



# Flood Protection and Land Drainage

## Purpose

We protect people and property from flooding experienced through severe weather events. Responsibilities overlap between Kaipara District Council and Northland Regional Council (NRC) who coordinate resources to manage the districts flood defence controls. We maintain and operate drainage districts.

## Legislation associated with this service

- 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
- Local Government (Rating) Act 2002.

## Risks and Issues

- Climate change presents multiple risks, from rising sea levels to reflecting impacts in future LoS
- There is a threat that productive land will be lost which will impact on the economic wellbeing of the district
- Objections from targeted ratepayers who feel they do not benefit from the targeted rate, e.g. infrastructure investment decisions
- Dissatisfaction, as not all landowners contribute
- Landowners hampering access to public drains on private land
- Some overlap and confusion on the respective roles of our Council and NRC for land drainage.

## How we fund this Group

- General rates
- Targeted rates
- Fees and charges
- External Funding

## 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 land drainage covers flood control schemes, river alignment control and land drainage. We coordinate 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 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
- discretionary stopbank maintenance for the remaining districts.

We also 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.

We have a 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.

### Contribution to Community Outcomes

- Climate smart: Adapting infrastructure for stopbanks, floodgates and monitoring river level changes
- Healthy environment: Providing flood protection and resilience for areas within the District

### What we will deliver

| Description   | When      |
|---|-----------|
| <ul style="list-style-type: none"> <li>• Investigate water storage option - floodgate options in Ruawai (G and K Canals)</li> <li>• Model infrastructure requirements for flood susceptible areas to allow LoS under increasing rain intensity and river level. Use this to plan LoS projects for stopbanks, floodgates and other network infrastructure</li> <li>• Complete asset data for stopbanks in all land drainage districts. Develop a standard for routine condition assessment of these assets in 100m lengths by the contractor and complete this assessment</li> <li>• Review catchment definition Mangatara and neighbouring land drainage districts. Refine lot by lot contribution and consult on rates distribution</li> <li>• Murphy Bower stopbank construction</li> <li>• Asset data collated into Asset Management system (Assetfinda)</li> <li>• Increasing support to land drainage districts for increasing pressures of climate change</li> <li>• Develop maintenance schedule with maintenance contractor and asset management improvements for clarity on ownership and responsibility of core assets</li> </ul> | 2021/2022 |
| <ul style="list-style-type: none"> <li>• Continue investigating floodgate and infrastructure options in all drainage districts</li> <li>• Continue modelling infrastructure requirements for flood susceptible areas to allow LoS under increasing rain intensity and river level. Use this to plan LoS projects for stopbanks, floodgates and other network infrastructure</li> <li>• Continue to review catchment definition and neighbouring land drainage districts. Refine lot by lot contribution and consult on rates distribution</li> </ul>  | 2022/2023 |

| Description  | When      |
|--|-----------|
| <ul style="list-style-type: none"> <li>Continue to review catchment definition and neighbouring land drainage districts. Refine lot by lot contribution and consult on rates distribution</li> <li>Continue investigating floodgate and infrastructure options in all drainage districts</li> <li>Continue modelling infrastructure requirements for flood susceptible areas to allow LoS under increasing rain intensity and river level. Use this to plan LoS projects for stopbanks, floodgates and other network infrastructure</li> <li>Increasing support to Land Drainage Districts for increasing pressures of climate change</li> </ul>   | 2023/2024 |
| <ul style="list-style-type: none"> <li>Complete review of catchment definition and neighbouring land drainage districts. Refine lot by lot contribution and consult on rates distribution</li> <li>Continue investigating floodgate and infrastructure options in all drainage districts</li> <li>Complete modelling infrastructure requirements for flood susceptible areas to allow LoS under increasing rain intensity and river level. Use this to plan LoS projects for stopbanks, floodgates and other network infrastructure</li> <li>Continue to Increase support to Land Drainage Districts for increasing pressures of climate change</li> <li>Align investigations, modelling and feasibility activities with climate change adaptive strategies [adaptive pathways planning decisions].</li> </ul> | 2024/2031 |

### Performance Measures

|  | LTP Year 1 Target<br>2021/2022                                | LTP Year 2 Target<br>2022/2023                                | LTP Year 3 Target<br>2023/2024                                | LTP Years 4-10 Target<br>2024/2031                            |
|--|---|---|---|---|
| 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 broken, blocked, or failing floodgates  | < 10 service requests per year                                | < 7 service requests per year                                 | < 5 service requests per year                                 | < 5 service requests per year                                 |
| 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 1:5year 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 |

### Changes in Levels of Service

There will be no changes to the level of service.

