revenue - Current Year



Scheme Expenditure - Current Year

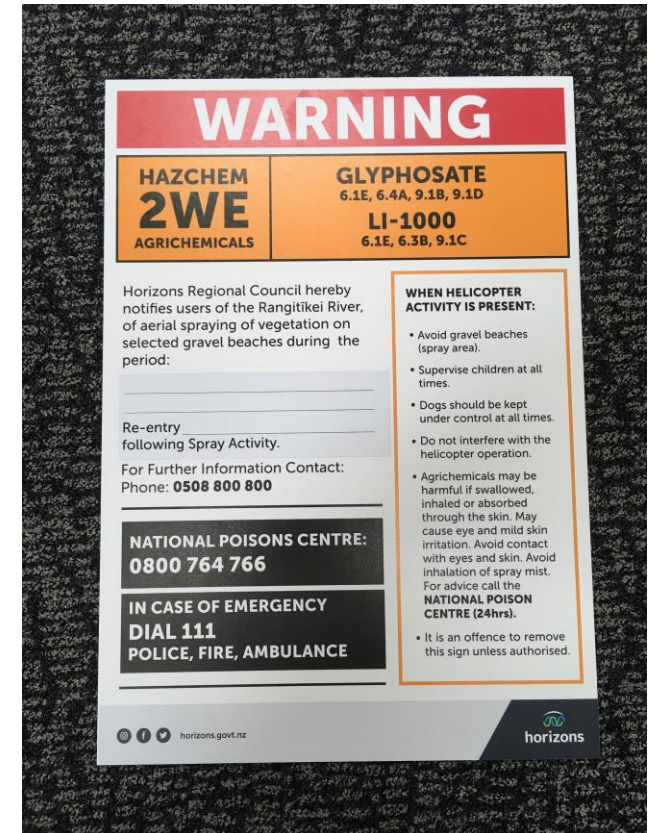




July 2020 Big Five Staff Planting Day Bulls Bridge



~1km Mechanical Tree Layering below the Bulls Bridge



Aerial spray signage displayed on all public river access



Rangitikei River – Tangimoana floodgate exercise, September



Rangitikei River: Drain starting to flow following mechanical clean at Tangimoana



Stopbank mowing & drain cleaning



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Mechanical Layering & channel clearing, Rangitikei Valley Road



Bulls Bridge Swim Spot log clearing before & after. Native logs uplifted by Parewahawaha (ōhinepuhiawe) Marae

Parewanui Stopbank Upgrade & Concrete Wall Construction



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Key Activities and Issues: 2021-22

Scheme Budget

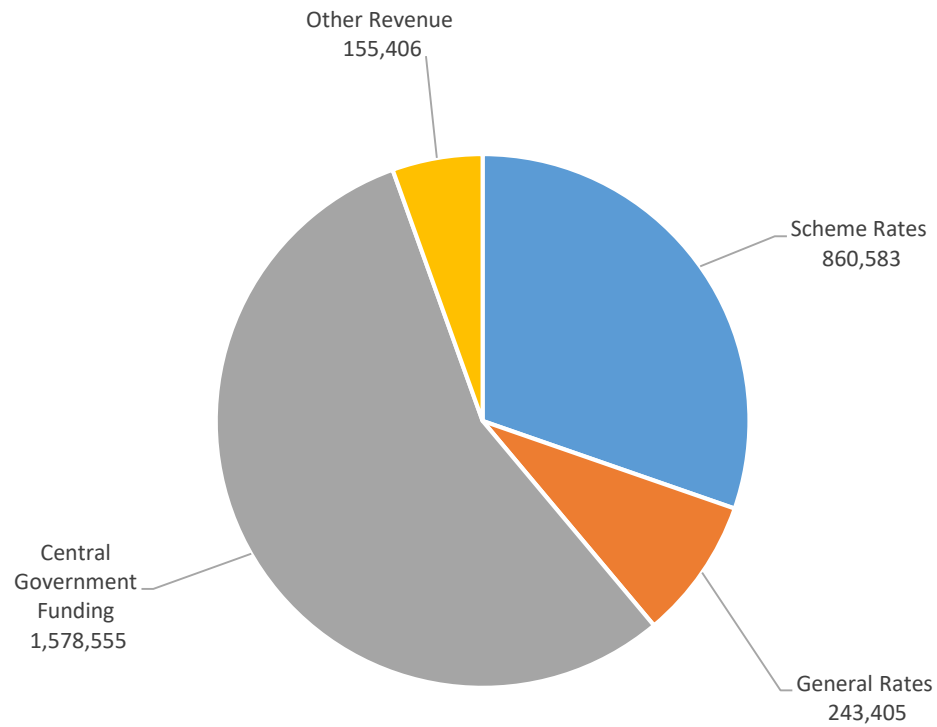
- No CAPEX completion of stopbank upgrade
- \$2,585,320 increase in works expenditure
- \$50,000 contribution to the Emergency Reserve Fund
- Scheme Rate increase of 5%

Works Activity

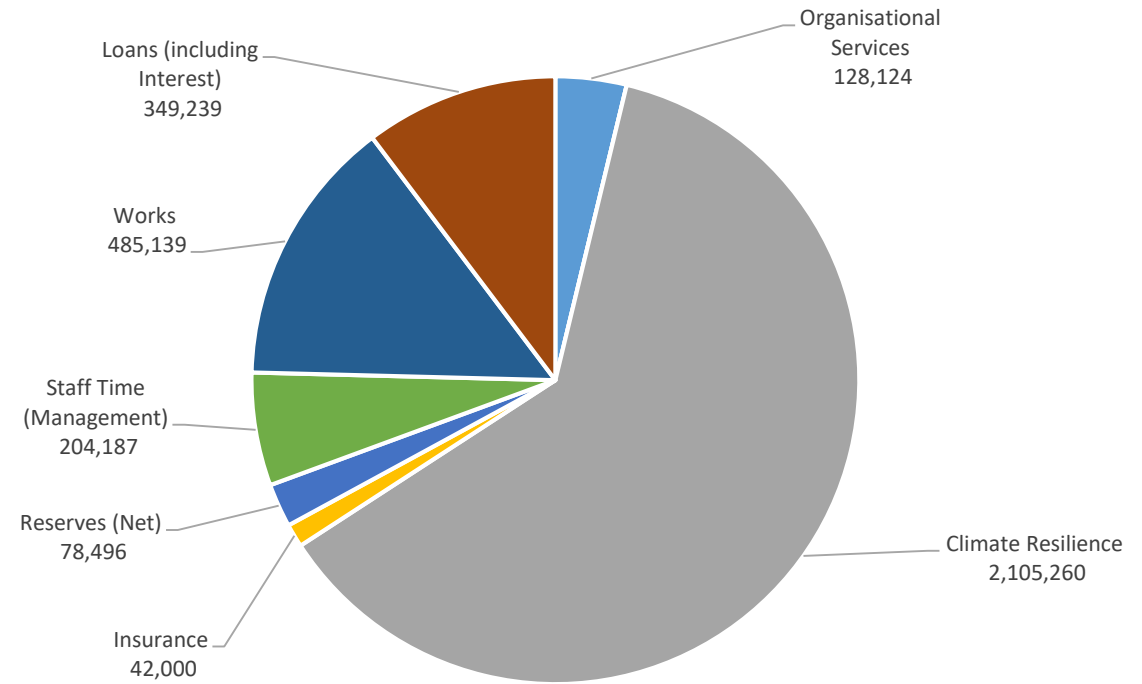
- Continuation of inspections, maintenance & operational work
- Scheme Strategic Direction ramp up
- Climate Resilience Project ramp up

