

Draft Waitawhiriwhiri and city centre integrated catchment management plan

This document provides a summary of key issues and opportunities for managing stormwater in the Waitawhiriwhiri and city centre catchments. It supports Hamilton's growth while protecting waterway health, guided by Te Ture Whaimana o Te Awa o Waikato.



What's an ICMP?

An integrated catchment management plan (ICMP) outlines practical strategies for managing primarily stormwater, water supplies, and wastewater in a specific area. It helps guide land use decisions and infrastructure planning to support sustainable growth while protecting the environment.

ICMPs recommend infrastructure such as wetlands and rain gardens, define water quality outcomes, and propose improvements for both existing and future developments. They are being developed for all 16 hydrological catchments in Hamilton under the Comprehensive Stormwater Discharge Consent from Waikato Regional Council.



Catchment overview

The ICMP area spans approximately 2,400ha, including the Waitawhiriwhiri Stream catchment (2100ha) and the City centre catchment (300ha).

- **Waitawhiriwhiri catchment:**

- This catchment is highly urbanised. The Waitawhiriwhiri stream originates in the Rukuhia Swamp and flows north through Hamilton to the Waikato River. It's impacted by rural water runoff, urban contaminants, and stream erosion.
- Lake Rotoroa is part of this catchment and receives stormwater from the surrounding streets. While its water quality is good compared to other Waikato lakes, contamination and sediment remain ongoing concerns.

