77968

Natural Hazards Resilience & Adaptation Forum

Friday 21 June 2024

TCC karakia

Tau ake rā te moana nei
E papaki kau ana, ki te ākau tangata
Kakenga waka, ka mauru te tohu
Ki te arearenga o Mauao
He pou herenga mōu, he pou hononga mōu
Kia herea ki te tika, kia herea ki te pono
Kia mau, kia ita, kia ū
Haumie, hui e, taiki e!

A settling peace upon the ocean
That laps to the shores of the people
The canoe rises turning to face Mauao
A mooring for you to bind to
A connection for you
To bind to integrity, to bind to truth
Holdfast, relentless and steadfast
Together, we agree!

Closing karakia

Ka whakairia te tapu
Ka wātea ai te ara
Kia turuki whakataha ai
Kia turuki whakataha ai
Haumi ē, hui ē, tāiki ē!

Restrictions are moved aside
So the pathway is clear
To return to everyday activities
Enriched and unified.
Together, we agree!

12:30 – 12:45 pm	<u>Purpose and objectives</u> Explain the purpose and objectives of the assessment and link it to Actions 1 and 48 in the TCC Climate Action & Investment Plan

Background

Building climate resilience

Where are we now?

Climate change is predicted to increase the frequency, intensity, and duration of extreme weather events such as floods, storms, and drought. These events affect our assets, operations, emergency response capacity – and show that we must adapt to the effects of climate change. Even services as cutting the grass and maintaining a dog pound will be affected by a changing climate.

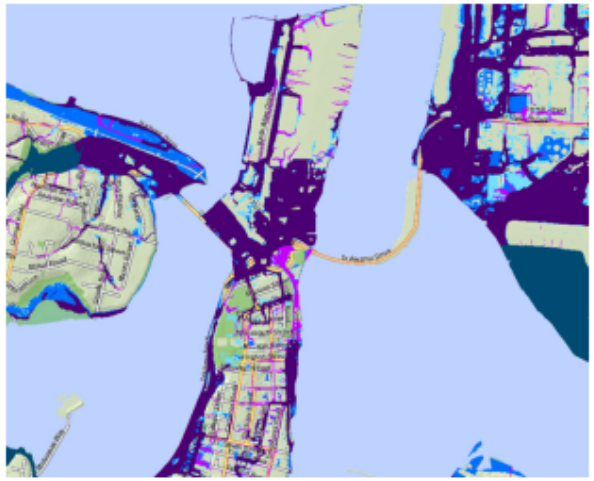
Through the Tauranga City Natural Hazards Resilience Programme initiated in 2019, TCC understands the risks to certain key infrastructure including critical assets in Tauranga City's three waters network, transportation network and selected bridges. Some projects to increase the resilience of high-risk infrastructure have already been factored into the 2024 LTP.

Further work has been identified as crucial to develop robust adaptation options and pathways for increased resilience across TCC's assets and activities. TCC therefore recently performed a pilot risk exposure assessment of key property assets (approx. 50 assets, incl. BVL) and activities. The purpose was to develop a test a methodology that could be used across the council together with the Tauranga City Natural Hazards Resilience Programme.

In a worst-case future scenario, the results showed that:

- 9 assets are exposed to coastal inundation risk
- 2 assets are exposed to landslide hazards and coastal erosion
- 45 assets are exposed to groundwater hazards
- 24 assets are exposed to possible liquefaction damage
- 6 risks have been rated as 'critical' to the Property team's activity area, such as increased temperature extremes

The image to the right shows a flood map of Tauranga CBD based on a 2130 scenario rainfall (purple = major flow path).



Where do we want to be?

TCC is a resilient organisation where climate risks are considered in decisions and service delivery.

What are the gaps?