Income and Expenditure: 2021-22

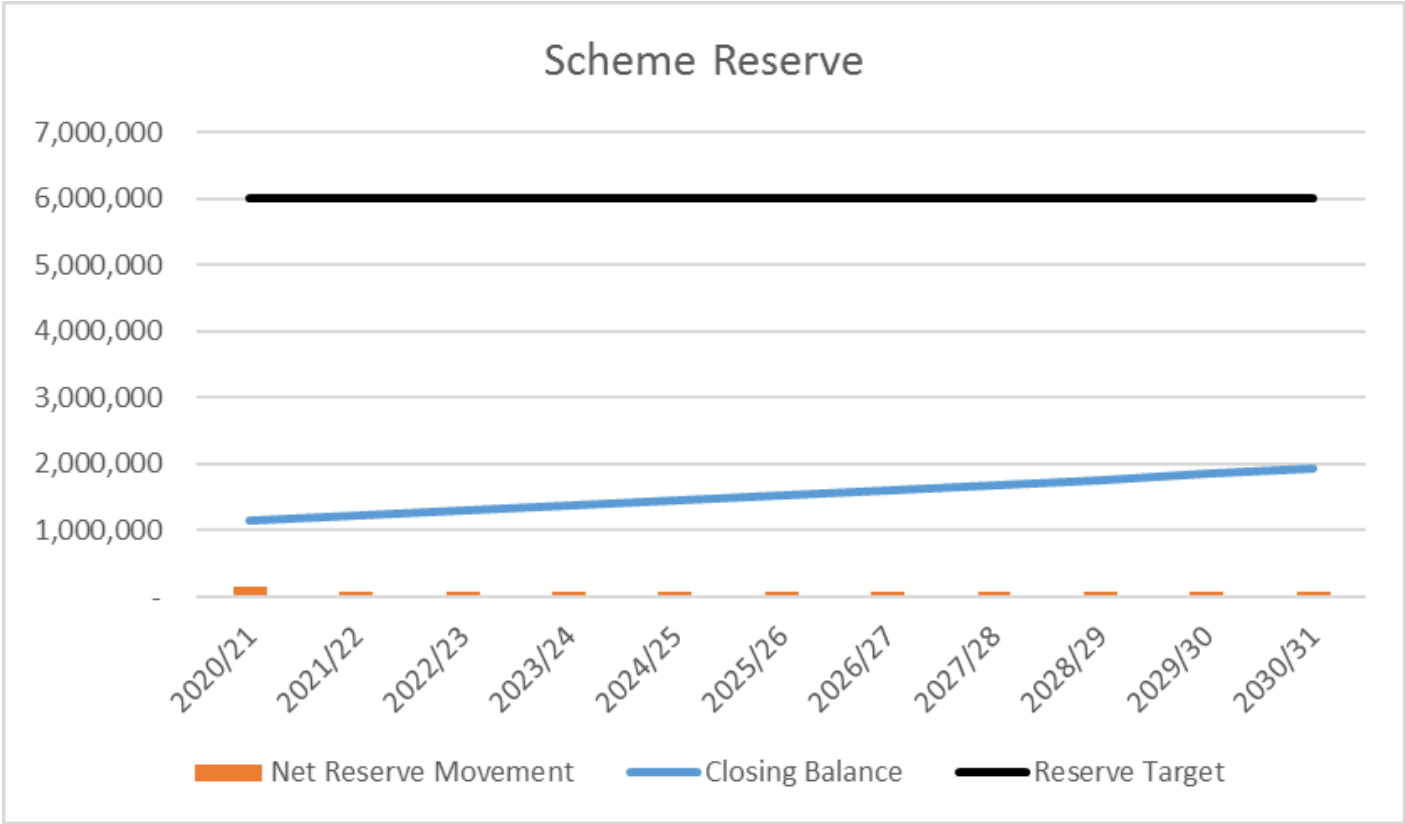
Scheme Revenue - 2021/22



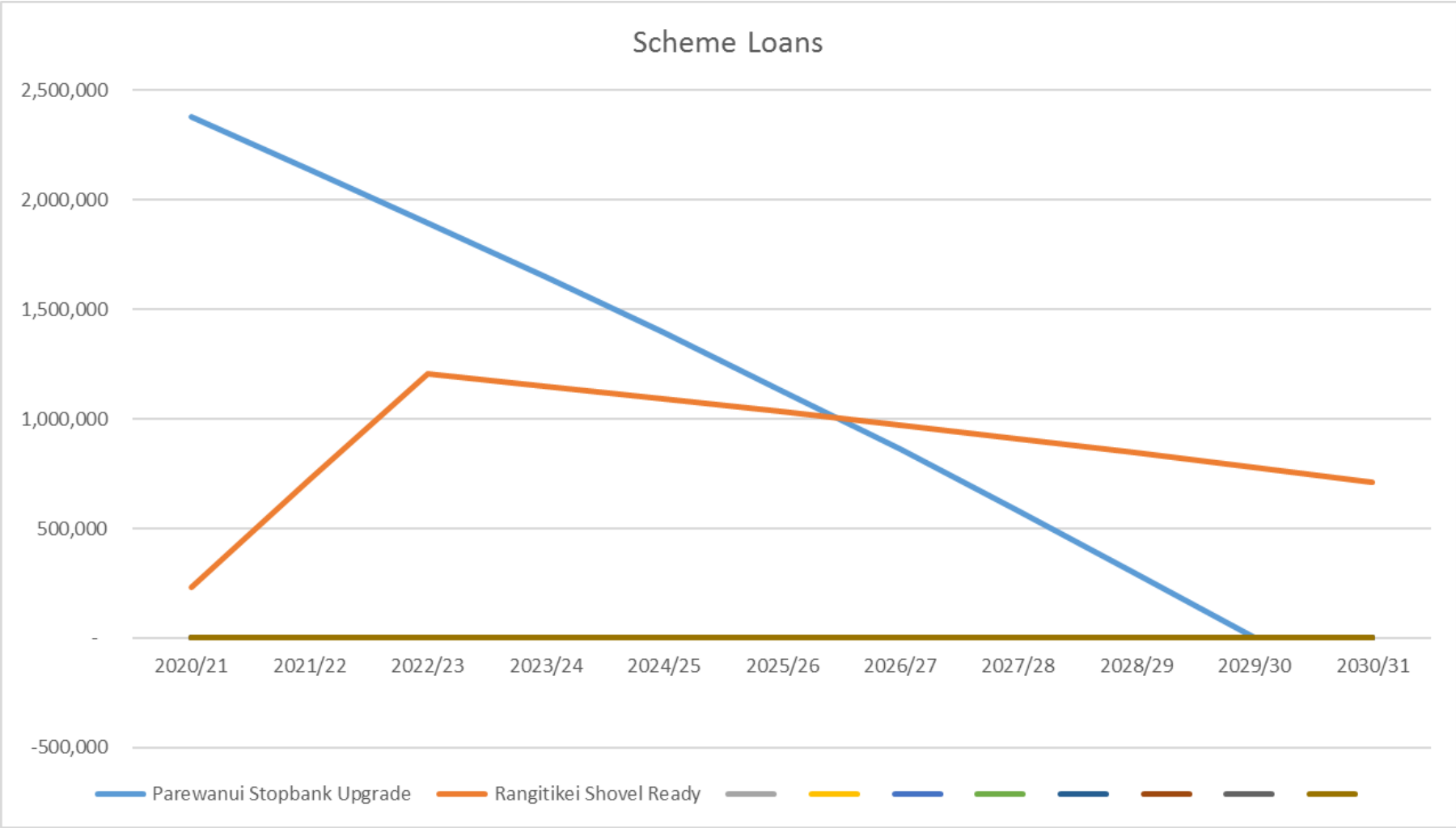
Scheme Expenditure - 2021/22



Emergency Reserve Balance



Loan Account Balances



GRAVEL MANAGEMENT

New Gravel Survey underway, Kawhatau catchment included
LIDAR & new aerial photography flown, wetted channel survey scheduled.
Georeferenced Historical Imagery.

