Council Briefing Agenda

Date:	Thursday, 12 June, 2025
Time:	9:00 am
Location:	Civic Centre, Te Iwitahi, 9 Rust Avenue
Elected Members:	His Worship the Mayor Vince Cocurullo Cr Gavin Benney Cr Nicholas Connop Cr Ken Couper Cr Jayne Golightly Cr Phil Halse Cr Deborah Harding Cr Patrick Holmes Cr Scott McKenzie Cr Marie Olsen Cr Carol Peters Cr Simon Reid Cr Phoenix Ruka Cr Paul Yovich

For any queries regarding this meeting please contact the Whangarei District Council on (09) 430-4200.

Pages

2.1 Whangārei Urban Flood Strategy

Meeting:	Council Briefing
Date of meeting:	12 June 2025
Reporting officer:	Andrew Carvell – General Manager Waters

1 Purpose / Te Kaupapa

1. To be informed on the Whangārei Urban Flood Strategy project;
2. Provide feedback to staff on strategic investment objectives that will guide how combinations of solutions and investment pathways are evaluated throughout the project.

2 Background / Horopaki

2.1 Flooding in Whangārei

The Whangārei urban area has been transformed over time from coastal margin with extensive mudflats to a high density built urban environment that provides the centre of business for the Whangārei District. This transformation has been enabled through channelisation and redirection of streams, infilling of low-lying coastal land and installation of piped drainage systems.

While this has provided for the districts prosperity it has placed parts of the urban area in an area of high flood risk, being at the convergence of the Hatea River and various waterways and adjacent to a tidal and wind affected harbour. The main flood risk at present is from the waterways and conveying localised rain into the harbour. Over time, with a predicted rise in sea level, it is expected that the risk of coastal waters inundating low lying land will rise.

In 2006 council engaged URS to prepare a report on the risk of flooding. This work identified benefits from a range of options, including headwater storage dams and creation of wider flood plains adjacent to the water courses. A number of these options have been developed. The NRC have built the Hopua te Nihotetea Detention Dam that has reduced the flooding risk along the Raumanga stream, and Council has rebuilt Rust Ave Bridge, developed parts of the Blue / Green network and progressed the Morningside pumping station.

Other aspects of the URS report, such as the proposed stop banks adjacent to the harbour, with modification to the urban stormwater network and construction of a series of flood pump stations, have not been developed.

Since 2006 there have been improvements in understanding of the flood risks such as councils' development of its stormwater model, incorporating modern LIDAR and hydrological data, and the work the councils have done on creation of flood hazard and coastal inundation risk associated with climate change.

Due to the implications for the urban area of Whangārei and its relationship with future town planning, this project is being led by the Whangārei District Council with support from the Northland Regional Council (NRC).

2.2 About the Whangārei Urban Flood Strategy

The Whangārei Urban Flood Strategy aims to develop the technical understanding required to underpin strategic and adaptive planning for the management of flood risks in Whangārei's urban areas, with a key focus being the Central Business District and other inner urban areas.

This project involves technical investigations, such as hydraulic modelling, risk assessments and options testing, to identify and evaluate a range of viable flood management options. Outputs from the project will support future community conversations about of flood risk management and inform funding decisions for the 2027 LTP for both councils.

While the core focus of the project does not include broad community engagement, we recognise the need to inform and involve the community, stakeholders and decision-makers at appropriate points during the project. It is likely that further community engagement and investigations will be required following the delivery of recommendations at the end of the project, especially where significant decisions regarding land-use planning and targeted rates funding are involved.

The purpose of the Whangārei Urban Flood Strategy project ('the project') is to support the strategic, long-term management of flood risk in urban Whangārei, through three core steps:

- **Improve our understanding of flood issues.** The project is needed to develop the necessary technical analysis to identify the drivers of flooding issues in urban Whangārei, and how risks may change over time.
- **Evaluate a range of risk management options**. The project is needed to help identify and evaluate a range of potential options for managing current and future flood risks, and highlight possible combinations solutions and pathways for implementation.
- **Provide evidence to enable decisions on investment pathways and support for next steps**. The project is needed to support strategic, long-term planning for flood risk management that will underpin the development of the city, and support for next steps such as funding options and LTP business cases.