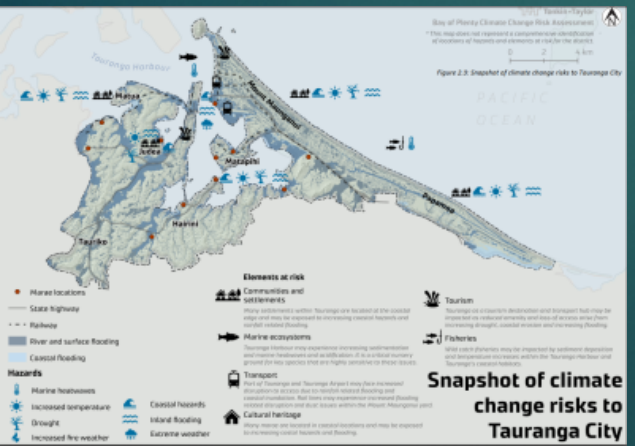
To build resilience across Council operations, assessments of additional assets groups and activity areas and development of mitigation actions will be needed. Today, TCC does not have a consistent approach to assess climate risks, neither in projects nor in TCC's corporate risk processes.

In January 2023, the Government launched mandatory climate reporting requirements for a range of public and private sector organisations – the Climate-related Disclosure (CRD) regime. The CRD regime requires organisations to analyse and report on how they will be affected by climate change.

Although TCC is not yet directly covered by the regime, there is value in aligning our climate risk assessments and reporting with the CDR standards. External stakeholders such as LGFA have already started requesting CRD information from TCC, which is why we propose that TCC works towards the goal of becoming an early adopter of the regime. The below actions will help us towards that goal.

	#	Action	Owner	Timeframe[2]
Risk identification and assessment	B1	Identify which assets are exposed to climate risks and natural hazards, complementing the Infrastructure Resilience programme, such as parks, reserves, and waste infrastructure.	Asset Services, Sustainability	Short term
	B2	Identify existing and upcoming transition risks[3] and opportunities and assess their operational and financial impact to TCC (as required by the CRD regime).	Sustainability, Finance	Short term
	B3	Explore the potential impacts by conducting scenario analysis for the identified physical and transition risks to test and evaluate TCC's operational resilience (as required by the CRD regime).	Sustainability, Finance, Risk	Medium term
	B4	Update TCC's Risk Management Framework and processes to include climate risks.	Sustainability, Risk	Short term
	B5	Establish an internal forum or working group to develop and foster consistent best practice natural hazards, climate risks, and resilience management across the organisation.	Sustainability	Immediate

Background to CAIP actions



Action number	Actions and programmes of work	Proposed timeframes	Indicative cost[13]	Who
Priority actions				
1	Develop a localised Climate Change Risk and Vulnerability Assessment (to work out what the risks are and who will be vulnerable) to build on the regional assessment developed by Bay of Plenty Regional Council (BOPRC).	Immediate	$ Funded	TCC, BOPRC
36	Include additional climate risks such as heat, humidity, drought and fire in Council's Infrastructure Resilience Programme.	Short-term	$$ Partially funded	TCC
48	Undertake a climate change risk and impact assessment for vulnerable communities and develop adaptation plans for high-risk areas (a drill-down from action 1).	Immediate	$$ Funded	TCC, iwi and other community groups

Mahere mahi āhuarangi me haumitanga

Tauranga Climate Action & Investment Plan

2023-2033

Tauranga City

Adopted 21 August 2023

52	Enable better risk-informed decision-making by individuals by continuing to advise land risk information to the community and by addressing gaps in natural hazard modelling.
53	Build adaptive capacity in our communities by fostering community networks, partnerships and healthy living initiatives.
54	Explore options for reducing the vulnerability of the community and iwi through advice and identifying funding opportunities on disaster response and climate adaptation.
55	Support community and iwi-led adaptation planning through funding (see action 48), access to hazard/exposure information (and relevant guidance such as national adaptation toolkits, etc) and exploration of further support needed.