Global Gravel Extraction Consent (Bulls to Sea) Engagement- Scheduled Winter 2021



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CLIMATE RESILIENCE PROJECTS

Overview

CLIMATE RESILIENCE PROJECTS

Invitation from Central Government during lockdown to submit 'shovel ready' infrastructure projects for funding as part of post COVID lockdown economic stimulus.

Five flood protection projects submitted both directly by Horizons as a \$36.9M package and as a \$300M 'sector' package in April 2020. Confirmed for funding in July/ August at a rate of 75%.

Four approved projects:

- Palmerston North Flood Protection Resilience;
- Lower Manawatu Scheme Resilience;
- Foxton Flood Protection;
- Rangitikei Resilience/ Enhancement.



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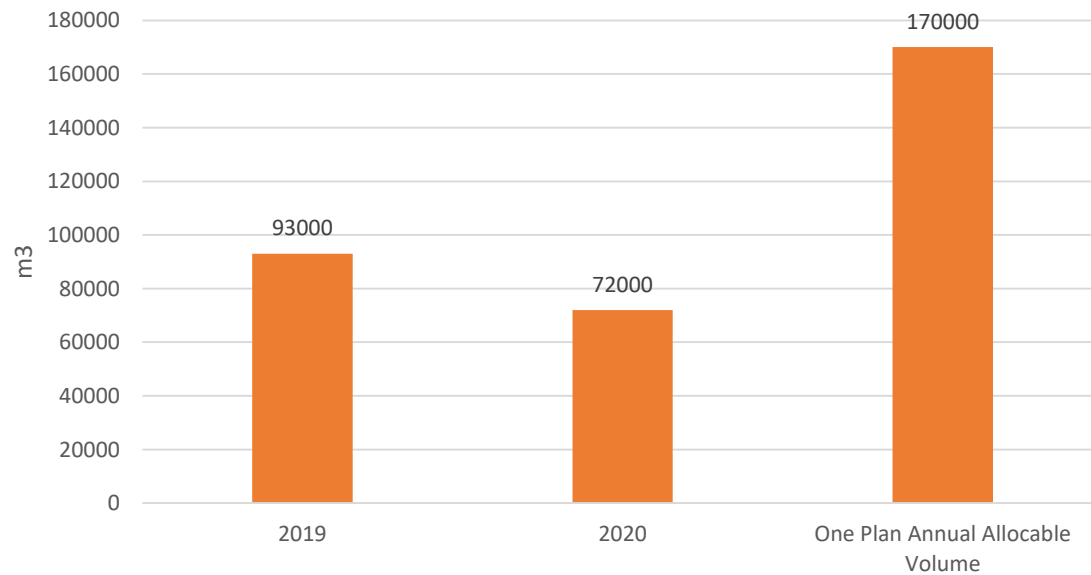
CLIMATE RESILIENCE PROJECTS

Key points:

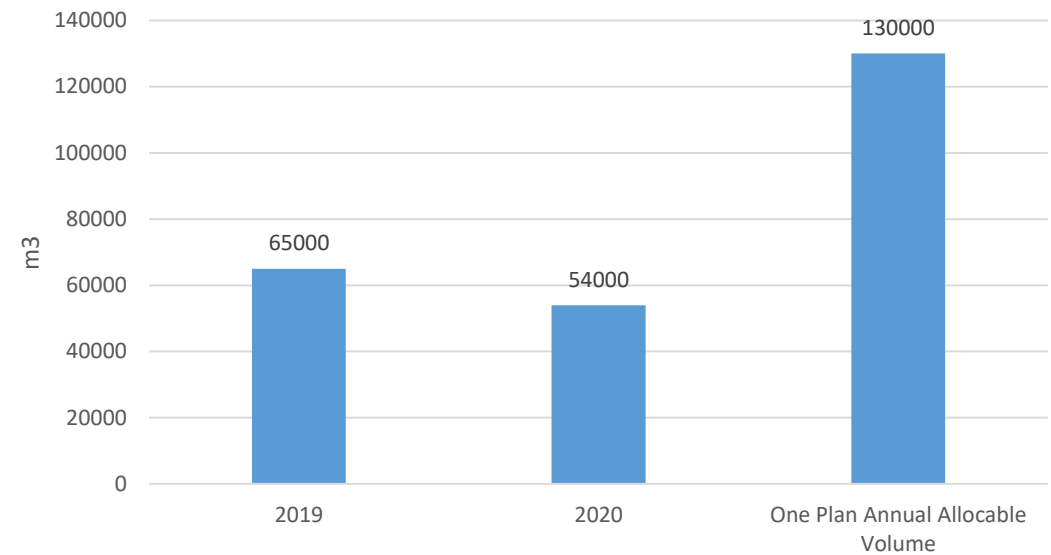
- The projects put forward were intended (before COVID) for inclusion in the updated LTP, albeit with smaller budgets and longer timeframes. Foxton was already part of the LTP;
- Central Government has stipulated the end of March 2024 as the completion date;
- Funding tagged with a range of requirements including a focus on social procurement;
- Assembling a delivery team of five which is mostly in place;
- Local share is loan funded with repayments met from existing targeted rate classifications/ regional rate contribution.