Key delivery goals include:

- Improve the technical understanding of the nature and scale of pluvial, fluvial and coastal flood risk in urban Whangārei
- Undertake early engagement as needed, and identify where additional engagement with community, hapū partners and stakeholders is required to achieve lasting outcomes
- Improve the understanding of the benefits and disbenefits of a wide range of risk management options, how those options work together, and their effectiveness over time and spatial scales
- Develop combinations of options into investment pathways and evaluate the ability for these to meet the criteria for councillor-defined strategic investment objectives over time.
- Align and integrate actions with existing strategies, policies and plans
- Present to both councils a range of options and recommendations for a prioritised programme of investment pathways that address specific flooding challenges for different areas across the city over time.
- Receive feedback from elected members, hapu, stakeholders and the community on preferred options.
- Develop an investment programme for WDC's and NRC's 2027-29 Long Term Plan and Infrastructure Strategies to fund short, medium and long-term actions.
- Provide a baseline of technical information to support future community engagement where required.

2.3 Project phases and Progress

1. Project Plan (complete)
2. Strategic Case and procurement (Oct 24 – June 25),
3. Technical Assessments (April 25 – July 26), and
4. Business cases (July 26 - November 26).

A project plan has been completed outlining high-level direction and scope, governance structure and budget. Co-funding has been agreed and approved through LTPs of both councils. A project steering group has been established including project co-sponsors (general managers from NRC and WDC) and meets quarterly. An Engagement plan is being drafted by council staff.

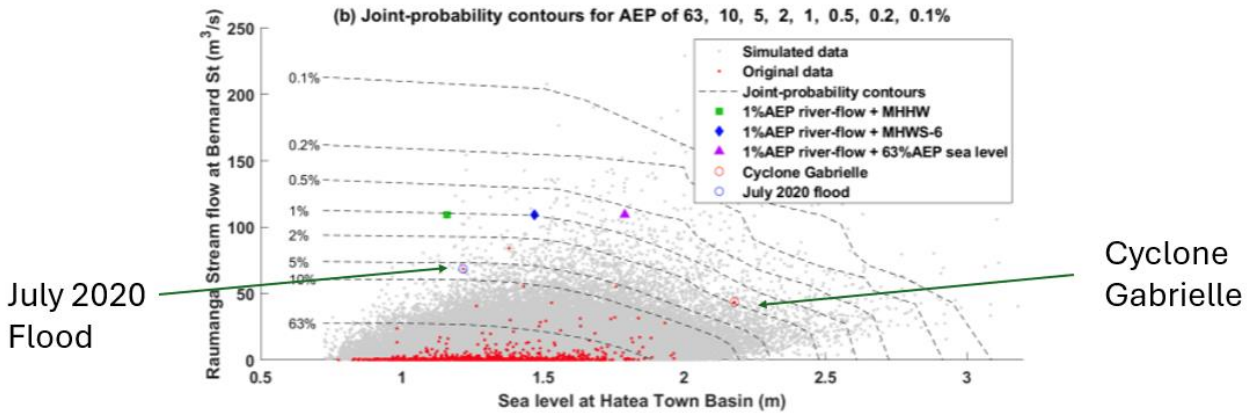
The strategic case has largely been completed, outlining the case for change, roles and responsibilities and identifying investment objectives and criteria for evaluating options. Two significant investigations have been carried out as part of the strategic case – an assessment of compound flooding, and a high-level risk assessment. The outcomes of these aspects are provided below.

The technical assessments are underway. Following a two-stage procurement process this contract was awarded to a consortium of BECA, NIWA and Urban Intelligence in May. The project is in early stages of initiation and is expected to be completed by July 2026.

