



Richard Murcott

PDP Submission 333
Further Submission 069

PDP Submission 322
Further Submission 071

Jointly to the

Independent Hearings Commissioners' Panel
for the Wellington City Proposed District Plan

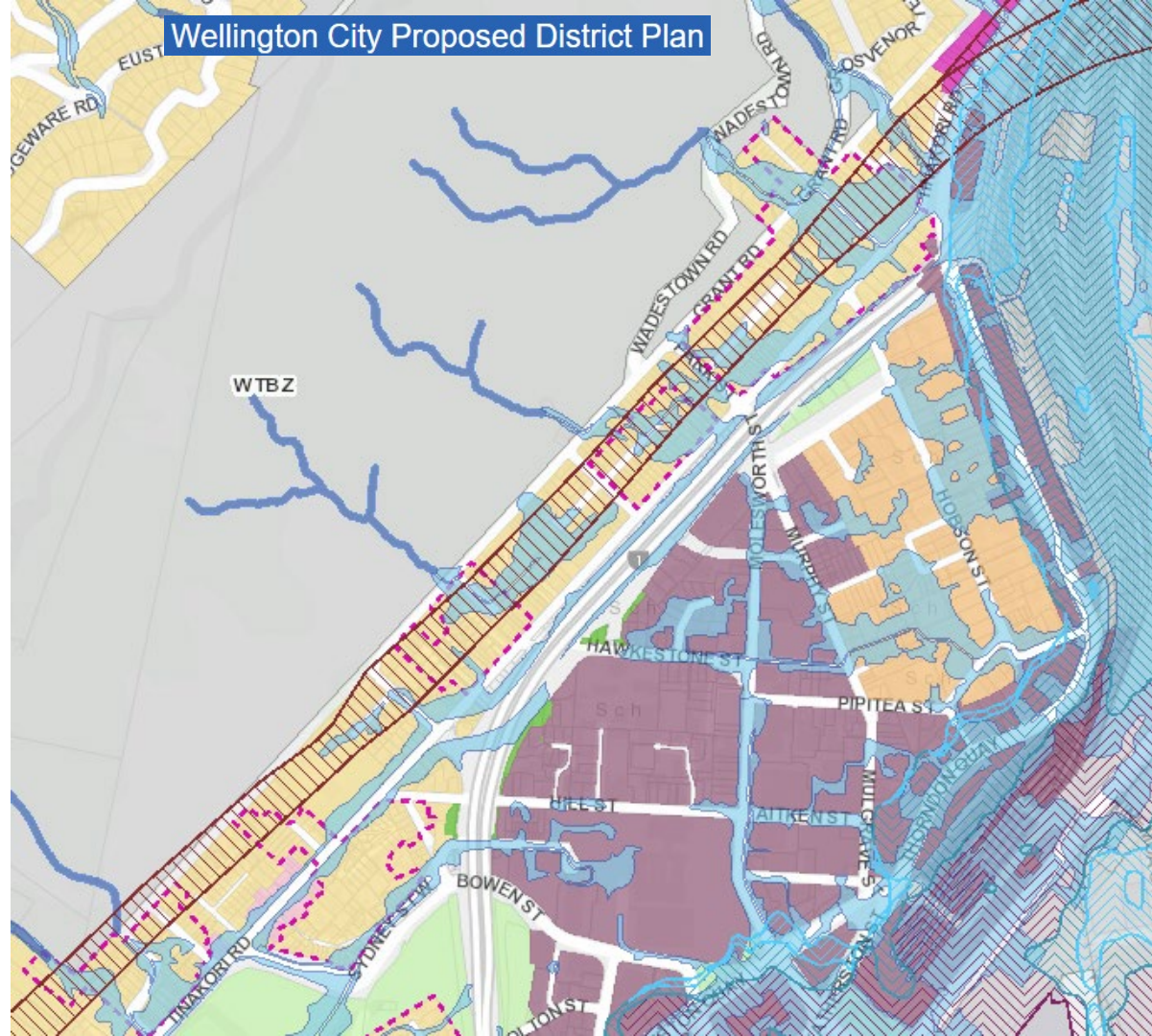
Hearing Stream 5 – **General District Wide Matters**

Introduction

- **Earthquake**
- **Flood**
- **Climate Change**
- **3 Waters**
- **Resilience**

Relief

Wellington City Proposed District Plan



- Zones**
- Large Lot Residential Zone
 - Medium Density Residential Zone
 - High Density Residential Zone
 - General Rural Zone
 - Neighbourhood Centre Zone
 - Local Centre Zone
 - Commercial Zone
 - Mixed Use Zone
 - Metropolitan Centre Zone
 - City Centre Zone
 - General Industrial Zone
 - Natural Open Space Zone
 - Open Space Zone
 - Sport and Active Recreation Zone
 - Special Purpose Zone

Character Precincts



Wellington Fault



Inundation Area



Stream Corridor



Low Coastal Tsunami Hazard



Earthquake Hazards

Our capital is situated on one of the **more active parts** of the deformation boundary zone between the Australian & Pacific tectonic plates.

