



Recovery Office and Healthy Waters:

Storm Recovery and Resilience Consultation

August 2023



Introduction

2023 has seen a series of extreme weather events impact Tāmaki Makaurau / Auckland, with record-breaking rainfall, floods, landslides and high winds. Tragically, six people lost their lives. Over 4,500 households needed assistance, including almost 600 who needed emergency accommodation. Access to around 3,000 homes was restricted or prohibited, and many are still being assessed. There has also been extensive damage to marae, commercial buildings, inventory, infrastructure, utilities, and our productive lands around the region.

While the scale, complexity, and challenges are considerable, we have an opportunity for residents of Tāmaki Makaurau / Auckland to recover in a way that acknowledges that our region will continue to face more weather-related events in the future.

The Auckland Council group, in partnership with central government, iwi, and the private sector, has a role in supporting the region's recovery from these events. Together, we are focussed on building back stronger, and supporting Aucklanders to be more informed and empowered to take action to increase their personal resilience to extreme weather.

This won't make Tāmaki Makaurau / Auckland storm-proof, but it will reduce the risk to life and to critical systems.

We need to hear from you

The purpose of this engagement is to:

1. Understand Aucklanders' experiences of the extreme weather, and their aspirations for recovery. This will inform the Tāmaki Makaurau Recovery Plan and guide our region's recovery activities.
2. Seek feedback on the options identified as part of the proposed Making Space for Water programme. This will help us determine the scope and scale of the programme and the funding required.

The valuable feedback you provide will help us to shape Auckland Council's recovery and prioritise the things that matter most to Aucklanders.

Auckland's 2023 record breaking storms



27 Jan

State of emergency declared



27 Jan – 1 Feb

Auckland Anniversary floods: record levels of rainfall (307mm) fell across the region



24 Feb

Heavy thunder storms caused further damage across Auckland



13 – 14 Feb

Cyclone Gabrielle: Over 300mm of rain, high winds and landslides



9 May

Flash flooding with further properties suffering flood damage



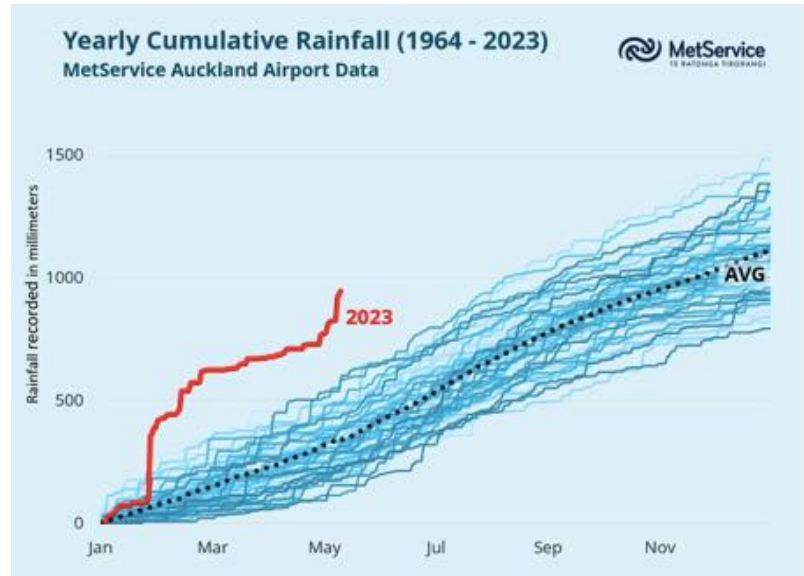
9 April

A tornado and high winds hit Auckland's eastern suburbs

The challenge

A stormy year...

2023 is breaking rainfall records. By July, Tāmaki Makaurau / Auckland had already received over 100 per cent of its annual average rainfall. Much of that rain fell in two events: the Auckland Anniversary Weekend storm and Cyclone Gabrielle. The rain from these storms fell on land that was already saturated from an unusually wet spring. It caused unprecedented levels of flooding, slips and damage to communities.