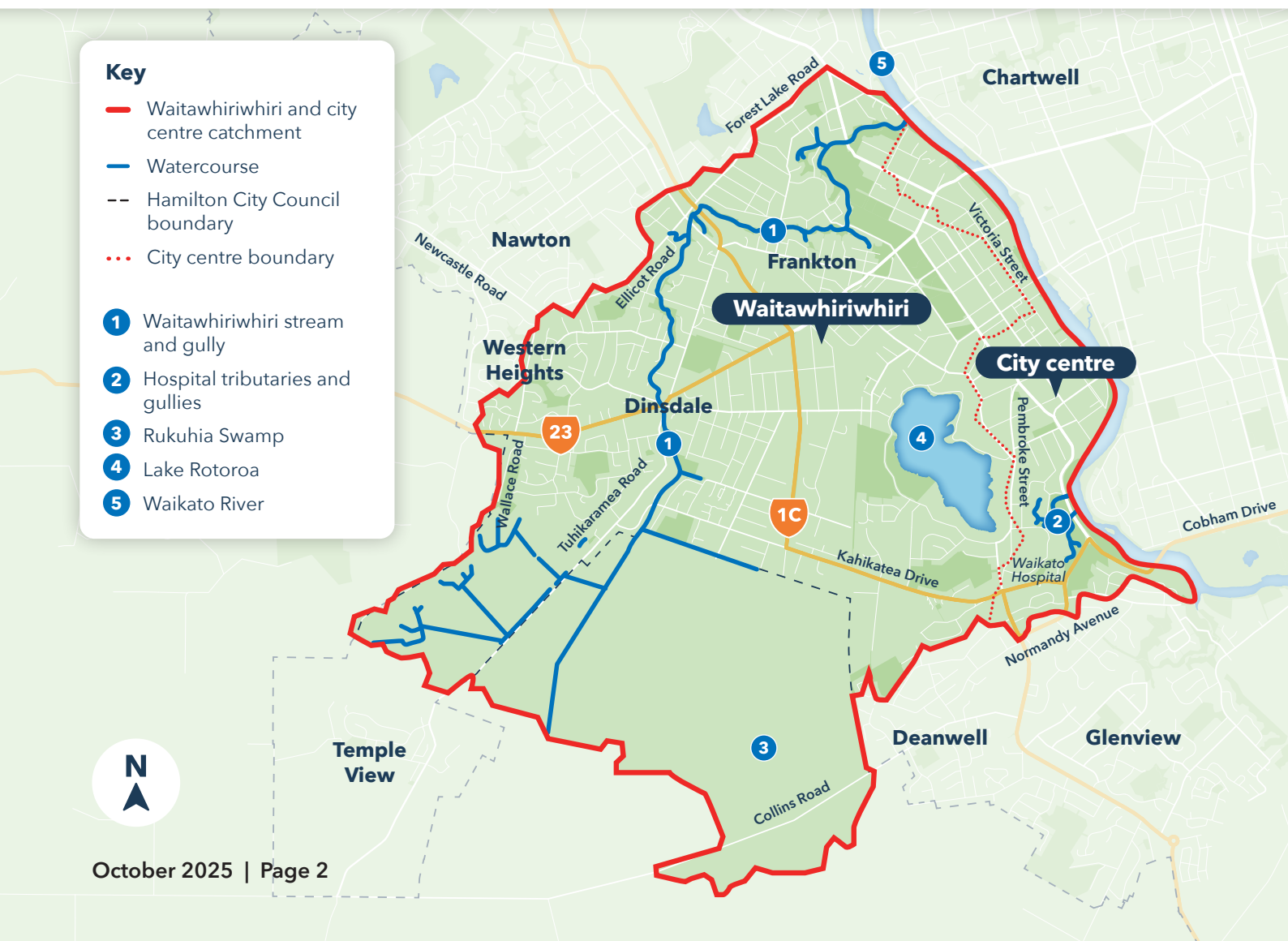
- **City centre catchment:**

This catchment is also highly urbanised, with most stormwater piped directly to

the Waikato River. It includes two small streams near the hospital, known as the Hospital Tributaries.

Catchment features

- Significant growth is planned in the central city over the next 10 years.
- Rainfall influences water movement within the catchment, and may interact with adjacent catchments such as Koromatu (situated below Temple View).
- Sensitive landforms such as soft peat soils, shallow groundwater, and steep gullies require careful management to prevent land sinking and erosion.
- Given the physical constraints outlined above and the challenges with three waters servicing, much of the land outside the city boundary is likely unsuitable for intensification.



Waitawhiriwhiri stream and hospital tributaries issues and opportunities

Stormwater issues	Stormwater interventions and opportunities
Water quality degradation - In the upper catchment, agricultural activities (outside Council jurisdiction) contribute to contaminants. - In the lower catchment, urban runoff is the primary source of pollution.	Water quality treatment - All new developments must treat stormwater before discharge. - Eight sites have been identified for potential water quality treatment devices such as wetlands and rain gardens. - Priority road corridors have been identified for increased water quality treatment.
Stream stability and habitat decline - The upper stream is heavily engineered which makes it stable, but the habitat is poor. - The lower stream is more natural but suffers from erosion and habitat degradation.	Stream resilience improvements - All new developments are required to retain initial rainfall runoff which will reduce potential erosion. - Approximately 30 projects have been identified to improve the stream condition such as riparian planting and erosion control.
Fish passage barriers Man-made structures (e.g. culverts) restrict native fish movement. However, these barriers also help prevent the spread of pest species.	Fish passage improvements - Fish barrier remediation projects have been identified, however, these will need to consider risks of spreading pest species. - Recommendation for Council and developers to work closely to ensure that machinery used within the waterways does not spread invasive species such as golden clam.
Flood risk in older suburbs Many suburbs in the catchment were developed before modern stormwater standards, increasing the flooding vulnerability during heavy rain events.	Flood management - Infill development requirements will help them manage flooding. - Over 15 potential flood mitigation projects and eight stormwater network upgrades have been identified.
Involvement from mana whenua Call for genuine collaboration, and co-design with mana whenua and Waikato-Tainui to give effect to Te Ture Whaimana.	Council and mana whenua partnership Recommendation for Council and mana whenua to work together to establish a cultural monitoring framework to ensure the projects are achieving the appropriate outcomes for the Waikato River and its tributaries.