A lot of the resulting risks are concentrated in Thorndon:

- Fault rupture
- Landslide
- Liquefaction
- Tsunami
- Fire

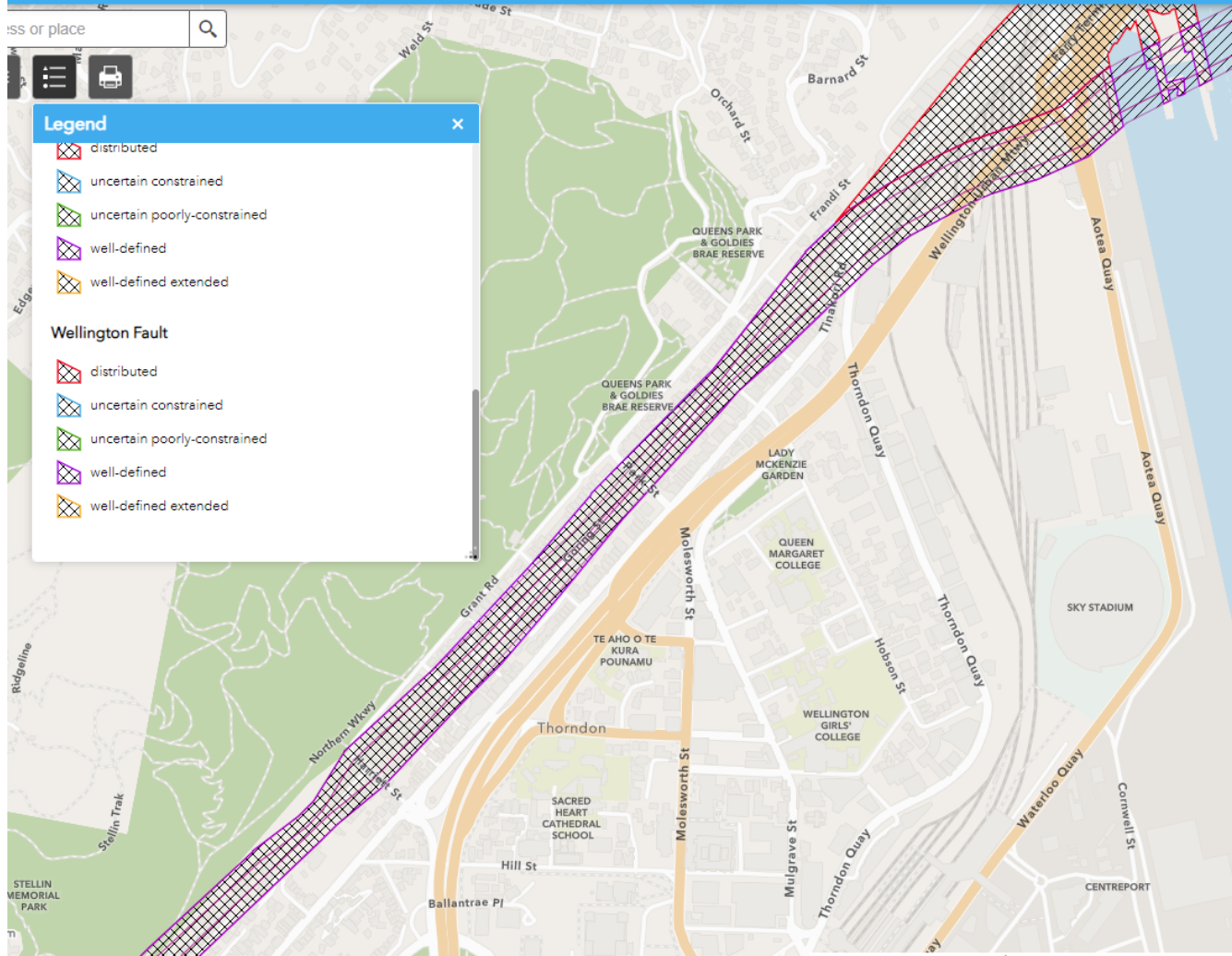
We also have:

- Flooding
- Infrastructure challenges

We're in a place where *vertical streets* (taller/denser residential buildings) have a risk of becoming vertical fortresses (no lift, water etc), or compromised in ways that can immediately displace from a single property, 100's of people and families.

The DP can be more nuanced to mitigate some of these risks; improve Thorndon and city resilience.

From both a life-safety standpoint and an overall resilience viewpoint, we challenge High Density residential zoning being promoted as appropriate for Thorndon.





Landslip caused by earthquake
near Wellington N Zealand Jan. 1855

Source

Landslip caused by earthquake near Wellington, January 1855, Watercolour by Charles Emilius Gold, 1809-1871.