Strategic Case - Joint probability assessment (NIWA)

An assessment of compound flooding in the upper harbour has been completed by NIWA to better understand the connection between tidal conditions and rainfall. The tide is influenced by a range of knowable factors, such as the position of the sun and moon, as well as variable factors such as wind, atmospheric pressure and rainfall. Because coastal conditions influence flooding it is important to understand the correlation between these factors.

Also known as a Joint probability analysis, the findings show a strong link between harbour water levels (storm surge) and rainfall flooding. Data analysis considered rainfall, river flow, and sea level records from a number of sites that were processed and analysed to derive extreme value statistics. Probabilities of flood events from combinations of rainfall and tidal flooding were assessed, combining skew surge (storm surge beyond regular tides) and total sea level with river flow or rainfall. The approach included simulating 20,000 years of events to extrapolate beyond observed data.



Findings include:

- Tidal amplification was observed, with the highest tidal heights recorded at the Hātea Town Basin station.

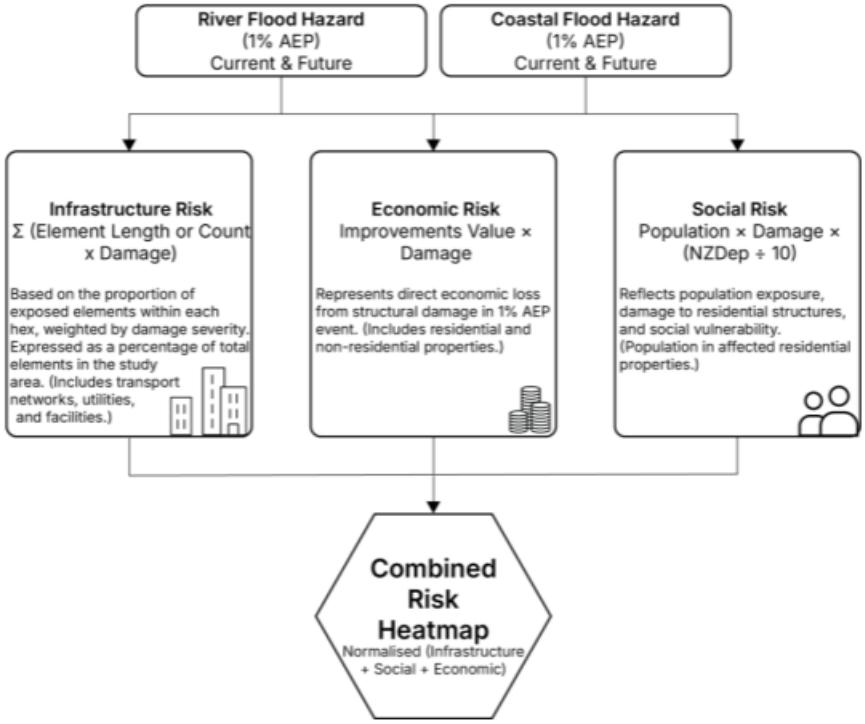
- Joint-probability contours and tables were generated (see above), identifying critical combinations of extreme rainfall, river flow, and sea level that align with historical extreme events, including Cyclone Gabrielle and the July 2020 flood.
- Scenarios corresponding to annual exceedance probabilities (AEPs) ranging from 63% to 0.1% were established to support long-term flood planning.

The report includes recommendations for selecting appropriate design values for flood modelling.

Strategic Case - First pass risk assessment (Urban Intelligence)

This investigation combines a range of hazards, element and social vulnerability data to provide estimates of risk from river and coastal flooding across the city. The risk assessment uses a process that looks at risks to infrastructure, costs due to event damage as well as economic impacts, and how floods might impact more vulnerable populations.

Hazard data used includes the recently (2024) updated flood modelling jointly funded by WDC and NRC, which includes both in-channel (1D) and overland flow (2D) flooding, as well as incorporating the WDC stormwater network. It also includes coastal flooding projections developed by Tonkin and Taylor in 2020. Element data uses data from WDC's GIS system including a wide range of council assets, cultural assets and lifelines. Social vulnerability data was sourced from StatsNZ.