GRAVEL EXTRACTION REPORT

All Rangitikei River Gravel Extraction



Scheme Area Gravel Extraction



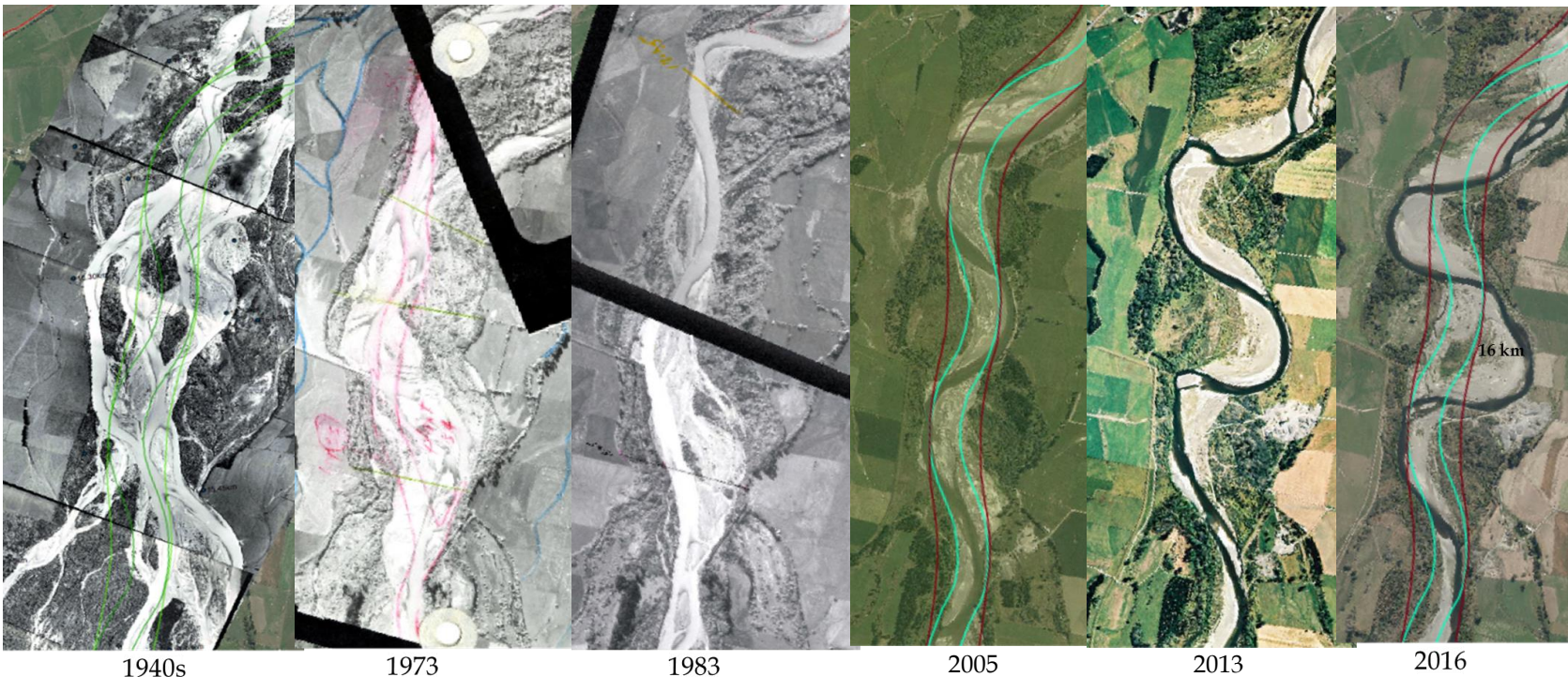


RANGITIKEI RIVER ENHANCEMENT PROJECT

Overview

LOWER RIVER DYNAMICS

Progressive narrowing of active channel area
confining flood waters



Catchment Land use change →

1952 scheme, wide & braided to narrower



Control & keep narrow,
2004 flood accentuated
single channel meander



Sinuosity change
'larger meanders'

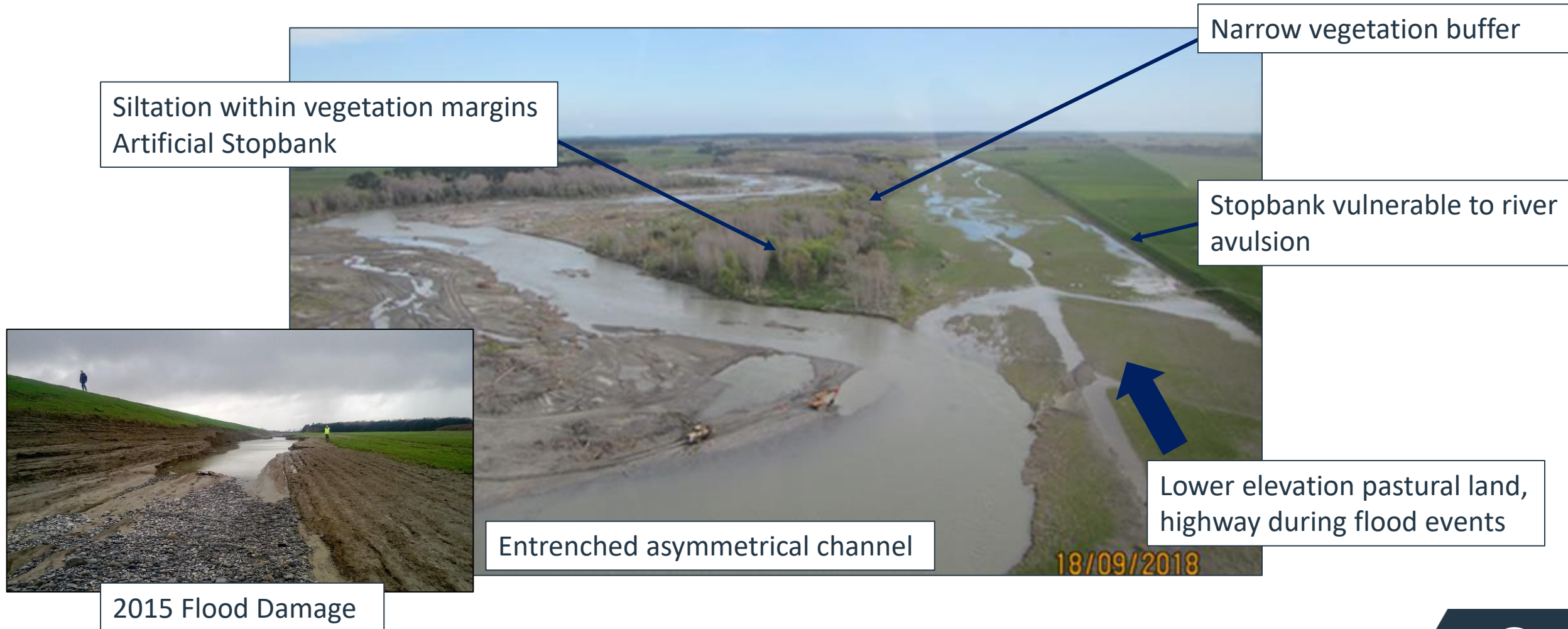
CHALLENGES

- Erosion Pressures- risk to stopbank
- Spread of (rapid-colonising introduced) vegetation will continually affect and influence flood flows
- Diminishing biodiversity value
- Natural Aggradation/ Deposition Zone = Reduced gradient, floodplain
- Increasing demand for aggregate
- Rising Sea Level implications
- Increased demand for recreational use
- Co-management of the awa



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SITE SPECIFIC EXAMPLE



PROJECT COMPONENTS

- Recreational Access
- Vegetation management (reversal)
- Wetland creation
- Targeted gravel extraction and management

RANGITIKEI

ARA HIKOI - PATHWAYS

CONNECTIVITY
interventions to create a mobility corridor to the sea



RAORAO - LOWLAND FOREST

BIODIVERSITY
native planting for erosion protection and to replace invasive species