... and a stormy future

Image courtesy of MetService

Climate change means that Tāmaki Makaurau / Auckland needs to be prepared for more frequent and severe storms. There are many challenges:

- We can't predict exactly when and where rain will fall in any given storm; many parts of the region are vulnerable.
- Thousands of homes have been built in areas of flood risk.
- Building flood resilience is a long-term and expensive prospect – we need to change the physical form of our city.

How does climate change affect storm intensity?

Warmer and wetter atmosphere
A warmer atmosphere holds more moisture, increasing overall rainfall.

More energy for storms
Extra heat in the atmosphere creates more energy for larger weather systems with high wind speeds and extreme rainfall.

More intense rainfall
More moisture in the atmosphere means that more of our rain falls as intense downpours, increasing flash flooding.

Coastal flooding
Higher sea levels and stronger winds increase coastal flooding and storm surges where more water encroaches on the land.

Charting a course for recovery: the Tāmaki Makaurau Recovery Plan

After the extreme and tragic weather events of 2023, a Recovery Office was established. The Recovery Office is coordinating the repair and rebuild of our region's built and natural environment, and giving support to our most impacted communities as they deal with the after-effects of the storms.

The Recovery Office brings together partners from across the Auckland Council group, central government, iwi, and other industry. For many, this will represent a new way of working that epitomises kotahitanga (unity).

The Recovery Office has developed an interim recovery plan for the short term which has outlined the immediate response, the scale of impacts and the recovery objectives. The interim plan also established the structure for the recovery programme, with mahi organised around four whenu (strands):



Community and social recovery

Impacted communities are reconnected and resilient.



Māori partnership and participation

Mana whenua and Māori are active partners and participants in the recovery of Tāmaki Makaurau.



Economic recovery

Sustainable economic activity is re-established enabling equity and economic prosperity.



Natural and built environment

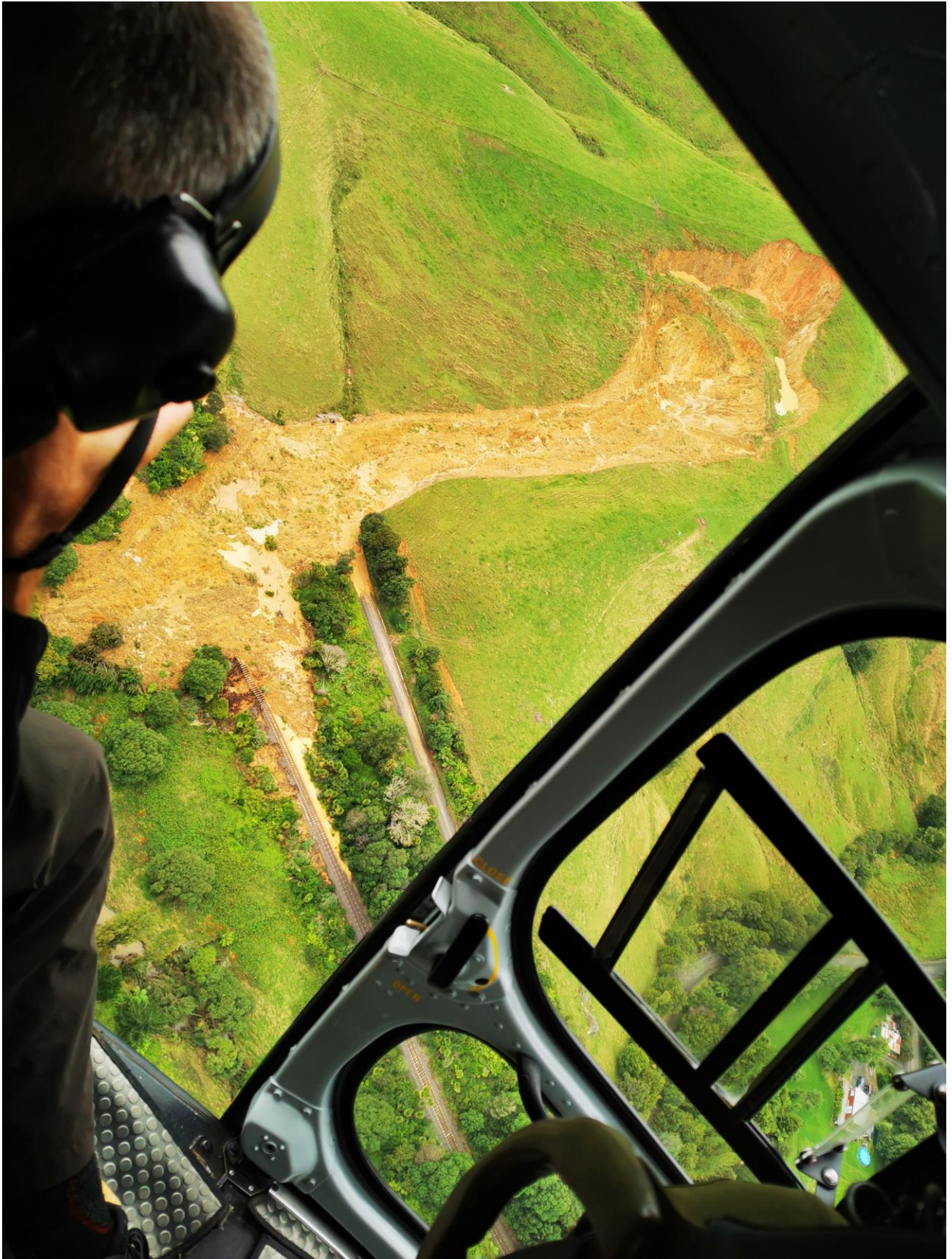
Repaired and reinstated housing, infrastructure, facilities, and services are more resilient, and our natural environment is regenerated.