Key findings include:

- A wide range of council infrastructure is currently exposed to flood events. This progressively increases with sea level rise.
- Exposure to current day 1% AEP river flood of 274 commercial properties, 225 industrial properties and 1,893 residential properties result in average annualised losses of $44.9M

- 41% of the total number of commercial and industrial buildings in the city are exposed to a 1% AEP river flood
- Expected losses following a 1% AEP rainfall flood event are over $180M, and from a1% AEP coastal flood event over $90M, with current day sea levels.
- Under possible future conditions (including higher intensity rainfall and 1.2m of sea level rise) expected losses following a 1% AEP rainfall flood event are over $285M, and from a1% AEP coastal flood event over $215M (2025 dollars).
- Under current conditions, over1500 residents are exposed to life-threatening river flooding, which accounts not only for depth of flooding, but also velocity. Of these, more than 50% live in areas which experience the highest levels of deprivation.
- There are over 4500 residents who live in places exposed to rainfall flooding more than 15cm deep.

Combined risk scores were generated to show where hotspots of flooding occur across the city using a uniform hexagonal grid. The table below shows the key findings:

Risk score	Current day	Future conditions
High risk	Central city, Mairtown	Central city, Mairtown
Moderate risk	Horahora	Horahora, Woodhill
	Morningside	Morningside
	Te Kamo	Regent, Te Kamo, Three Mile Bush, Airport – Whangārei Heads Rd
	Avenues, Regent, Whareora Rd, Whau Valley, Tikipunga, Springs Flat	Whareora Rd

2.4 Community engagement

Staff are currently developing a communications and engagement plan. Our proposed approach is to understand the issues and range of options before bringing a selection of recommended pathways to elected members and undertaking significant community engagement.

We suggest that while an ‘inform’ type approach will be suitable during early engagement and ongoing communications during the first part of the project, more thorough engagement will be required at later stages. This could include where flood risk management options incur significant change such as increased rating charges to pay for infrastructure, the purchase of property for future use, or changes to land use rules such as rezoning.

During later stages, we will assess the need for localised or community-wide engagement, depending on the nature and scale of the solutions being considered as a result of the technical investigations. The project engagement approach includes the following:

3 Discussion / Whakawhiti kōrero

3.1 Evaluating flood risk management approaches

For different locations across the city there are likely to be a range of potential approaches that could be used to address flood risk, each with different costs, benefits and trade-offs. During the technical assessments phase we will evaluate different flood risk management solutions against objectives. These criteria, which we call strategic investment objectives, will need to reflect council's values.

Strategic investment objectives – Council Input

It is likely that some of the potential flood risk mitigation options may be costly, and potentially have significant impacts on the environment, private property or council services. Having a clear set of objectives from which to assess and choose different options will be critical to support business cases and justify investment (or non-investment).

During the workshop we will present an analysis of current outcomes, goals and objectives identified in public documents. This will include documents such as the Future Development Strategy, urban growth and precinct plans, climate strategies, LTPs and infrastructure strategies.

We will contextualise these within the project study area, tease out their differences and commonalities and run through a potential way of how they could be used to identify preferred adaptation pathways to manage flood risk.

During the workshop we will test some 'strawman' objectives with councillors to build into evaluation processes in the development of the Whangārei Urban Flood Strategy and seek your guidance on their importance.

Key questions are likely to include:

- **What would success look like?**
- **From your experience, the concerns of your constituents and your understanding of the impacts, what are the main considerations for investment in flood risk reduction measures?**

In drawing up a recommended suite of objectives to test with the wider community, we will record and summarise these discussions and translate them into SMART objectives.