Lake Rotoroa issues and opportunities

Stormwater issues	Stormwater interventions and opportunities
Stormwater contaminants Stormwater runoff contributes to the lake contaminants such as copper, zinc, and nutrients.	Water quality treatment Reduce contaminants through water quality treatments to the existing city and roads, and better street sweeping.
Sediment accumulation Contaminants accumulate in lake sediments and can enter the food chain, including fish.	Sediment management Manage sediment build-up with targeted monitoring and potential remediation to prevent toxins entering the food chain.
Excess nutrients and algal growth Nutrients, especially phosphorus, contribute to high algal growth and low water clarity.	Nutrient control Control nutrient loading through water quality devices, and source tracking to reduce algal blooms and improve clarity.
Lake flushing and flooding Stormwater inflows can help flush the lake, but it needs to be balanced against other issues like flooding, and the potential for increased levels of pollutants carried in with higher flows.	Smart infrastructure Use smart infrastructure such as automated stormwater outlets and real-time sensors combined with hydrological modelling to support healthy water movement and better lake water quality.



Lake Rotoroa - broader ecological issues and opportunities

Broader ecological issues	Broader ecological opportunities
Algal blooms and health risks Blue-green algae blooms, which are more common in summer, can pose health risks to people and pets when they come into contact with affected lake water.	Health monitoring and safe swimming zones Continue public health monitoring and explore isolating areas of the lake for safe swimming during bloom periods.
Water clarity and recreation Too much algae contributes to the water appearing murky, discoloured, and less enjoyable for water activities.	Water quality modelling Develop a lake water quality model to support targeted restoration actions.
Weed infestation Invasive water weeds are present and need ongoing control as they push out native plants.	Weed control and restoration Use woven mats, mechanical harvesting, and chemical management to control invasive aquatic plants and restore native vegetation.
Bird droppings and water quality impacts Bird droppings contribute nutrients that promote the growth of algae and aquatic weeds. They can also raise bacteria levels, which reduces the lake's safety for recreational use. Recent source tracking by Waikato Regional Council indicates that waterfowl are the primary source of elevated pathogen bacteria in the lake.	Catchment and bird management Implement a control programme for Canadian geese and continue waterfowl monitoring.
Residual contaminants Past weed control left arsenic in the lakebed, which may affect fish and other animals.	Contaminant monitoring Continue monitoring the lakebed to check for harmful substances and understand their impact on aquatic life.
Pest fish impact Pest fish stir up the lakebed sediment, eat native water plants, and compete with native species.	Pest fish management Develop a pest fish management strategy and pair it with submerged macrophyte restoration to support native biodiversity.
Invasive clam risk Invasive clams are not known to be present but could enter the lake ecosystem and harm native shellfish, as well as block pipes.	Clam monitoring and response Monitor for invasive clams and have a quick action plan ready to prevent their spread and protect native species and infrastructure.
Monitoring and data gaps We need better data to understand how the lake is changing and how to fix it.	Lake management planning - Expand monitoring to include inflows, outflows, and seasonal variations. Develop detailed nutrient and contaminant budgets for the lake. - Establish a multi-stakeholder working group to develop and implement a lake management plan.

Managing stormwater in new development

When new development or redevelopment occurs, it can increase stormwater volumes or reduce water quality. To address this, we're setting design criteria for developers and recommending practical ways to achieve them, to ensure the best outcomes for the area.

Key criteria include:

- **Initial runoff retention**

All new development must retain the initial water runoff to reduce stream erosion and prevent dirty water entering waterways. Larger developments must go further by slowly releasing water over time (extended detention) to protect streams and gullies.

- **Stormwater treatment**

Except for small residential sites, developments must include treatment measures such as raingardens or wetlands.

- **Additional treatment for high-risk areas**

Where higher contaminant levels are expected, such as industrial zones or high-traffic roads, extra treatment measures are required.

- **Flow management**

Where increased flows are anticipated, attenuation will be needed to maintain stormwater network functionality.

- **Flood storage**

Larger developments, particularly in the upper catchment, must provide flood storage areas to protect downstream properties from increased flood hazards.