We now need to look to the longer-term recovery and develop a detailed Tāmaki Makaurau Recovery Plan to guide our activities.

The plan will set out priorities for the region and local areas that were more severely impacted. The plan's development process will include mana whenua, iwi and community engagement, and alignment to the Annual Budget, Long-term Plan, and Local Board Plan processes.

The plan will include the vision and objectives for recovery, explain the policy context and approach to governance, include details of projects that will be delivered and how things will be funded, and explain how we'll measure progress.

To help develop a Tāmaki Makaurau Recovery Plan we want to hear from you about how the storms have affected you and your area, both immediately following the events and since then. We want to understand what has worked for you, what is important for your recovery and the recovery of your community, and how you think Tāmaki Makaurau / Auckland can be more prepared for events like these in the future.



Landslide over the North Auckland Line railway, north of Kaukapakapa

What happens in a storm to cause damage

Sudden bursts of heavy rain can lead to surface or flash flooding. Water travels over the ground and pools, and pipes built for lower-level rain events are unable to manage the flows. Risk of damage is increased for properties in low-lying areas, steep catchments, close to streams and in urban areas – where large amounts of concrete mean rainwater is not absorbed into the ground.

Overland flow paths

Water can move very quickly over land, creating temporary fast-flowing streams. These are called overland flow paths. Items like rubbish, fences and even buildings can be swept away or create blockages leading to flooding.



Flood plains and flood-prone areas

Flood plains are areas of low-lying land, often (but not always) next to streams and rivers. As many streams have been piped underground, flood plains may appear in areas where water hasn't been seen before. Flood prone areas are low lying areas where water can pond if outlets are blocked. Water can become very deep, damaging property and creating risk to people.

Coastal areas

Waves, wind and rain can coincide to create storm surges and coastal inundation – where the sea floods the nearby low-lying land. High tides add to these events and can slow the flow of streams, rivers and pipes into the sea.



Groundwater flooding

The ground absorbs rainfall, but it can become saturated, especially after lots of rain. When the groundwater level is high, water can take days to soak away. Houses built below the water table, and parts of Tāmaki Makaurau built on volcanic rock, will be more affected by groundwater flooding as the ground in these areas is less able to soak up water.

Land stability and fallen trees

Heavily soaked ground and high winds can cause landslides, erosion and fallen trees. This can cut off essential services like power, water, communications and transport links, and pose a threat to nearby houses.



Making space for water

One area where we know we need to make improvements is in our stormwater management. We want to prioritise flood readiness and risk reduction in the council's stormwater operations, and support communities, households and businesses to be ready for future storm events.