| <b>Significant Negative effects</b><br><b>Identified significant negative effect/issue</b>   | <b>Mitigation</b>   |
|--|---|
| <b>Drainage capacity</b><br>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 | Inspections and assessment of network capacity and monitoring of service requests relating to capacity issues. Planning continual improvement to maintain levels of service.  |
| <b>Climate Change</b><br>The severity of storm events, including rainfall event intensity is projected to increase. Sea level rise will increase severity of coastal inundation and flooding.                            | Alignment with climate change adaptive strategies plans and implementation of those strategies.   |
| <b>Significant Negative effects</b><br><b>Identified significant negative effect/issue</b>   | <b>Mitigation</b>   |
| <b>Level of Service (LOS) versus Feasibility</b><br>The construction and maintenance costs of infrastructure upgrades to meet a set level of service is beyond the means of the community to afford.                     | The provision of a set level of land drainage management should be assessed on a case-by-case basis. This will be managed through consultation with communities to determine the most practicable way forward, without negatively impacting on public health and the environment or creating risk to persons or property.   |
| <b>Infrastructure not funded to fully cover required maintenance</b><br>Base infrastructure maintenance and renewals has been under resourced leaving capacity and resilience issues.                                    | A robust maintenance schedule is being developed with the maintenance contractor and asset management improvements are set to allow clarity on ownership and responsibility of core assets.<br><br>We have collated information on our stopbanks which will be used to access external funding streams.   |
| <b>Future growth</b><br>The spatial plans have identified the likely growth areas in Kaipara.  | To enable future land use changes, the LoS require from land drainage activities will need to be set and appropriate funding allocated.   |
| <b>Public safety</b><br>Public safety is at the forefront of network operations some assets however have an inherent risk  | All risks to the public are elevated with urgency to the maintenance contractor and continual improvement is applied to the built environment. Land drainage utilises an open drain network which has fundamental risks.  |
| <b>Asset data</b><br>Many aspects of the asset management system still require improvement.  | The current asset data still has gaps and inconsistencies. Asset data management is a process of continual improvement and there are multiple improvement projects underway and planned. Accurate asset data is essential information to enable Council to effectively plan future works and capital upgrades as well as routine operational monitoring of the network. Data on stopbank condition is especially critical to understand the future burden for upgrade activities. |

## **How are we considering Climate change?**

Council's Climate Smart Community Outcome guides Flood Protection activities. Sea level rise, increasing coastal hazards, and increasing intensity of rainfall events and flooding will impact Council's flood protection and land drainage activities. While we understand these risks in a general sense, we are in the process of identifying urgency and scale of impact.

We will continue to improve our understanding of climate-related risks and use this information to inform adaptive pathway planning to help communities decide on adaptation responses.

We are investigating and understanding current asset conditions and capacity and continuing with improvement projects including maintenance to ensure we are prepared to enact adaptation responses.