Ref#: B-103-016, WCC Archives

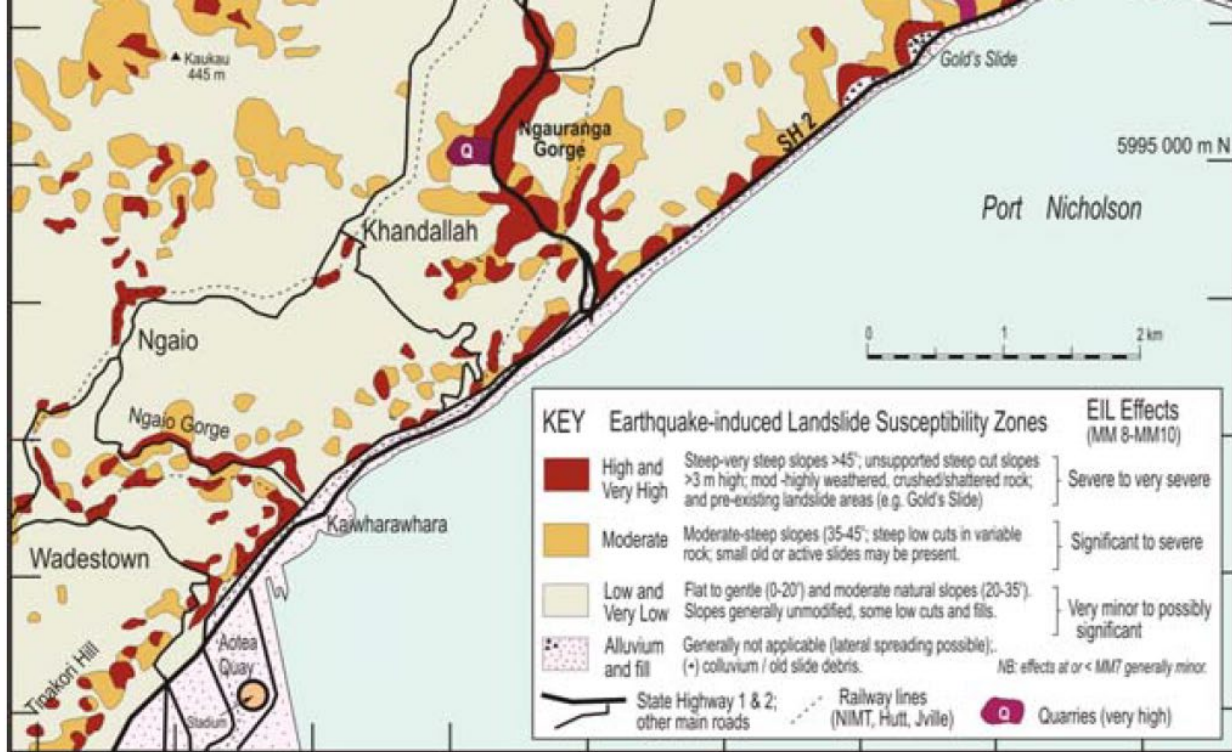
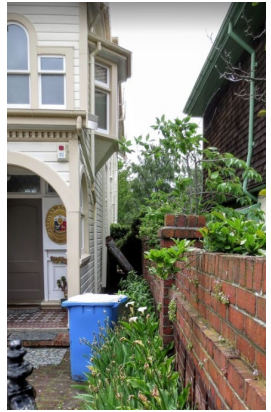
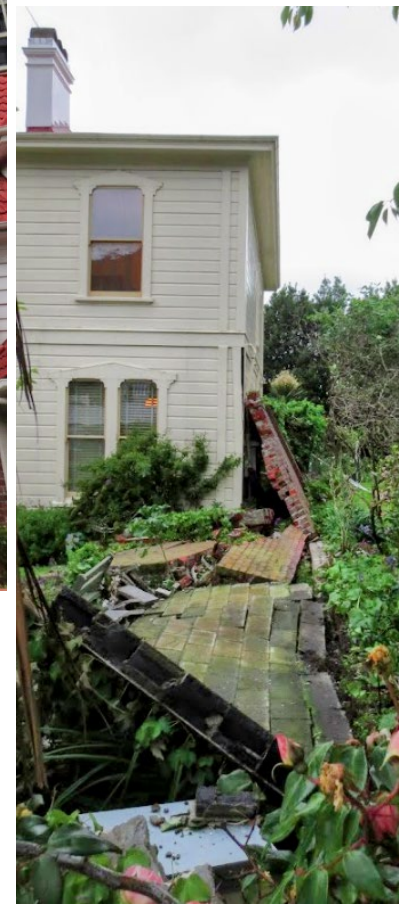


Figure 6. Earthquake-induced landslide hazard map of the Wellington to Petone area and potential severity of EIL damage and effects (after Brabhaharan et al. 1994).





~~Water !~~

Flood

THORNDON HERITAGE TRAIL

This area of Tinakori Road once had houses on both sides of the street; in fact by the early 1900s there were houses virtually all the way along the eastern side of the street from Molesworth Street to Grant Road. The building of the Wellington motorway in the late 1960s removed all evidence of these houses. Behind here in the area now occupied by the cement works was Little George Street or Saunders Lane.



1893

The area in front of you was once occupied by Little George Street used to be. This photograph of the street under flood was taken, in 1893, from Grant Road, roughly where you are standing. At the top of this photograph is 75 Tinakori Road, the house that Katherine Mansfield's family lived in from 1898 to 1907. This house was sited on the opposite side of Tinakori Road from this panel. In her book *The Birthday Party*, Mansfield described the houses across the road as "little manor dwellings painted chocolate brown". (Photo: Auckland Council Library)