There are some key areas where we think we can make improvements – we want to hear whether you think the options we've identified are the right ones.

We estimate the total cost of Making Space for Water to be just under \$1.65 billion over six years. This would require additional rates from Aucklanders, so we need to carefully consider the options for moving forward. We will be seeking central government co-funding to reduce the impact for ratepayers.

With your feedback, we can develop a Making Space for Water programme, to include in the Tāmaki Makaurau Recovery Plan.

Objectives

We're proposing four objectives for managing flood risks:



Reduce existing flood risks

Risks in known flood areas are reduced, using a toolbox of flood management techniques.



Avoid creating new flood risks

New development avoids creating flood risks to people, property and infrastructure.



Raise people's awareness of flood risks

Aucklanders understand what flood risks mean for them. They know if they live in a flood hazard area, how to manage stormwater on their property, and what to do before, during and after a flood.



Be prepared for flood events

Reliable data and systems underpin the council's and Aucklanders' storm preparations.

Nine ways to make space for water

We have identified nine ways we could help to make space for water in Tāmaki Makaurau / Auckland.

While it is not feasible to eliminate all future flood risks, these initiatives serve as a solid foundation, equipping everyone with the information they need to manage their own flood risks, and prioritising support for some of the most at-risk communities.

Operations and maintenance	<div>1. Increased maintenance</div> <div>2. Flood intelligence</div>
Neighbourhood solutions	<div>3. Community-led flood resilience</div> <div>4. Stream rehabilitation</div> <div>5. Rural settlements</div> <div>6. Culvert and bridge upgrades</div> <div>7. Blue-green networks</div>
Site-specific interventions	<div>8. Overland flow path management</div> <div>9. High risk properties</div>

Increased maintenance

What’s this about?

Keeping the stormwater network ready to handle lower-level flooding events.

How would this help with flooding?

Increased street sweeping and catchpit clearing can help keep the stormwater network flowing and reduce the risk of localised flooding. It’s especially important in urban areas where hard surfaces like roads, footpaths and driveways mean there is nowhere else for the water to go.



Debris and materials blocking pipe network

What could be involved?

- More frequent street sweeping, targeting higher risk and heavy leaf-fall areas
- More frequent catchpit cleaning, at least three times a year in high risk areas, and twice a year everywhere else
- Network upgrades such as building new catchpits with bigger inlets
- Targeted public overland flow path management and stream clearance.

Flood intelligence

What's this about?

Investing in planning and modelling tools to understand flood patterns and assess future risk.

How would this help with flooding?

Having detailed and robust data helps us to respond to storm events as they happen. It also helps us to provide good advice about flood risk for new developments.

What could be involved?

- Incorporating data from recent storms into flood maps
- Enhancing hotspot monitoring technology, and exploring systems for early warning alerts
- Sharing information with the public via a Flood Viewer tool to improve flood hazard awareness

Community-led flood resilience

What's this about?

Ensuring Aucklanders know what to do before, during and after a flood, and are active in managing their own risks.

How would this help with flooding?

Local knowledge is invaluable for flood management.

Empowering communities to become the guardians of their stormwater and waterways can help to tackle potential flood risks before they occur. We need to make sure this happens safely, in conjunction with the council's operations and in a manner that supports environmental best practices.

When flooding does happen, it is crucial for the public to understand the potential dangers, so that they know what to do to prepare, to survive, and to recover.

What could be involved?

- Community flood readiness resources for Aucklanders, including strategies to manage flood risks at home, and what to do before, during and after a flood.
- Support for community groups to undertake flood resilience activities by providing advice, tools and resources. This includes stream and riparian management to restore impacted stream banks.



Community stream cleaning

Stream rehabilitation

What's this about?

Rehabilitating critical high-risk streams to be more resilient to floods.

How would this help with flooding?

When streams are healthy, they help to move floodwaters safely away from people and property. Weeds, rubbish and erosion can block streams and leave less space for water.

What could be involved?

- Rehabilitation works by council on critical streams, including vegetation management, slope stabilisation, bank battering and stream channel modification to improve the flow dynamics of the stream and reduce erosion.
- Advice to owners with streams on their properties.