TCC natural hazard layers

Map	What is being measured?	Projections	Relevant limitations	Published when?	Comments
Landslide Susceptibility	the relative likelihood of future landsliding in an area based on underlying properties, such as local terrain, geological and hydrological conditions	Current	Only indication positions landslide may start. No run out zone	2023	All of TCC area categorized as: Very low, Low, Moderate, or High
Slope Hazard Zones	Zones defined on slope height, angle, and understanding of Tauranga ashes	Current		2023	
Relic slips	Features formed by past landslides	Past events only	Slips from 20,000 years old to jus a few years	2001	
Tsunami inundation depth	Depth of inundation from a maximum credible tsunami event	Current		2020	MCE is a Kermadec earthquake (not Hikarangi)

Map	What is being measured?	Projections	Relevant limitations	Published when?	Comments
Tsunami evacuation zone	Simplified conservative outline around inundation extent from tsunami modelling	Current	Evacuation map	2020	
Groundwater depth below surface	Modelled depth of groundwater below the ground surface	Current 50th% and 95th%; 50th% for 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0m SLR	10 or 20 m resolution	2024	
Flooding from rainfall	The locations of overland flow paths, flood plains, flood prone areas during an extreme rainfall event.	1%AEP Current day, and 1% AEP 2130 SSP5-8.5		Ongoing	Includes 5%AEP storm tide event

Map	What is being measured?	Projections	Relevant limitations	Published when?	Comments
Coastal Flooding – inner harbour	Depth of flooding from the inner harbour	Current day SL with MHWS, 2%, 1%, and 0.2% AEP; 0.2m SLR with MHWS, and 1% AEP; 0.4m SLR with MHWS, and 1% AEP; 0.6m SLR with MHWS, and 1% AEP; 0.8m SLR with MHWS, and 1% AEP; 1.25m SLR with MHWS, 2%, and 1% AEP; 1.6m SLR with MHWS, and 1% AEP	Assumes current shoreline shape and structures for all future projections, 5% AEP river flow in Wairoa and Waiorohi rivers (no others), wave action added as bath tub on top of dynamic surge model, 50% wave height	2019	

Map	What is being measured?	Projections	Relevant limitations	Published when?	Comments
Coastal Flooding – Coastal strip	Depth of flooding from the open coast	Current day SL with 2%, 1%, and 0.2% AEP; 0.85m SLR with 2% and 1% AEP; 1.25m SLR with 2% , 1% and 0.2% AEP; 1.6m SLR with 1% and 0.2% AEP	Assumes current shoreline shape and structures for all future projections, 5% AEP river flow in Kaituna river, 95% wave height	In the future (2024/25? ?)	
Active faults	Position of identified active faults	Existing features		On going	
Coastal erosion	Mapped likelihood of the 'Potential Coastal Erosion and Instability Hazard Areas' (Cliff/Shorelines) regressing landward due to slope instability and the assessed sea level rise.	Current SL likely and very unlikely erosion extent; 0.4m SLR likely erosion extent; 0.6m SLR likely and very unlikely erosion extent; 0.8m SLR likely erosion extent; 1.25m SLR likely and very unlikely erosion extent; 1.6m SLR very unlikely erosion extent;	Flat distance, doesn't consider how erosion varies along the coast	2020	Likely indicates 66% probability of inland exceedance. Very unlikely indicates 5% probability of inland exceedance.

Map	What is being measured?	Projections	Relevant limitations	Published when?	Comments
Liquefaction vulnerability	the potential for liquefaction damage to an area when an earthquake strikes based on physical parameters such as soil type, particle size, density and depth to ground water.	Current	Agnostic of earthquake size	2020	Mapped according to MBIE liquefaction categories
Liquefaction land damage	The liquefaction induced ground damage in an earthquake event. Damage can be vertical settlement, sand boils, horizontal movement or a combination of all of these.	Current and 'future' for 1 in 25-, 100-, 250-, 500-, and 1000-year events Future = 1.05m SLR	Very uncertain	2020	All of TCC categorized to: None to Minor, Minor to Moderate, or Moderate to Severe

End