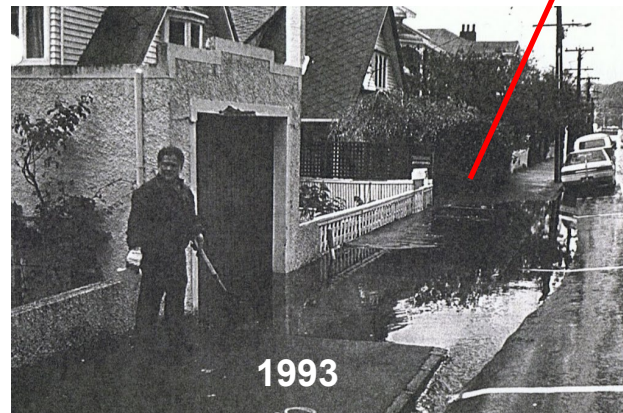
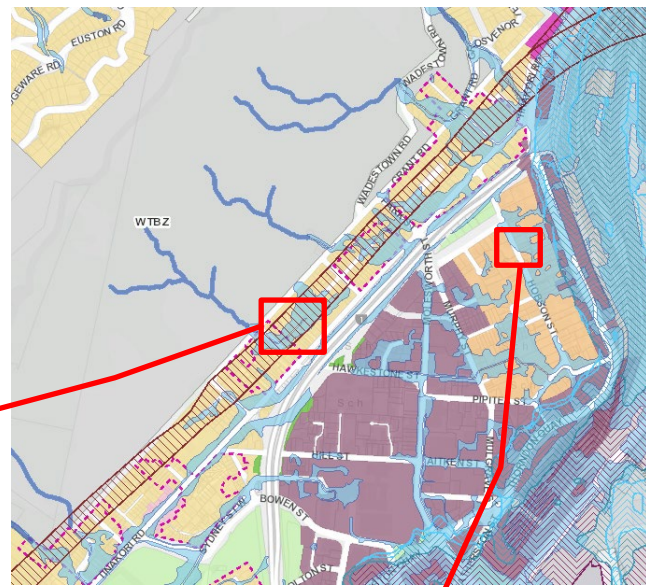
75 Tinakori Road some years after Katherine Mansfield's family lived there.



This page out of Sime's 1914-20 Street Directory of Wellington lists the names of the people who lived in Tinakori Street and their occupations. Most of the houses in this section of this page though few were owned by affluent people, and so their occupations reflect that. By contrast the little lanes that ran off Tinakori Road were populated by workers living in small dwellings. (Photo: Auckland Council)

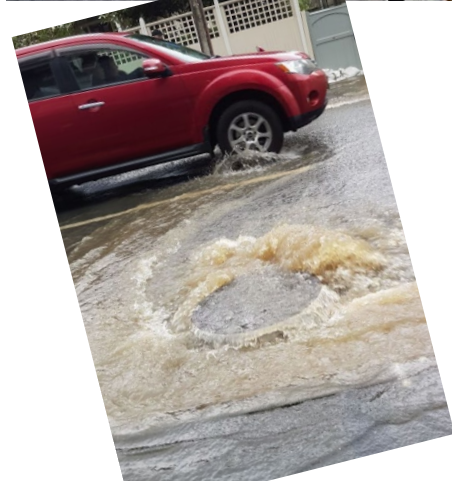
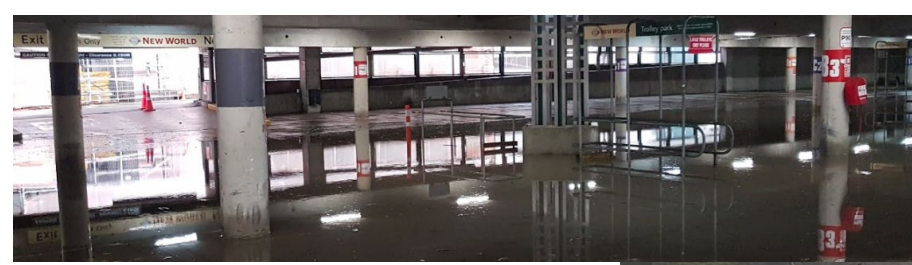


This section of Thomas Ward's 1891 map of Wellington shows, in remarkable detail, part of Tinakori Road and the street and lanes around it. The map reveals, among other things, not only where the houses were in relation to each other and the street, but how wide their street frontages were, the location of verandahs, how many rooms they had, their roof cladding, and their fence cladding. (Photo: Auckland Council Library)



1993





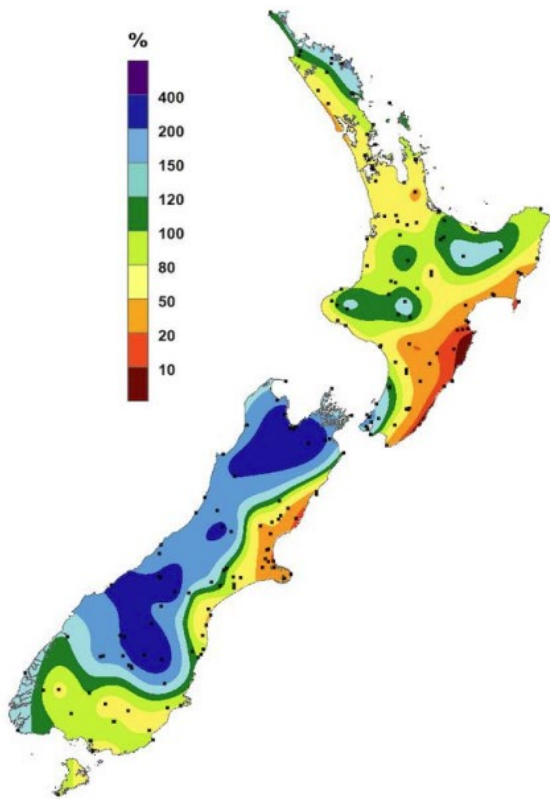
Video - Flood in Murphy St, July 2021

<https://photos.app.goo.gl/4MmzWPaqmMNbZxsa9>

Video - Flood in Wellington Girls College

<https://photos.app.goo.gl/D6owwx6sXMAEGCgT8>

Climate Change



NIWA National Climate Centre Monthly Climate Summary: July 2021 Heavy downpours and unseasonable warmth

Patches of above normal rainfall (120-149% of normal) were seen in **Wellington Central**.

Wellington experienced **pockets of flooding** and **slips** on **17 July**, with parts of SH1 impacted by a **burst wastewater main**. Fire and Emergency services responded to more than 60 calls within 30 minutes relating to flooding and **property damage**.