With over 15,000km of streams in the Auckland region, we need to prioritise the most at risk of flooding, and the most likely to cause health and safety risks. Streams are graded from 1 to 5, with grades 4 and 5 being 'highly critical' and 'very highly critical'. Around 10% of the region's streams have been classified as grade 4 or 5.

Rural Settlements

What's this about?

Developing flood management solutions for rural communities, marae and papakāinga.

How would this help with flooding?

Rural settlements have different flood risk management needs, compared to urban areas, especially where rapid growth has changed the flood risk profile for these communities.

What could be involved?



Flooded sports field in Puhoi

- Identifying the specific flood management needs of rural settlements and helping to implement appropriate solutions.
- Building capability of marae as resilience centres and community hubs. This might include physical works to reduce vulnerability to effects of flooding and extreme weather events.
- Providing advice on managing private rural water systems when floods happen, including bores, rainwater tanks and on-site wastewater systems.

Culvert and bridge upgrades

What's this about?

Improving the capacity and resilience of critical culverts and bridges.

How would this help with flooding?

Allowing more water to flow through culverts and under bridges and reducing the risk of blockages from debris floating downstream.

What could be involved?

- Upgrading the capacity and safety of high-priority culverts and bridges, including expanding the area of inlets and managing downstream effects.



Damage to culvert on Great North Road

Blue-green networks

What's this about?

Creating new open spaces in areas identified as having critical flood risks, feasible stormwater solutions, and wider community benefits.

How would this help with flooding?

Blue-green networks provide open spaces for water (blue) to flow through the landscape (green). In heavy storms, rainfall collects in these areas reducing risk to people and property.

Blue-green networks also provide benefits to their communities: when we make space for water, we also make space for people and nature, with walking tracks, cycleways, trees and wildlife.

What could be involved?

Developing new blue-green spaces in areas where there are serious flooding risks. This requires detailed analysis of the risk and design suitability of candidate sites.

This could include stream naturalising, widening and realignment, and replanting of surrounding areas. In some situations, it may be possible to look at redeveloping adjacent land with housing built to be protected from flooding.

It is expected that this initiative will require the removal of some homes in flood-prone areas, and would work in with the central government process underway that is identifying high-risk 'Category 3' houses.

Technical experts are assessing the potential for blue green approaches in:

- Harania Creek - Māngere
 - Kumeū River - Kumeū
 - Opanuku Stream - Henderson
 - Opoututeka / Coxs Creek - Grey Lynn
 - Porters Stream - Glen Eden
 - Sandringham, Epsom, Mt Eden
 - Te Ararata Creek - Māngere
 - Te Auaunga Stream - Mt Roskill
 - Waimoko Stream - Swanson
 - Wairau Creek - Wairau Valley
 - Whangapouri Creek - Pukekohe
 - Whau Stream - Blockhouse Bay/ Lynfield
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The blue-green approach is already in place around Auckland, including Te Auaunga/Oakley Creek (Wesley)

Overland flow path management

What's this about?

Keeping private overland flow paths clear of obstructions.

How would this help with flooding?

Improving the management of overland flow paths presents the greatest opportunity for flood management in Tāmaki Makaurau / Auckland.

Overland flow paths need to be kept clear of barriers like fences, retaining walls, buildings and overgrown vegetation, so that water can move safely through neighbourhoods. In most circumstances, it is the responsibility of individual property owners to keep overland flow paths clear. The actions they take impact not only their own property, but also their neighbours'.

An 'overland flow path' refers to land that conveys rainwater during a storm. It acts like a natural stream, collecting and moving rainwater across the land, eventually to streams and coastlines. Overland flow paths are a vital component of the stormwater network and are mapped on Council's Geomaps viewer.

What could be involved?

- Providing information to homeowners, community groups and industry professionals about how to correctly manage an overland flow path on their property.
- On-site assessment to identify blockages on properties and advise owners of their responsibilities, with potential for infringement notices and legal action where necessary.
- Investigating larger scale projects to improve a catchment's overland flow paths, where on-site solutions aren't enough.



Overland flow blocked by a fence

High risk properties

What's this about?

Working with property owners to develop solutions where occupants are exposed to high flood risk.