TAHATAHA - RIPARIAN BANK

ECOLOGY
native planting for erosion protection and to replace invasive species



REPO - WETLAND MARGINS

WATER QUALITY
filter sediment and pollutants from existing streams and drains



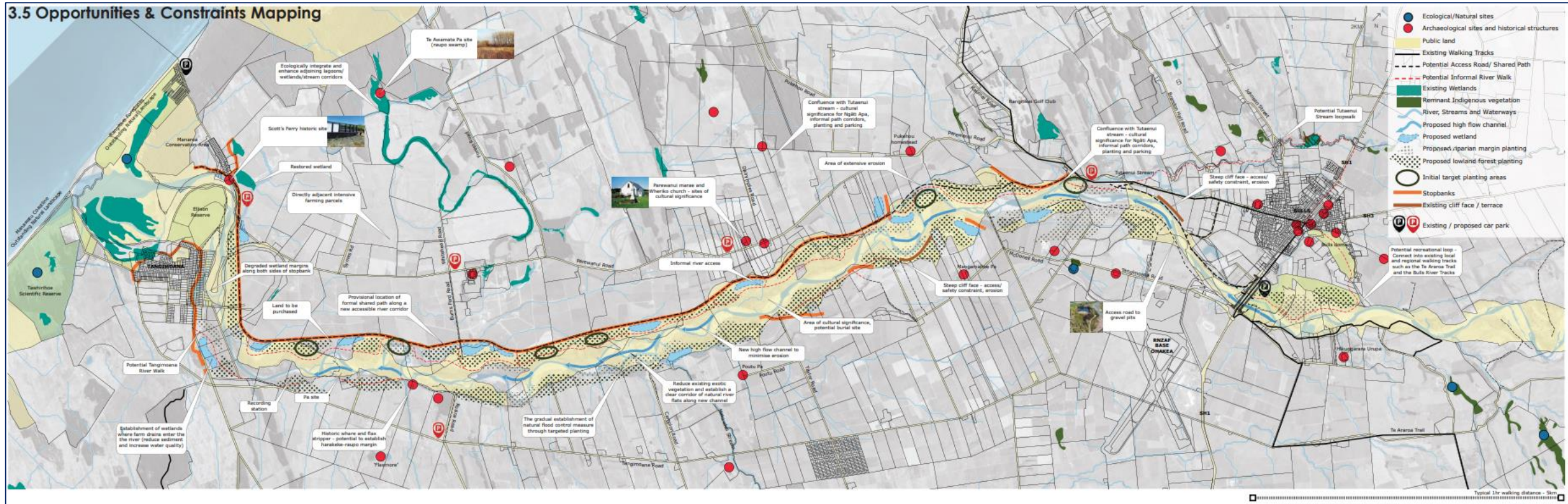
WAI MAORI - FRESHWATER

HYDROLOGY
interventions to reduce flood risk and erosion

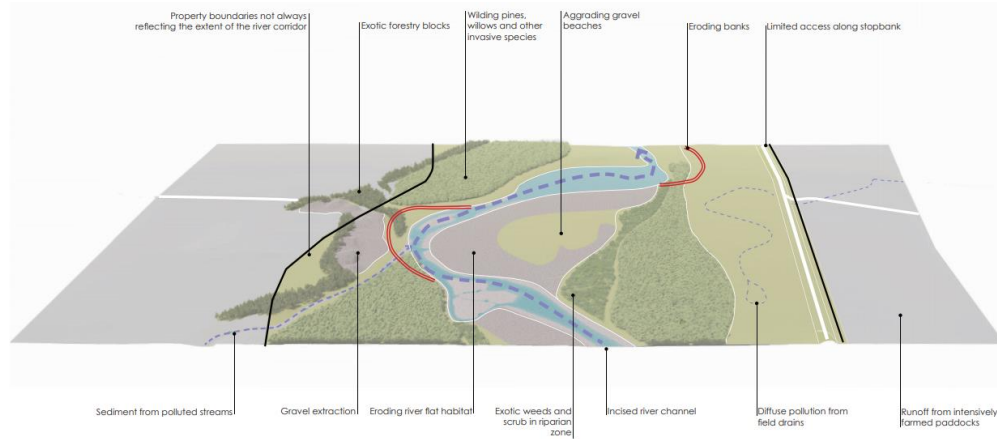


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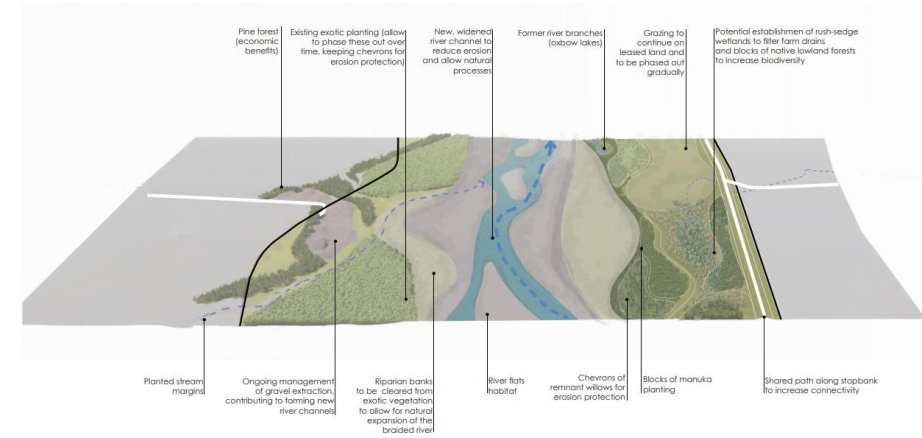
OPPORTUNITIES MAP



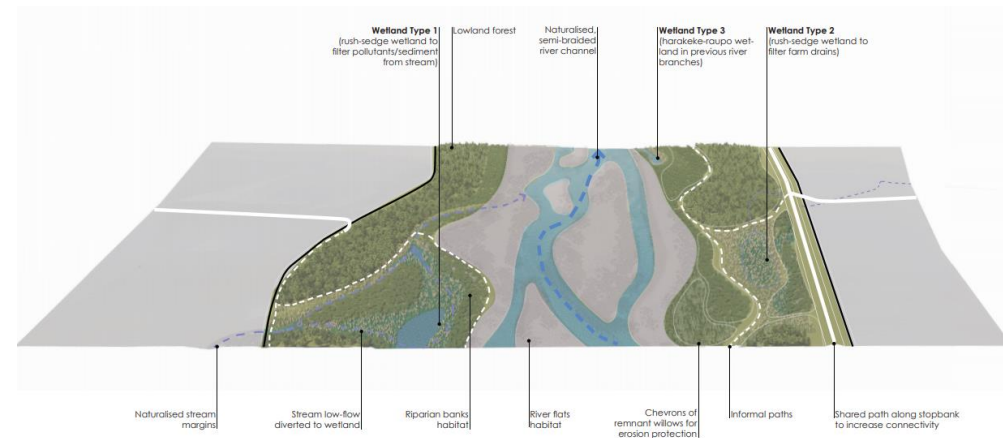
PROJECT VISION - TIMELINE



NOW



5 YEARS



30 YEARS



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ORANGA WAI - OUR FRESHWATER FUTURE

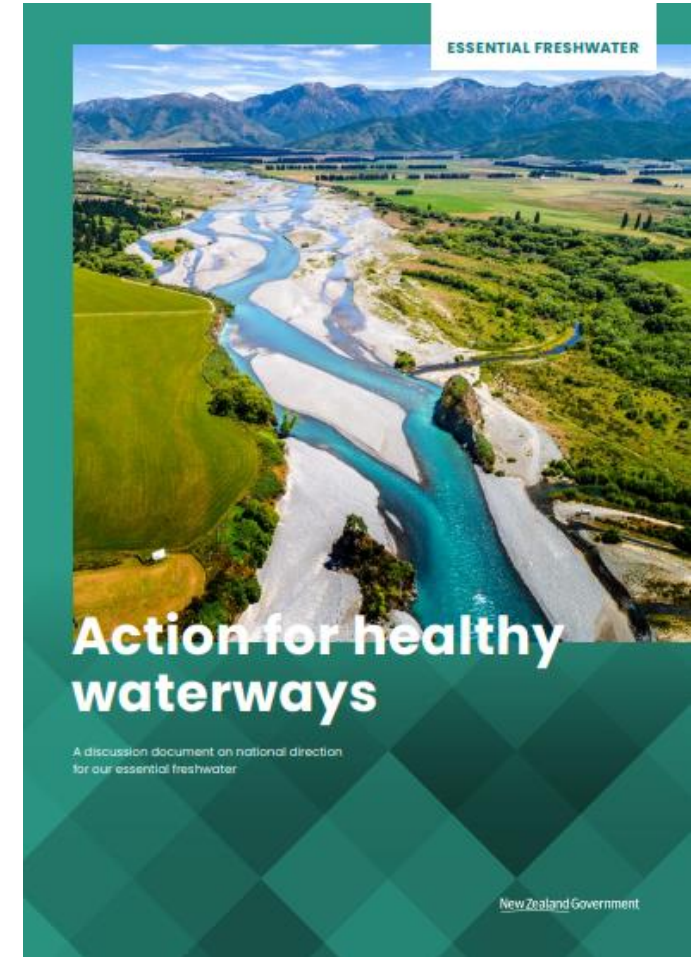
Implementing Government's 'Essential Freshwater' package