An **extreme 1-day rainfall total** (55mm) was recorded at **Wellington Airport**; 3rd-highest recorded since records began in 1958

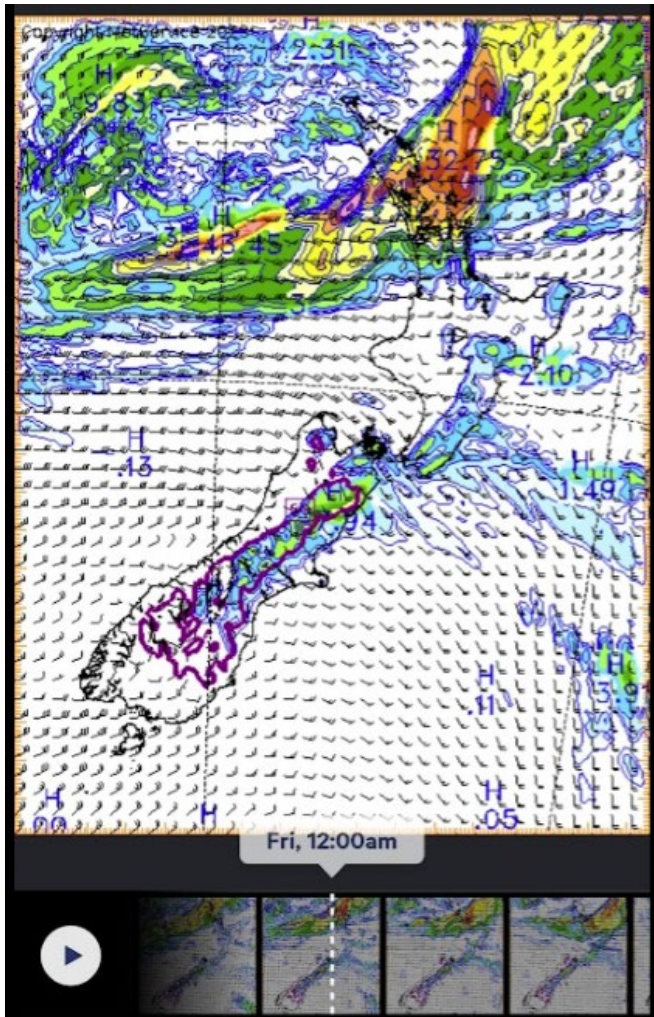
NB - a State of Emergency was declared in the Buller District. In the aftermath of the flood, at least 200 homes in Westport were deemed uninhabitable and the army was brought in to help clean the damage.

July rainfall

Expressed as a percentage of the 1981-2010 normal.

Source:

https://niwa.co.nz/sites/niwa.co.nz/files/Climate_Summary_July_2021_FINAL%5B1%5D.pdf



Prof James Renwick, Victoria University of Wellington, RNZ 30 January 2023

*“ Rain events have the potential to **more than double** what we’ve seen historically.*

*To make our cities more resilient an **important part is urban design**. Make sure we have green spaces between the concrete and asphalt, ... trees planted, and a lot of natural environment in the city.*

A significant rethink is needed about intensification in our urban settings.
We’re sailing into uncharted waters!



David Hall (He/Him) · 2nd

Climate Policy at Toha

Auckland, Auckland, New Zealand · [Contact info](#)

<https://academics.aut.ac.nz/david.hall>



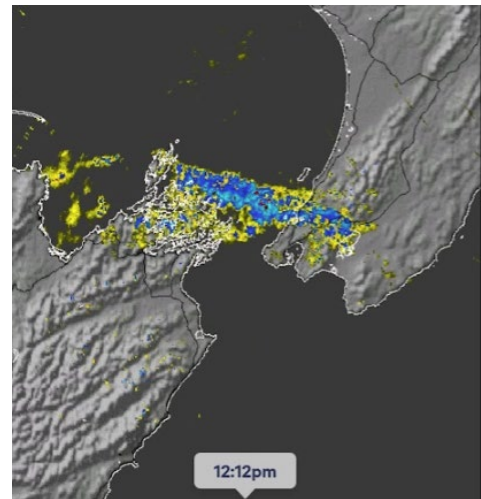
Toha NZ



University of Oxford

*“We need the grey infrastructure of stormwater systems, yes, but also the #greeninfrastructure of bioretention systems, permeable surfaces, green swales, urban forest, and other #naturebasedsolutions. We need to cast the climate adaptation lens over ***everything*** because the impacts are already upon us – and **more is on its way.**”*