How would this help with flooding?

Some properties that have been severely affected by flooding are scattered around the region and will need to be dealt with individually. In some cases, there may be engineering solutions to mitigate risk from future floods. Where there is no practical or affordable infrastructure solution, the home may need to be removed. This process will require careful engagement with property owners and residents, and coordination with central government.

What could be involved?

As part of the Cyclone Recovery process with central government, Auckland Council is currently identifying high-risk homes and determining appropriate mitigation options. This work is part of improving flood risk management, and includes:

- Inspection & engagement: site specific visits to identify high risk properties and practical solutions to mitigate flooding.
- Flood plain management: identifying potential options for land where houses are removed through a property buyout process. This includes connecting into blue-green networks and possible redevelopment where land redevelopment makes housing a safe option.

Working in partnership

Our region's recovery will require a new spirit of kotahitanga, or working together, across entities because of the sheer scale of what we need to achieve.

Mana whenua and Māori are active partners and participants in the recovery of Tāmaki Makaurau / Auckland. Establishing connections and relationships with iwi and marae on this programme has begun and will continue to be a priority.

Different stakeholders will be engaged based on the needs of each initiative. This includes Auckland Transport, Waka Kotahi, Auckland Emergency Management, NIWA, Kainga Ora, local boards, community groups, and residents.

Funding the improvements

Treasury has estimated that the Auckland Anniversary Weekend storms and Cyclone Gabrielle have led to between \$9 billion and \$14 billion damage¹ across the North Island, including in Auckland.

We estimate the total cost of Making Space for Water to be just under \$1.65 billion over six years (made up of around \$700 million for land acquisition, \$550 million of capital investment in improvements to our networks, and \$400 million of operating expenditure to improve our service levels). This includes a large proportion for Blue-Green networks which can only go ahead if high-risk properties are removed.

Central government has proposed entering into funding agreements with councils in cyclone and flood affected regions to support them to offer voluntary buy-out for owners of high-risk (Category 3) properties and to co-fund work needed to protect properties where risk can be managed (Category 2).

It's not yet known how much funding Auckland Council will need to find, in a time of already-high financial pressure. Before we can develop a complete budget, we need to know:

- the number and value of the high-risk houses that need to be removed
- the proportion of co-funding that will come from central government to support Tāmaki Makaurau/ Auckland's recovery.

There will also be other recovery and resilience costs that are still being worked through (eg. relating to landslides).

To cover our share of Making Space for Water, we have the option to introduce a targeted rate. This could be allocated across the region (in the same way general rates are applied) or could be tiered so that people pay more if significant investment is made in their local area.

If the council had to fund all the flood management solutions by itself, this could translate to a targeted rate equivalent of around an 8 per cent general rates rise for the average residential property, in addition to increases already forecast from next year. This would be a significant impact for ratepayers, so we need to carefully consider the options for moving forward. We will be seeking central government co-funding to reduce the impact for ratepayers. Your feedback is a part of this process.

Once we have the numbers we need, we'll share them with the public and ask for feedback about different funding options. This will happen before we make any final decisions about projects.

What happens next?

We want to hear from you about your experience of the Tāmaki Makaurau / Auckland floods, and what you want to happen next? What are your thoughts on the proposed initiatives in Making Space for Water?

To have your say on the Storm Recovery and Resilience Consultation fill in a feedback form, scan the QR code on the back page of this document or visit [akhaveyoursay.nz/stormrecovery](https://www.treasury.govt.nz/sites/default/files/2023-04/impacts-from-the-north-island-weather-events.pdf). Feedback must be received by 31 August 2023.

The results of this public engagement will be reported back to the council's Governing Body in September and will be used to inform the final shape of the Tāmaki Makaurau Recovery Plan and the Making Space for Water programme. We value the views of all Aucklanders, and we thank you for your participation in this consultation.

¹ <https://www.treasury.govt.nz/sites/default/files/2023-04/impacts-from-the-north-island-weather-events.pdf>

To find out more about the types of flooding that may affect your property and how to prepare your property and whanau for a flood, check out Auckland Council's online flood viewer tool at www.aucklandcouncil.govt.nz/floodviewer