# Prospective Funding Impact Statements – Flood Protection and Land Drainage

| For the year ended:   | Annual Plan | Budget       | Budget       | Budget       | Budget       | Budget       | Budget       | Budget       | Budget        | Budget        | Budget        |
|---|-------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|---------------|---------------|---------------|
| 30 June   | 2020-2021   | 2021-2022    | 2022-2023    | 2023-2024    | 2024-2025    | 2025-2026    | 2026-2027    | 2027-2028    | 2028-2029     | 2029-2030     | 2030-2031     |
|   | \$'000      | \$'000       | \$'000       | \$'000       | \$'000       | \$'000       | \$'000       | \$'000       | \$'000        | \$'000        | \$'000        |
| <b>Prospective Funding Impact Statement</b>                             |             |              |              |              |              |              |              |              |               |               |               |
| <b>Operating funding</b>  |             |              |              |              |              |              |              |              |               |               |               |
| <b>Sources of operating funding</b>                                     |             |              |              |              |              |              |              |              |               |               |               |
| General rates, uniform annual general charges, rate penalties           | 78          | 136          | 164          | 170          | 63           | 322          | 332          | 341          | -90           | -50           | -9            |
| Targeted rates  | 714         | 843          | 911          | 957          | 956          | 996          | 989          | 1,013        | 1,049         | 1,053         | 1,089         |
| Subsidies and grants for operating purposes                             | 0           | 0            | 0            | 0            | 0            | 0            | 0            | 0            | 0             | 0             | 0             |
| Fees and charges  | 8           | 0            | 0            | 0            | 0            | 0            | 0            | 0            | 0             | 0             | 0             |
| Internal charges and overheads recovered                                | 0           | 0            | 0            | 0            | 0            | 0            | 0            | 0            | 0             | 0             | 0             |
| Interest and dividends from investments                                 | 0           | 0            | 0            | 0            | 0            | 0            | 0            | 0            | 0             | 0             | 0             |
| Local authorities fuel tax, fines, infringement fees and other receipts | 0           | 0            | 0            | 0            | 0            | 0            | 0            | 0            | 0             | 0             | 0             |
| <b>Total operating funding</b>  | <b>800</b>  | <b>979</b>   | <b>1,074</b> | <b>1,126</b> | <b>1,019</b> | <b>1,318</b> | <b>1,321</b> | <b>1,354</b> | <b>959</b>    | <b>1,003</b>  | <b>1,080</b>  |
| <b>Application of operating funding</b>                                 |             |              |              |              |              |              |              |              |               |               |               |
| Payments to staff and suppliers   | 419         | 555          | 577          | 607          | 655          | 686          | 676          | 694          | 725           | 726           | 755           |
| Finance costs   | 0           | 1            | 1            | 1            | 0            | 0            | 0            | 0            | 0             | 0             | 0             |
| Internal charges and overheads recovered                                | 89          | 163          | 175          | 188          | 202          | 216          | 216          | 218          | 226           | 240           | 259           |
| Other operating funding applications                                    | 0           | 0            | 0            | 0            | 0            | 0            | 0            | 0            | 0             | 0             | 0             |
| <b>Total applications of operating funding</b>                          | <b>508</b>  | <b>719</b>   | <b>752</b>   | <b>795</b>   | <b>858</b>   | <b>902</b>   | <b>893</b>   | <b>913</b>   | <b>951</b>    | <b>966</b>    | <b>1,014</b>  |
| <b>Surplus (deficit) of operating funding</b>                           | <b>293</b>  | <b>260</b>   | <b>322</b>   | <b>331</b>   | <b>161</b>   | <b>416</b>   | <b>429</b>   | <b>441</b>   | <b>9</b>      | <b>37</b>     | <b>66</b>     |
| <b>Capital funding</b>  |             |              |              |              |              |              |              |              |               |               |               |
| <b>Sources of capital funding</b>                                       |             |              |              |              |              |              |              |              |               |               |               |
| Subsidies and grants for capital expenditure                            | 0           | 6,000        | 0            | 0            | 7,791        | 0            | 0            | 0            | 12,599        | 13,015        | 13,445        |
| Development and financial contributions                                 | 0           | 0            | 0            | 0            | 0            | 0            | 0            | 0            | 0             | 0             | 0             |
| Increase (decrease) in debt   | 16          | -1           | -1           | -1           | -1           | -1           | -1           | -1           | -1            | -1            | -1            |
| 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             |
| <b>Total sources of capital funding</b>                                 | <b>16</b>   | <b>5,999</b> | <b>-1</b>    | <b>-1</b>    | <b>7,790</b> | <b>-1</b>    | <b>-1</b>    | <b>-1</b>    | <b>12,598</b> | <b>13,014</b> | <b>13,443</b> |
| <b>Applications of capital funding</b>                                  |             |              |              |              |              |              |              |              |               |               |               |
| 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                   | 0           | 6,060        | 62           | 63           | 7,655        | 67           | 69           | 71           | 12,193        | 12,523        | 12,861        |
| Capital expenditure - to replace existing assets                        | 155         | 0            | 103          | 0            | 249          | 179          | 0            | 0            | 4             | 100           | 435           |
| Increase (decrease) in reserves   | 155         | 200          | 157          | 267          | 47           | 170          | 359          | 369          | 410           | 428           | 213           |
| Increase (decrease) of investments                                      | 0           | 0            | 0            | 0            | 0            | 0            | 0            | 0            | 0             | 0             | 0             |
| <b>Total applications of capital funding</b>                            | <b>310</b>  | <b>6,260</b> | <b>321</b>   | <b>330</b>   | <b>7,951</b> | <b>415</b>   | <b>428</b>   | <b>440</b>   | <b>12,607</b> | <b>13,051</b> | <b>13,509</b> |
| <b>Surplus (deficit) of capital funding</b>                             | <b>-293</b> | <b>-260</b>  | <b>-322</b>  | <b>-331</b>  | <b>-161</b>  | <b>-416</b>  | <b>-429</b>  | <b>-441</b>  | <b>-9</b>     | <b>-37</b>    | <b>-66</b>    |
| <b>Funding Balance</b>  | <b>-1</b>   | <b>0</b>     | <b>0</b>     | <b>0</b>     | <b>0</b>     | <b>0</b>     | <b>0</b>     | <b>0</b>     | <b>0</b>      | <b>0</b>      | <b>0</b>      |