<https://www.linkedin.com/in/dvdjnhll/>



Sinking cities

Why your town could have double the global rate of sea level rise



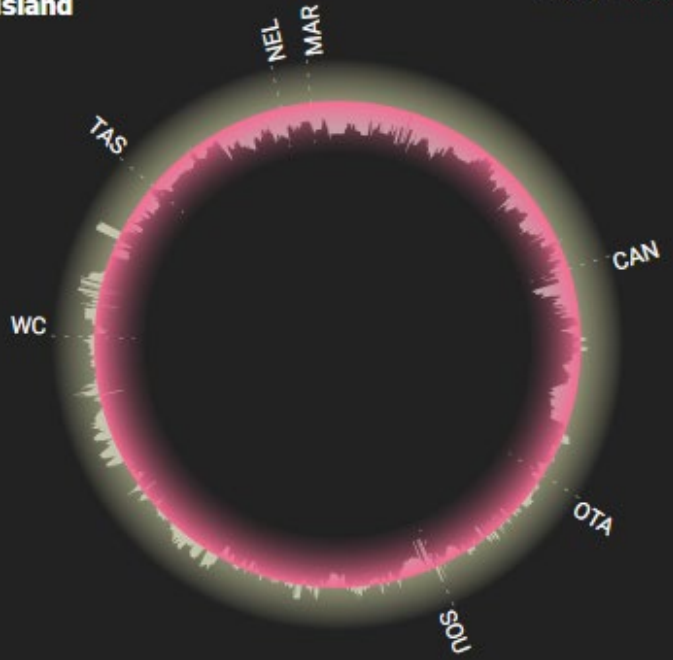
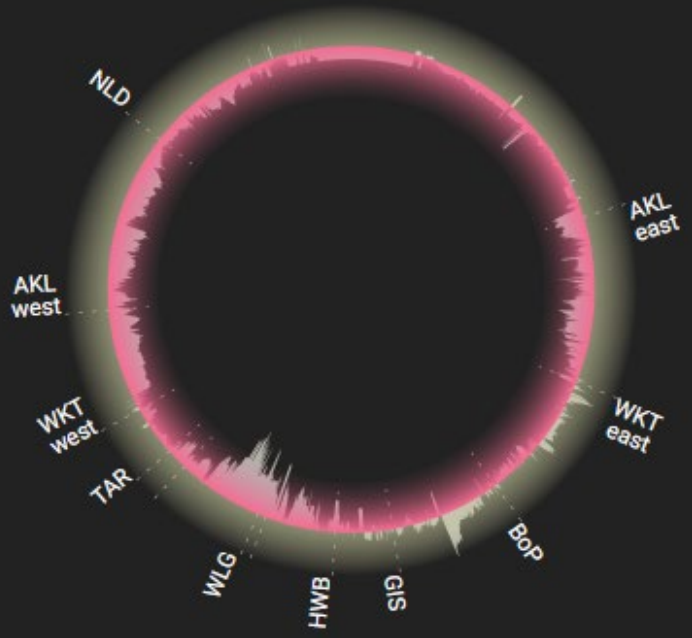
<https://interactives.stuff.co.nz/2022/04/sinking-cities-sea-level-rise/>

Where Aotearoa's coast is sinking or rising

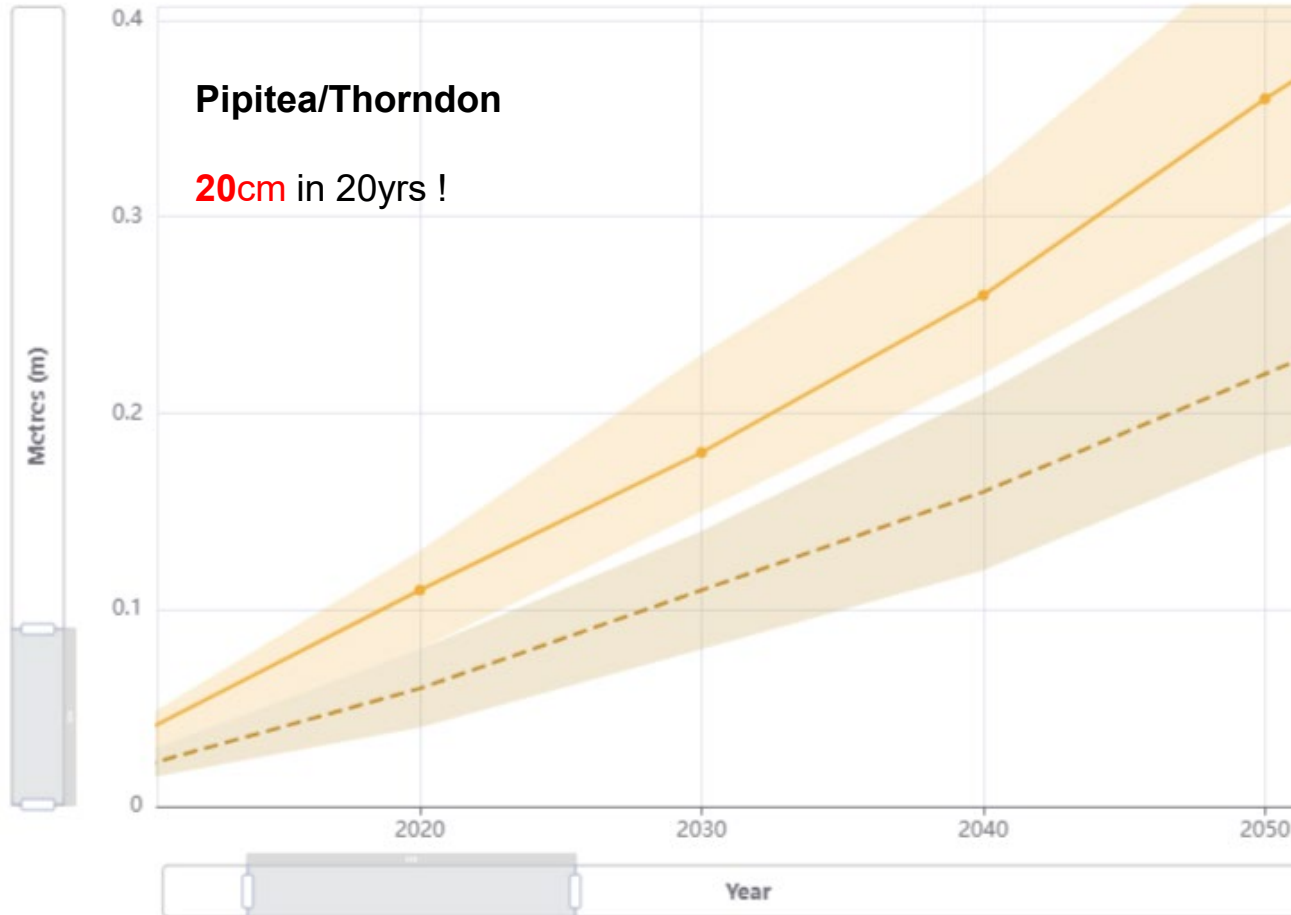
How to read this: *Shoreline clockwise*
Rising ← → Sinking