OVERVIEW

Government has introduced new requirements for managing the health of freshwater in New Zealand, including:

- Changes to the Resource Management Act 1991 (RMA)
- An updated National Policy Statement for Freshwater Management 2020 (NPS-FM)
- New National Environmental Standards for Freshwater (NES-FW)
- Additional new regulations under s360 of the RMA for:
 - Measuring and Reporting of Water Takes; and
 - Stock exclusion

Some of these changes come into effect immediately (from gazettal 3 August 2020), while others are phased in over time.



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NATIONAL ENVIRONMENTAL STANDARDS FOR FRESHWATER & REGULATIONS



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THE TASK AHEAD

Regional councils are required to:

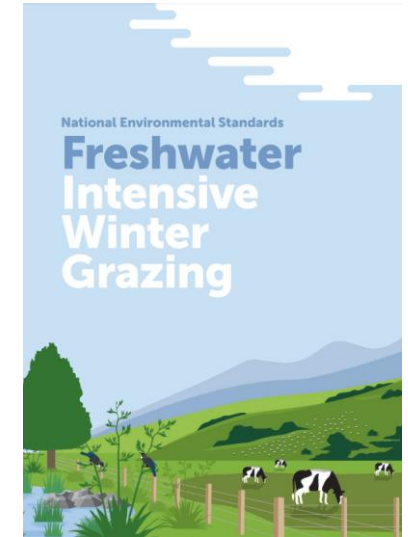
- Issue and monitor consents relating to intensification of land use (until the end of 2024), intensive winter grazing*, stock holding areas and feedlots – all come into effect from mid-2021, and activities that have more than a minor impact on wetlands and streams (effective from 3 Sep 2020).

*Land owners seeking consent for intensive winter grazing need to work directly with iwi/hapū.

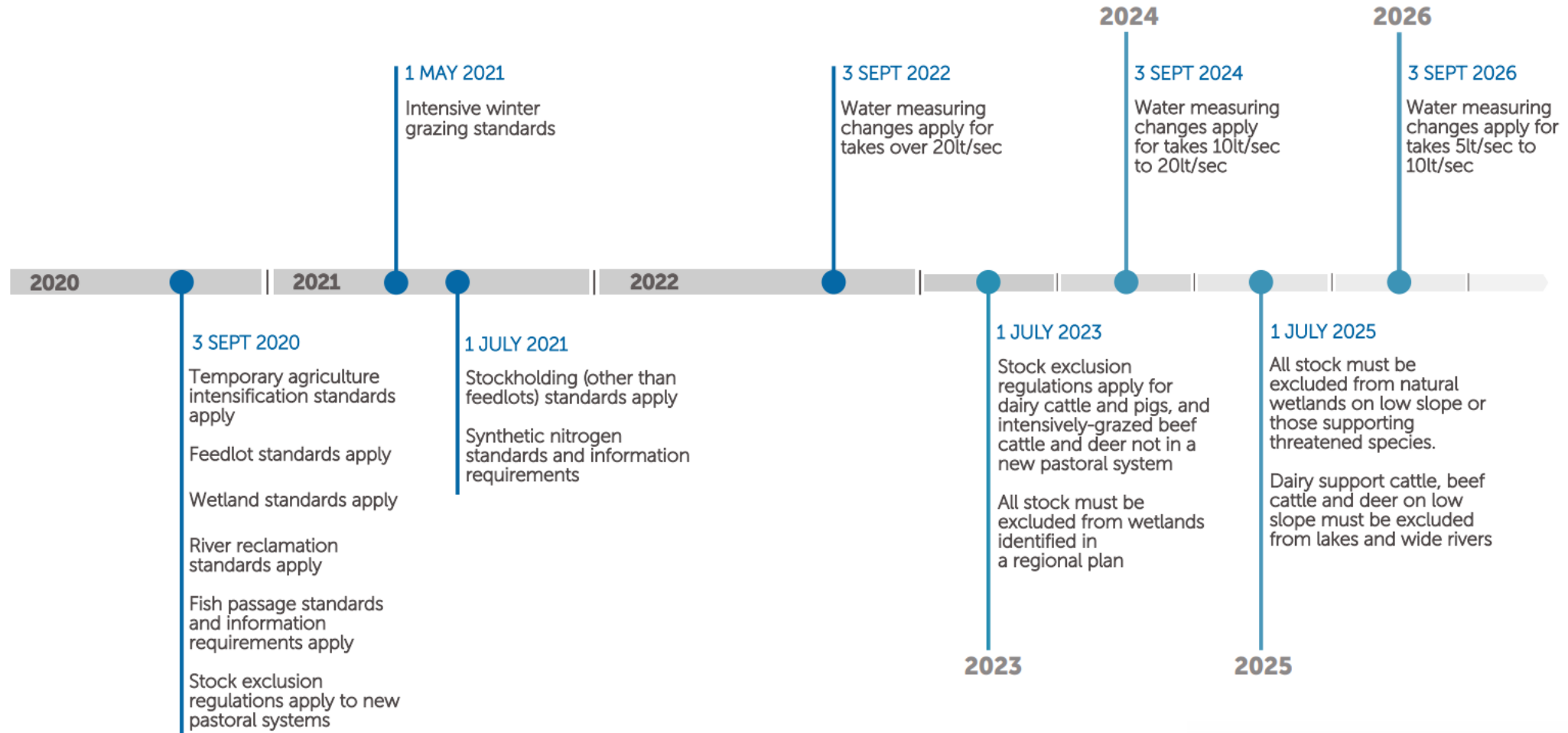
- Collect data and monitor levels of synthetic nitrogen fertiliser use
- Stock exclusion (dairy and beef cattle, pigs and deer) from wetlands, streams and their margins (>1m wide); requirements for bridges and culverts, phased in over time
- Real time monitoring and reporting of water takes >5 l/s

Also coming:

- Mandatory freshwater modules in farm plans (currently in draft)



New National Freshwater Rules



NATIONAL POLICY STATEMENT FOR FRESHWATER MANAGEMENT (NPS-FM)



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NATIONAL POLICY DIRECTION

Aim is to halt waterway degradation within 5 years and improve water quality within a generation

NPS-FM introduces new (or updated) requirements including:

- Managing freshwater in a way that 'gives effect' to Te Mana o te Wai.
- Improving degraded water bodies, and maintaining or improving all others applying 'national bottom lines'.
- Compulsory values: ecosystem health, human contact, threatened species and mahinga kai, plus other values we must consider
- We must use the best information available including, where practicable, complete and scientifically robust data, but not refrain from decision making on the basis of uncertainty.
- Monitor and report annually on freshwater (including the data used); publish a synthesis report every five years containing a single ecosystem health score and respond to any deterioration.

