Activity profile: Flood protection and control works

Why we do this

We protect people and property from flooding caused by severe weather events. Historically, this work was done through drainage boards. Only the Raupo Drainage District continues under a similar model. Responsibilities are mixed between Kaipara District Council and Northland Regional Council (NRC). We chose to continue with drainage districts in some areas in addition to Raupo and areas managed by NRC.

For further information on how this activity contributes to Community Outcomes please consult the Revenue and Financing Policy – Activity Analysis.

What we do

We are conscious that we need to keep climate change in mind as we maintain and develop our flood protection and control activities. Climate change means more flooding from extreme weather events and rises in sea levels, affecting not just coastal areas but also our rivers and other waterways. The results of heavy rains can put people, property, infrastructure and roads at risk. Our assets are designed for the long term, and climate change means we will have to consider how best to manage our needs against costs.

- Flood protection and control works covering flood control schemes, river alignment control and land drainage. We co-ordinate land drainage work in 30 drainage districts of various sizes. These include Kaihu Valley and Mangatara Drainage Districts, both of which discharge into the Kaihu River which is administered by NRC. The largest district is the Raupo Drainage District where we provide administrative and technical support;
- We have reviewed the 2017 NRC Draft Regional Policy Statement and will assess how the draft coastal flood maps will affect Kaipara district;
- We maintain the current capacity of the land drainage network with:
    - weed spraying;
    - drain clearance;
    - floodgate and outlet maintenance in all districts;
    - floodgate and stopbank maintenance in Raupo; and
    - discretionary stopbank maintenance for the remaining districts.
- Provide flood protection through various drainage system stopbanks and floodgates;
- Monitor rivers for tidal and stormwater levels during weather events and warn of potential flooding;

- Drains have the capacity so floodwater recedes within three tidal cycles, the design Average Recurrence Interval (ARI) for rural areas is 10%;
- Stopbanks are 2.6m above Mean Sea Level, leaving 0.5m above extreme high tide for Raupo;
- Raupo Drainage Committee, a formal committee of this Council, is in place to perform delegated functions;
- All flood protection activities outside Raupo are administered by informal community committees supported, where practical, by our Land Drainage Co-ordinator. Landowners are responsible for maintaining privately-owned stopbanks; and
- NRC is responsible for catchment management.

How this benefits the community

- Our flood protection and control works are designed to protect people, property and infrastructure from flooding and tidal flows;
- Protecting productive land and infrastructure are critical to our economic well-being; and
- We protect and enhance our natural assets and open spaces.

Risks and issues

- We do not know whether current Levels of Service (LOS) meet the minimum standard;
- Climate change presents multiple risks, from rising sea levels to reflecting impacts in future LOS;
- Objections from targeted ratepayers who feel they are not realising benefits;
- Dissatisfaction, as not all landowners contribute;
- Landowners hampering access to public drains on private land; and
- Some overlap and confusion on the respective roles of our Council and NRC for land drainage.

How we fund this service

- General rates;
- Targeted rates; and
- Fees and charges.

Legislation associated with this activity

- Land Drainage Act 1908;
- River Boards Act 1908;
- Soil Conservation and Rivers Control Act 1941;
- Local Government Act 1974;
- Local Government Act 2002;
- Resource Management Act 2002; and
- Local Government (Rating) Act 2002.

Improvement programme 2018/2028 - Flood Protection and Control Works	
Year 1 – 2018/2019 **Planned improvement / change**	• Develop a central database and Geographic Information Systems (GIS) mapping for condition assessment information and generate a renewal programme; • Replace the manual system for consents, compliance and monitoring with a central management software system; • Develop hydraulic computer models for the Raupo Drainage District to better prepare this area for climate change and sea level rise; • Continue assessments of floodgates within target areas such as Raupo and Dargaville; • Assess existing stopbanks, levels and conditions to help prepare for climate change and sea level rise; • Assess existing drainage districts and identify possible reductions or amalgamations; and • Assess the current drainage district boundaries and identify if these are still accurate, with adjustment as required.

Improvement programme 2018/2028 - Flood Protection and Control Works	
Year 2 – 2019/2020 **Planned improvement / change**	• Continue development of a central database and Geographic Information Systems (GIS) mapping for condition assessment information and generate a renewal programme; • Continue assessing floodgates within target areas such as Raupo and Dargaville; • Continue assessing existing stopbanks, levels and conditions to help prepare for climate change and sea level rise; • Assess existing drainage districts and identify possible reductions or amalgamations; and • Where required, hydraulic analysis of specific catchments to assess future upgrades to existing flood protection systems.
Year 3 – 2020/2021 **Planned improvement / change**	• Continue assessing floodgates within target areas such as Raupo and Dargaville; • Continue assessing existing stopbanks, levels and conditions to help prepare for climate change and sea level rise; • Drainage districts identified for reduction/amalgamation to be prepared and processed for the next AMP update; • Where required, hydraulic analysis of specific catchments to assess future upgrades to existing flood protection systems; and • Identified actions from hydraulic assessments to be processed into lists and associated costs prepared for next AMP update.
Years 4-10 – 2021/2028 **Planned improvement / change**	• Continue assess floodgates within target areas such as Raupo and Dargaville; • Continue assessing existing stopbanks, levels and conditions to help prepare for climate change and sea level rise; • Assess existing drainage districts and identify possible reductions/amalgamations; • Where required, hydraulic analysis of specific catchments to assess future upgrades to existing flood protection systems; and • Approve and start projects to prepare drainage districts for climate change and sea level rise, including raising stopbanks and other flood protection measures.