North island

South island



Sea Level Rise Predictions by Decade



3 Waters



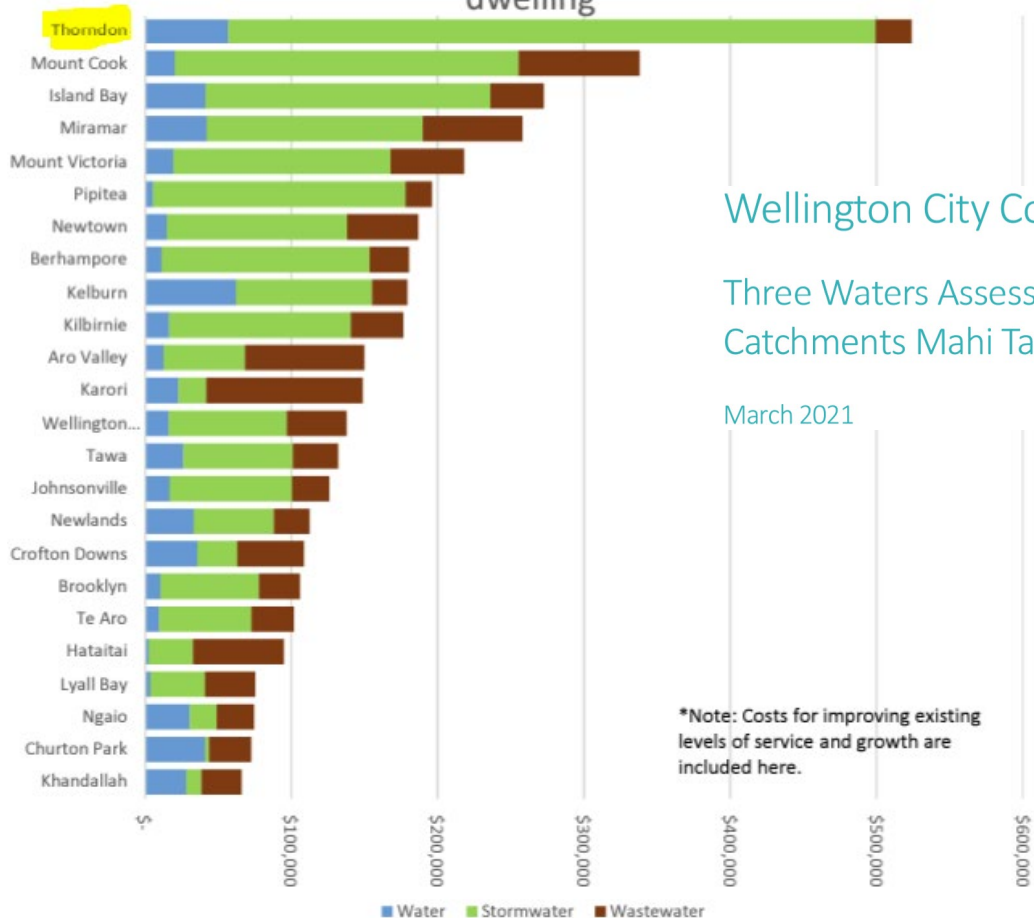
A sink hole in Hobson St

Original stormwater drain collapsed following an earthquake in 2013

Part of the route of the historic Pipitea Stream



WCC Spatial Plan: 3 Waters upgrade costs per new dwelling



Wellington City Council- Spatial Plan

Three Waters Assessment- Growth Catchments Mahi Table and Cost Estimates

March 2021

*Note: Costs for improving existing levels of service and growth are included here.

Resilience



Planning for Growth VS Planning for Resilience

The tension between coping in a fragile place, and intensification of urban development in that place

Ref: Wellington Lifelines Regional Resilience Project, rev 3, 2019

TRA's Community Resilience Planning work.

Thorndon and Pipitea Community Emergency Hub Guide



5

Your community's response

| IN THIS SECTION | |
|---|----|
| Local ideas and solutions for challenges you may face | 33 |
| Local resources | 34 |
| Local vulnerabilities | 36 |
| Checking on people and damage | 38 |
| Medical assistance | 40 |
| Shelter | 42 |
| Water | 44 |
| Food | 46 |
| Sanitation | 48 |
| Key resource statements | 49 |

Local vulnerabilities

During Community Response Planning the following potential vulnerabilities were identified. These may need further attention or assistance.

Places and spaces

- Note on map:
- › Landslides
 - › Fallen trees
 - › Flooding
 - › Liquefaction
 - › Fires
 - › Blocked roads
 - › Dangerous structures
 - › Anywhere in the tsunami zone
 - › Tinakori Hill
 - › Port area

Infrastructure

- Mark on map
- › Downed power lines
 - › Flooding from broken pipes
 - › Broken sewage pipes
 - › Blocked roads
- Other damage to key services

Relief sought

Apply a risk-based approach we challenge more High Density residential developments being appropriate for any of Thorndon's residential areas. From both a life-safety standpoint and an overall resilience viewpoint.