What is a National Policy Statement?

In essence, national policy statements prescribe objectives and policies for local authorities for matters of national significance.

In some cases they provide direction as to how local authorities give effect to those policies and objectives.

This includes the NPS-FW and will likely include the NPS for Indigenous Biodiversity to be released in 2021.

TE MANA O TE WAI

6 principals:

- Mana whakahaere
- Kaitiakitanga
- Manaakitanga
- Governance
- Stewardship
- Care and respect

Hierarchy of obligations:

1. The health and well-being of water bodies and freshwater ecosystems
2. The health needs of people (such as drinking water)
3. The ability of people and communities to provide for their social, economic and cultural well-being, now and in the future

Read MfE's [Te Mana o te Wai factsheet](#) or watch their [brief explainer videos](#)

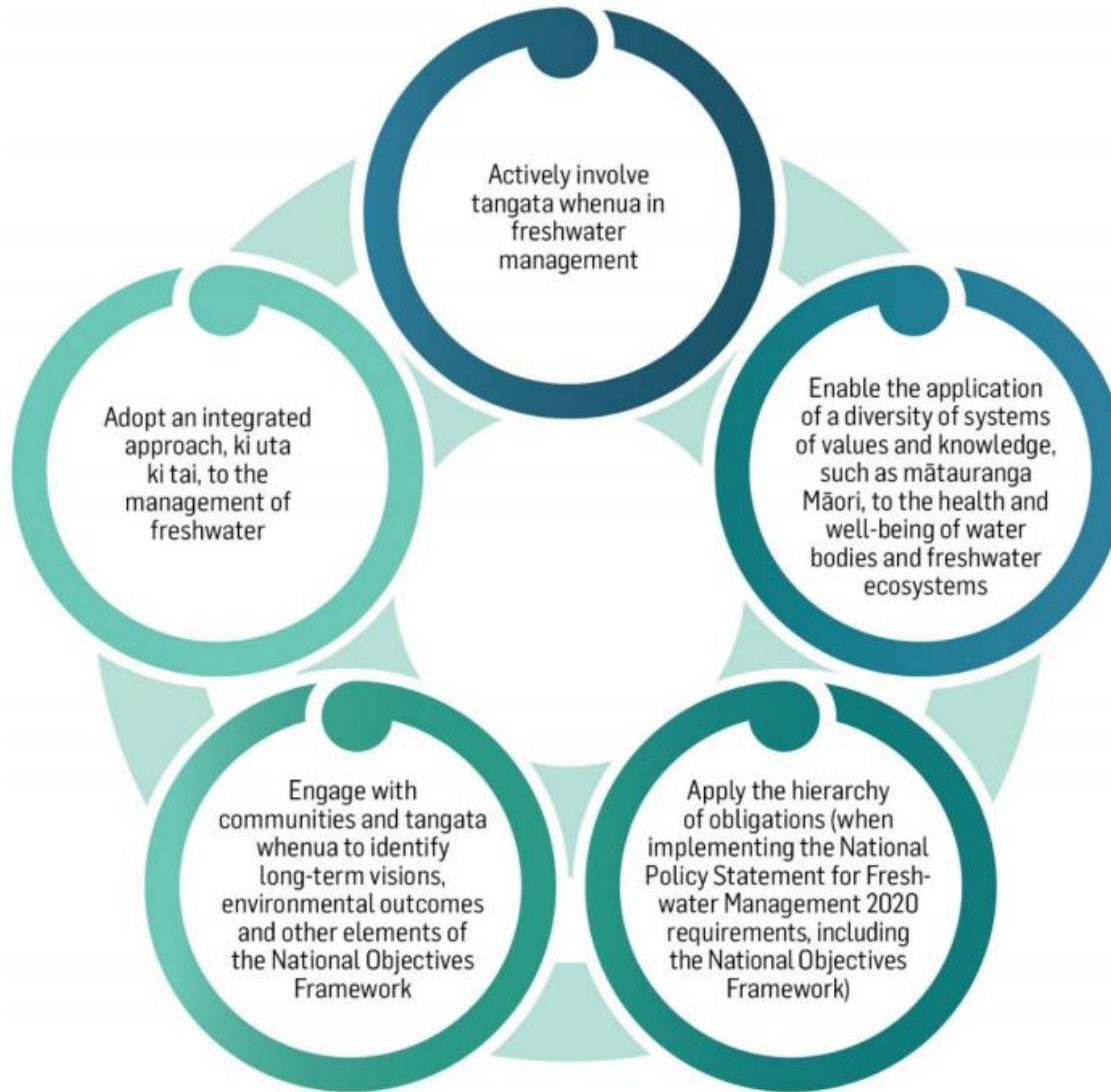


Figure 1: How regional councils must give effect to Te Mana o te Wai

THE TASK AHEAD

Regional councils are required to:

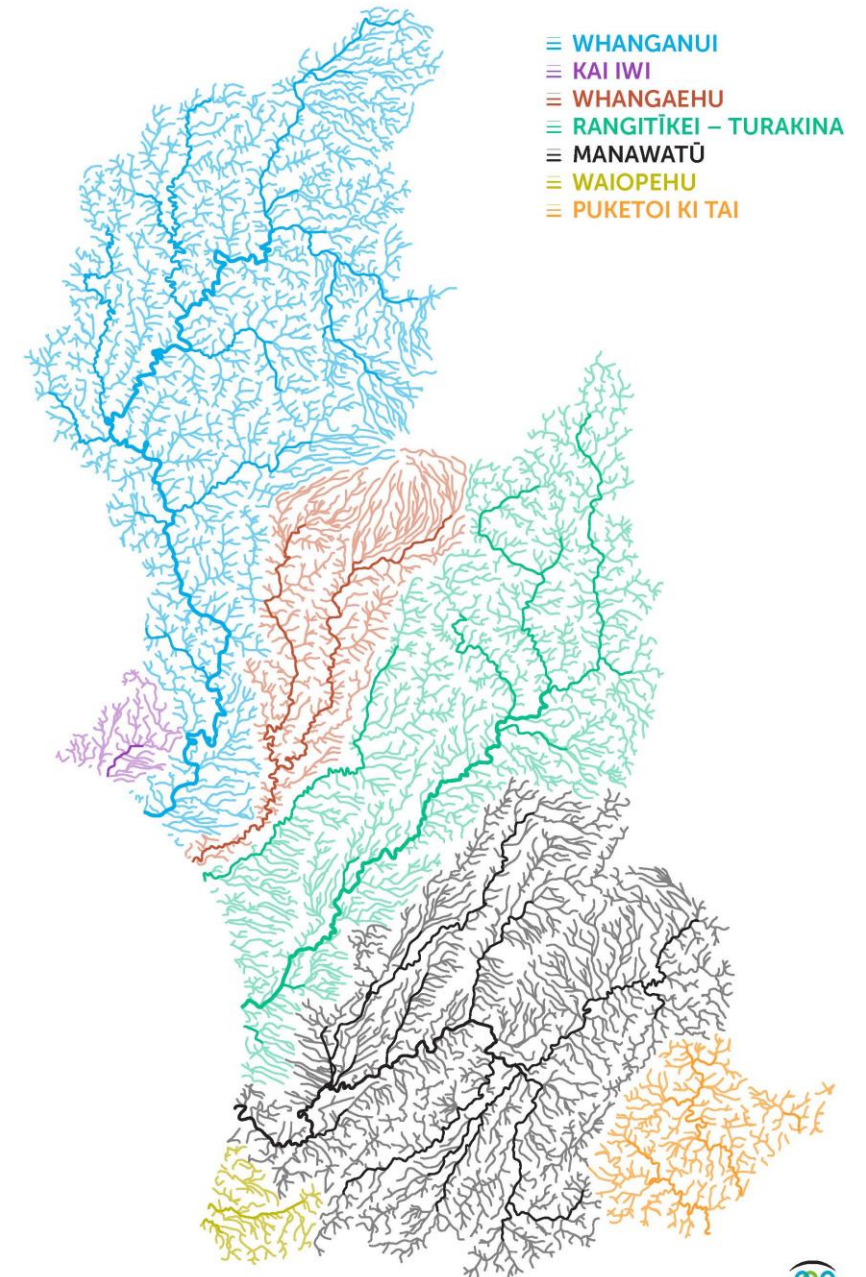
- engage with communities and tangata whenua to:
 - set our long-term vision (30 years and beyond);
 - implement the National Objectives Framework (NOF); and
 - report on progress towards this vision.
- map existing wetlands and encourage their restoration; address in-stream fish barriers