Measuring performance - Flood Protection and Control Works

What we measure	LTP Year 1 Target 2018/2019	LTP Year 2 Target 2019/2020	LTP Year 3 Target 2020/2021	LTP Years 4-10 Target 2021/2028
The number of flood events not contained by the drainage schemes up to a 1:5 year flood.	0	0	0	0
Service requests for additional cleaning of drains i.e. missed by the monitoring and maintenance programmes.	< 5 service requests per year	< 5 service requests per year	< 5 service requests per year	< 5 service requests per year
Biannual inspection of our drainage network to ensure it can contain a 1:5-year flood.	2 inspections per year	2 inspections per year	2 inspections per year	2 inspections per year
Targeted maintenance of the stopbank system in the Raupo Drainage District to prevent tidal flows from inundating private property during high tide and/or when the river is in flood.	Minimum yearly inspections and targeted maintenance completed	Minimum yearly inspections and targeted maintenance completed	Minimum yearly inspections and targeted maintenance completed	Minimum yearly inspections and targeted maintenance completed

Significant negative effects - Flood Protection and Control Works

- A lack of drainage networks or maintenance on the existing network could result in increased flooding of farming and cropping communities in low-lying land near rivers, streams and canals; and
- The frequency of significant storm events and rainfall intensities are expected to increase along with sea levels in the future.

Funding Impact Statement - Operating

For the year ended:	Annual Plan	Budget	Budget	Budget	Budget	Budget	Budget	Budget	Budget	Budget	Budget
30 June	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028
	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000
Operating funding											
Sources of operating funding											
General rates, uniform annual general charges, rate penalties	15	48	48	82	84	86	89	91	93	96	99
Targeted rates	639	699	696	624	631	711	681	712	837	755	928
Subsidies and grants for operating purposes	0	0	0	0	0	0	0	0	0	0	0
Fees and charges	8	8	8	8	9	9	9	9	10	10	10
Internal charges and overheads recovered	4	4	4	4	5	5	5	5	5	5	5
Local authorities fuel tax, fines, infringement fees and other receipts	0	0	0	0	0	0	0	0	0	0	0
Total operating funding	**666**	**759**	**757**	**718**	**729**	**811**	**784**	**817**	**945**	**866**	**1,042**
Application of operating funding											
Payments to staff and suppliers	367	465	474	439	451	483	455	482	508	520	559
Finance costs	0	0	2	2	2	2	2	2	2	2	2
Internal charges and overheads applied	75	94	96	93	95	100	98	102	106	109	115
Other operating funding applications	0	0	0	0	0	0	0	0	0	0	0
Total applications of operating funding	**442**	**559**	**572**	**534**	**548**	**585**	**555**	**586**	**616**	**631**	**676**
Surplus (deficit) of operating funding	**224**	**200**	**185**	**184**	**180**	**226**	**228**	**231**	**329**	**235**	**366**

Funding Impact Statement - Capital

For the year ended:	Annual Plan	Budget	Budget	Budget	Budget	Budget	Budget	Budget	Budget	Budget	Budget
30 June	2017-2018 $'000	2018-2019 $'000	2019-2020 $'000	2020-2021 $'000	2021-2022 $'000	2022-2023 $'000	2023-2024 $'000	2024-2025 $'000	2025-2026 $'000	2026-2027 $'000	2027-2028 $'000
Capital funding											
Sources of capital funding											
Subsidies and grants for capital expenditure	0	0	0	0	0	0	0	0	0	0	0
Development and financial contributions	0	0	0	0	0	0	0	0	0	0	0
Increase (decrease) in debt	0	32	16	-2	-2	-2	-2	-2	-2	-2	-3
Gross proceeds from sale of assets	0	0	0	0	0	0	0	0	0	0	0
Lump sum contributions	0	0	0	0	0	0	0	0	0	0	0
Other dedicated capital funding	0	0	0	0	0	0	0	0	0	0	0
Total sources of capital funding	**0**	**32**	**16**	**-2**	**-2**	**-2**	**-2**	**-2**	**-2**	**-2**	**-3**
Applications of capital funding											
Capital expenditure - to meet additional demand	0	0	0	0	0	0	0	0	0	0	0
Capital expenditure - to improve the level of service	170	0	0	0	0	0	0	0	0	0	127
Capital expenditure - to replace existing assets	232	159	133	58	53	98	101	103	202	108	111
Increase (decrease) in reserves	-178	73	68	124	125	126	126	126	125	125	125
Increase (decrease) of investments	0	0	0	0	0	0	0	0	0	0	0
Total applications of capital funding	**224**	**232**	**201**	**182**	**178**	**224**	**227**	**229**	**327**	**233**	**363**
Surplus (deficit) of capital funding	**-224**	**-200**	**-185**	**-184**	**-180**	**-226**	**-228**	**-231**	**-329**	**-235**	**-366**
Funding Balance	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Capital Expenditure Programme

		Budget 2018/2019 $	Budget 2019/2020 $	Budget 2020/2021 $
Flood Protection and Control Works		**158,500**	**132,860**	**57,503**
109 - Land Drainage - district-wide		**30,000**	**30,660**	**31,365**
	Land Drainage Improvements			✓
	LD General Sunnynook		✓	
	LD General Beach Road	✓		
179 - Raupo Land Drainage Scheme		**128,500**	**102,200**	**26,138**
	Bellamy Floodgate 48		✓	
	Double Gate Floodgate 44		✓	
	McKinley Floodgate 29	✓		
	NorthAsh Floodgate 36	✓		
	Whitcombe Road Floodgate 13			✓