

Quicker Safer Tsunami Evacuations

A research project designed to test 'agent based modelling', a newly developed method, to model tsunami evacuations

Background:



The models simulate the movement of people who have self-evacuated on foot, following a long or strong earthquake that could have caused a large tsunami.

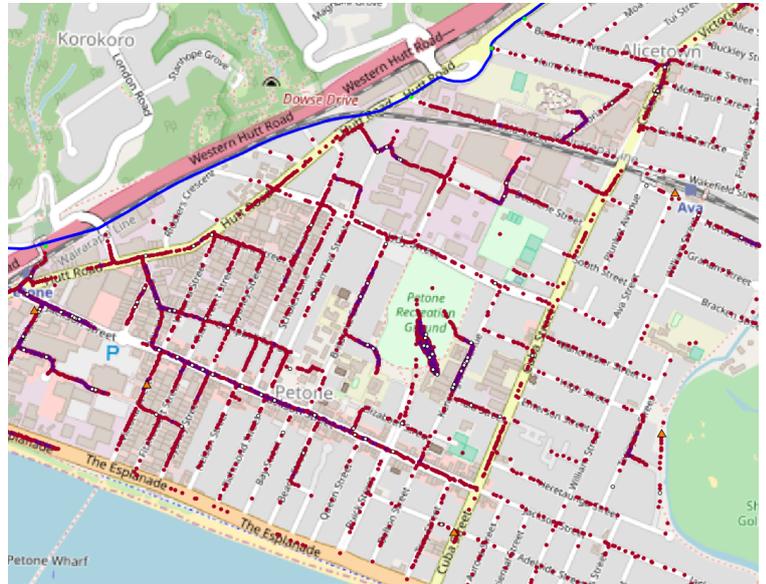


The models show how long it may take people to get to safety and likely areas of congestion during a day and night-time scenario.



Improvements were made to the models to include local knowledge collected at public workshops and look at options to make evacuations quicker and safer. For example, vertical evacuation structures.

Case Study: Lower Hutt



Findings:

📍 Waione

- The greatest time and distance to safety
- The shortest route to safety is over the Waione Street Bridge, which may not be safe after a large earthquake

📍 Petone

- The majority of residents are likely to head to the western hills but there are only a few places to cross SH2 and the railway line. These crossing points are potential bottlenecks.

📍 Seaview

- Large daytime population, and the nearest high ground is on the eastern hills
- There are only a few tracks that lead up these hills
- Tracks are often unsigned, overgrown and steep and may cross private property
- The very low-lying land around Port Road may get flooded earlier than other areas, by small waves generated within the harbour
- The Ava railway bridge over the Hutt River may not be safe after a big earthquake and has limited capacity (single file only)

Recommendations:

Short term:

Family & friends

1. **Make a plan with whanau & friends** - what route you will take and where you will meet
2. **Practice your tsunami evacuation hiko** including **alternative routes** - hills, tracks may be subject to landslides
3. **Record your tsunami hiko data** - validate our models
4. **Share what you know with others** - prompt their thinking

Community

1. **Improve evacuation routes and efficiency of movement**
2. **Identify safe location meeting points**



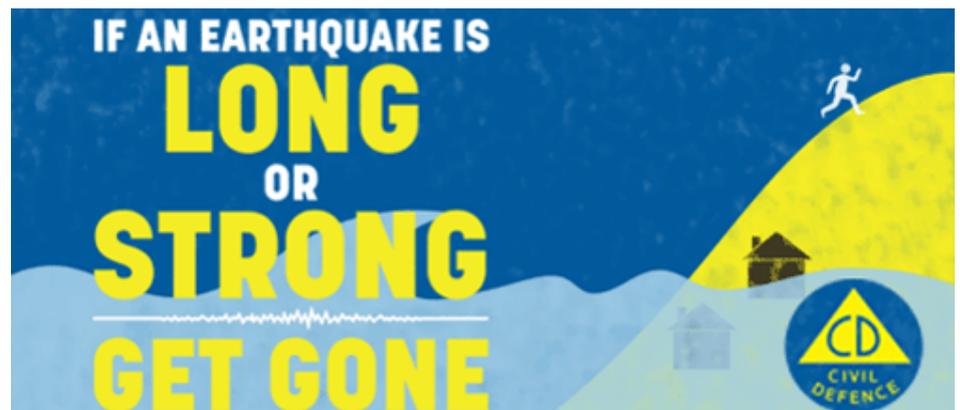
Long term:

Local government

1. **Improved, more targeted public education**
2. **Land use planning** - where development is limited or controlled to reduce the type of activities situated within buildings in hazard zones
3. **Explore vertical evacuations structures.** Consider:
 - How many structures would be needed
 - The location of the structure(s)
 - The type of the structure(s)
 - How the structure(s) would be funded
 - Likelihood of use eg. Perceptions of safety

Note: Ministry of Business Innovation & Employment are currently working on guidelines for vertical evacuation structures

This two year research project funded by Natural Hazards Research Platform was led by GNS Science, Massey University, East Coast LAB, University of Canterbury with the support of local communities, Councils & Civil Defence Emergency Management groups



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