1) Note the extent of the fault hazard through a sizeable area of residential Thorndon, then recognise the community and wider valued **Residential Character** which is not similarly encumbered by an earthquake deformation zone or landslip hazards on the eastern side of the urban motorway.

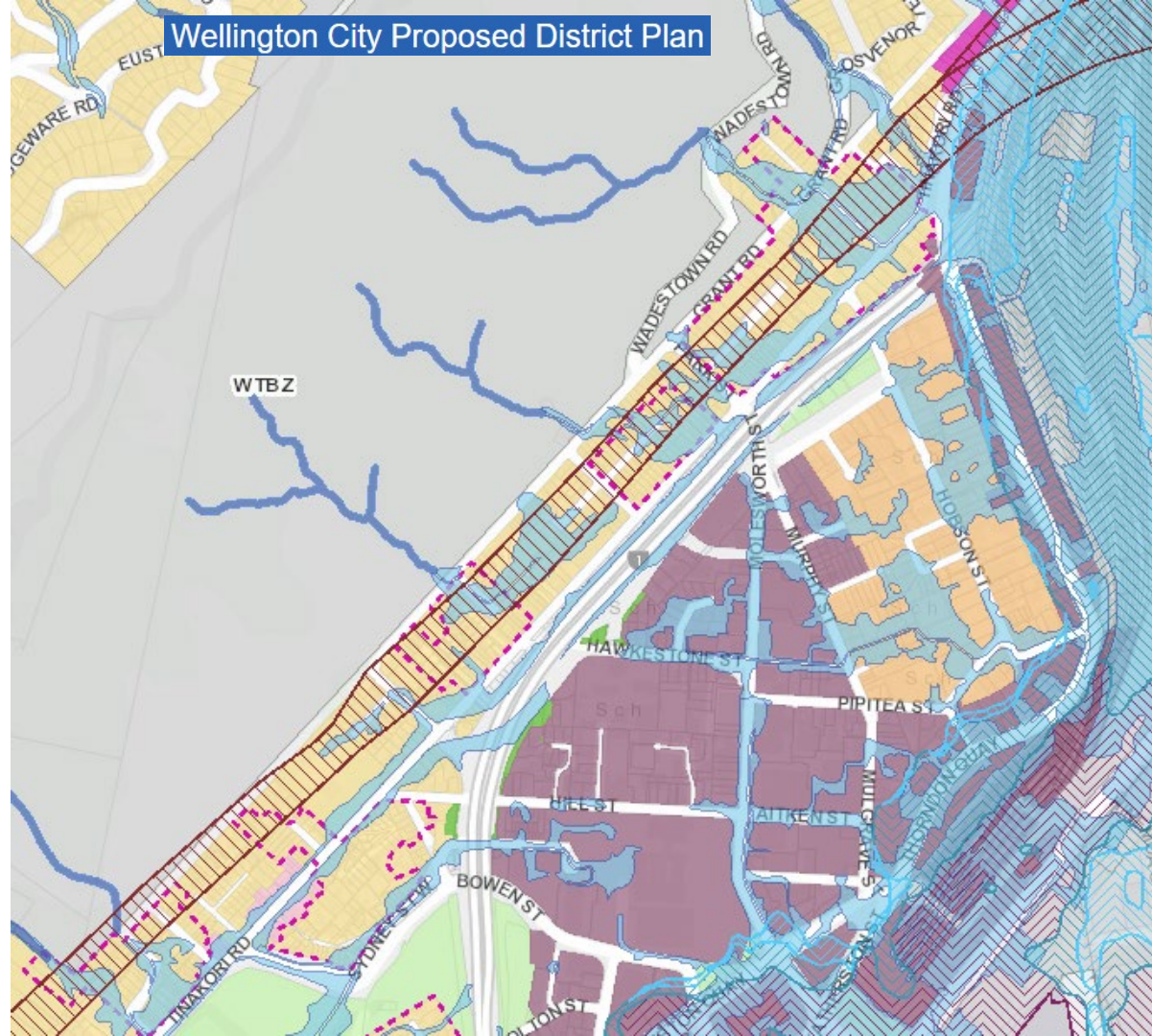
2) Apply a qualifying matter to residential Thorndon's unique mix of natural hazards; its location at the city's northern gateway, and the nexus of many city lifelines.

Use **Medium Density Residential Zoning** as a reasonable and prudent approach to mitigate over-development in this complex space. Benefits are to be derived are:

- avoiding extent of damage to property
- avoiding harm to people
- sacrifice higher density to achieve superior resilience

3) Noting the fragility, low capacity, and age of Thorndon's 3-waters infrastructure, constrain high density development.

Wellington City Proposed District Plan



- Zones**
- Large Lot Residential Zone
 - Medium Density Residential Zone
 - High Density Residential Zone
 - General Rural Zone
 - Neighbourhood Centre Zone
 - Local Centre Zone
 - Commercial Zone
 - Mixed Use Zone
 - Metropolitan Centre Zone
 - City Centre Zone
 - General Industrial Zone
 - Natural Open Space Zone
 - Open Space Zone
 - Sport and Active Recreation Zone
 - Special Purpose Zone

Character Precincts



Wellington Fault



Inundation Area



Stream Corridor



Low Coastal Tsunami Hazard



Thank you