SMART objectives are a framework for setting goals that are:

- **S**pecific: Clearly defined, leaving no room for ambiguity. They answer questions like "What needs to be accomplished?", "Who is responsible?", and "What steps are involved?"
- **M**easurable: Quantifiable, allowing for tracking progress and determining when the objective has been achieved. This often involves numbers, percentages, or other verifiable metrics.
- **A**chievable: Realistic and attainable given available resources, time, and capabilities. While challenging, they should not be impossible.
- **R**elevant: Aligned with broader goals and priorities, ensuring that the objective contributes meaningfully to the overall vision.
- **T**ime-bound: Have a clear deadline or timeframe for completion, providing a sense of urgency and a basis for accountability.

In flood risk management, SMART objectives are crucial for effective planning, implementation, monitoring, and evaluation of strategies and projects. They transform broad aspirations into concrete, actionable steps, enabling stakeholders to understand progress and demonstrate impact.

For this project, SMART objectives will:

1. **Define Clear Goals:** objectives are initially set based on identified flooding problems and their impacts (e.g., to people, property, economy, environment).
2. **Track Progress and Performance:** By being measurable, SMART objectives allow for systematic monitoring. For example, rather than a vague goal like "reduce flood damage," a SMART objective might be *"achieve a flood protection level of service for 10% AEP flood events to residential properties in the project area by December 31, 2028."* This allows for data collection and analysis to see if the reduction is being achieved.
3. **Ensure Accountability:** The specific and time-bound nature of SMART objectives assigns clear responsibility and deadlines, making it easier to track progress and ensure accountability for the delivery of any actions.
4. **Optimise Resource Allocation:** Achievable objectives help in realistic planning of resource allocation (e.g., funding, personnel, equipment). Relevant objectives ensure that efforts are focused on the most critical risks and align with broader policies and strategies.
5. **Facilitate Communication and Collaboration:** Clearly defined SMART objectives improve communication among all stakeholders, including government agencies, iwi and hapū, local communities, and other partners. Everyone understands what needs to be accomplished, by whom, and when, fostering better collaboration.
6. **Inform Decision-Making:** Regular monitoring against SMART objectives provides valuable data for adaptive management. If progress is not being made, the reasons can be investigated, and strategies can be adjusted. This continuous feedback loop helps in learning from successes and failures.
7. **Evaluate Effectiveness:** At the end of the project or LTP cycle, SMART objectives provide the benchmarks against which the success of flood risk management interventions can be evaluated. This assessment helps determine if the desired outcomes were achieved and whether the interventions were cost-effective.

This same process will also be run through with NRC Councillors.

A detailed presentation will be provided prior to the workshop. Discussion and korero will occur during the workshop and feed into the strategic investment objectives to be tested with the community.

4 Financial/budget considerations / Ngā pānga pūtea/tahua

The project is co-funded through the Long Term Plans of Whangārei District Council and Northland Regional with a total budget of approximately $1.4M over three years.

The project seeks to identify short-, medium- and near-term investments requiring funding and inclusion in both Councils' infrastructure strategies and long-term plans. It is likely that a range of measures will be considered. These may include for example, flood protection infrastructure (flood and sea walls, stopbanks, pumps, channel widening), stormwater infrastructure (drainage, pipe networks, overland flowpaths), building-level measures, property purchase and rezoning.

Most of these investments will require public funding, potentially incurring a significant cost to ratepayers. It is currently unclear how some of the options would be delivered and/or funded under current management arrangements between both councils.

The project also has the potential to materially impact the direction and delivery of other Council projects, policies and strategies, including the Future Development Strategy and local infrastructure plans and construction projects. If the project identifies significant constraints to flood risk management in planned growth areas, for example due to excessive cost or poor feasibility, reconsideration of elements of plans such as the Future Development Strategy may be required.

5 Significance and engagement / Te Hira me te Arawhiti

This Council workshop does not trigger the significance and engagement policy.

However, the project is likely to meet criteria for significance as it moves into later stages involving decision-making by Councils on possible investment pathways and funding options. Such decisions will likely require consultation with the community including through the Long Term Plan process.