For each Freshwater Management Unit (FMU) we must identify:

- our values and vision for freshwater
- environmental outcomes (for each value), attributes (and their baseline and target states); and
- set limits and/or prepare action plans to achieve environmental outcomes.

We must use the best information available including, where practicable complete and scientifically robust data, but not refrain from decision making on the basis of uncertainty.

Monitor and report annually on freshwater (including the data used); pull a synthesis report every five years containing a single ecosystem health score and respond to any deterioration.



NATIONAL OBJECTIVES FRAMEWORK (NOF)

Table 5 – Ammonia (toxicity)

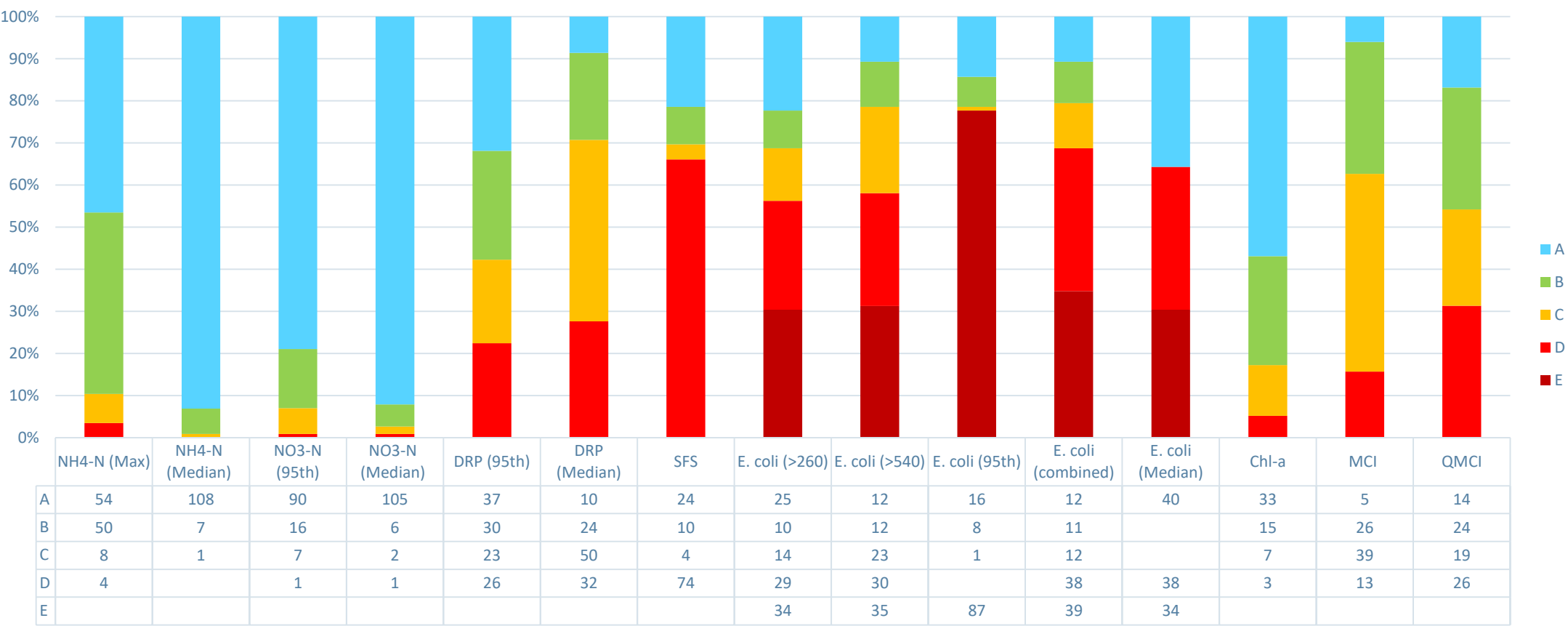
Value (and component)	Ecosystem health (Water quality)	
Freshwater body type	Rivers and lakes	
Attribute unit	mg NH ₄ -N/L (milligrams ammoniacal-nitrogen per litre)	
Attribute band and description	Numeric attribute state	
	Annual median	Annual maximum
A 99% species protection level: No observed effect on any species tested.	≤0.03	≤0.05
B 95% species protection level: Starts impacting occasionally on the 5% most sensitive species.	>0.03 and ≤0.24	>0.05 and ≤0.40
National bottom line	0.24	0.40
C 80% species protection level: Starts impacting regularly on the 20% most sensitive species (reduced survival of most sensitive species).	>0.24 and ≤1.30	>0.40 and ≤2.20
D Starts approaching acute impact level (that is, risk of death) for sensitive species.	>1.30	>2.20

Numeric attribute state is based on pH 8 and temperature of 20°C. Compliance with the numeric attribute states should be undertaken after pH adjustment.

- 22 attributes that provide for identified values (compulsory and non-compulsory)
- Some require limits to be set, others require action plans to address issues.
- Most have a 'national bottom line' set above the 'C' or 'D' band.

CURRENT STATE – SOE SITES

State of Environment Sites - NOF Assessment



LOTS OF WORK TO DO...

- Lots of new regulations
- More consultation and collaboration with tangata whenua, communities and industry
- Greater demand on iwi, Horizons, primary sector and industry, to provide guidance, and much more consent and compliance work
- New and expanded monitoring and reporting requirements (particularly for DO, fish, deposited sediment etc,)
- More data and information collection and sharing
- Establish limits and/or action plans to address water quality issues
- Ready ourselves to notify a plan change by Dec 2024
- Lots of work to do yet to meet with central and local government, iwi/hapū, primary sector reps, stakeholders to work through the details and interpretations, and communicate these with the wider community and write them into policy
- Further changes to come – NPS for indigenous biodiversity, implementing National Planning Standards, RM reform...

HORIZONS HELP AND GUIDANCE

Events and information:

Hui-a-iwi (twice a year) + three-weekly freshwater hui from late Feb 2021

[e-newsletters](#), guidance documents and brochures, social media,

Events: Manawatu River Improvement Festival – Sat 27 February, Rural Games – Fri 12-Sun 14 March, Central Districts Field Days – Thu 18-Sat 20 March, Community and scheme meetings

Check out our website: <https://www.horizons.govt.nz/managing-natural-resources/our-freshwater-future>

Please direct enquiries to info@ourfreshwaterfuture.nz



Oranga Wai | **OUR Freshwater FUTURE**



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or freephone Horizons on **0508 800 800**