# Quicker Safer Tsunami Evacuations

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

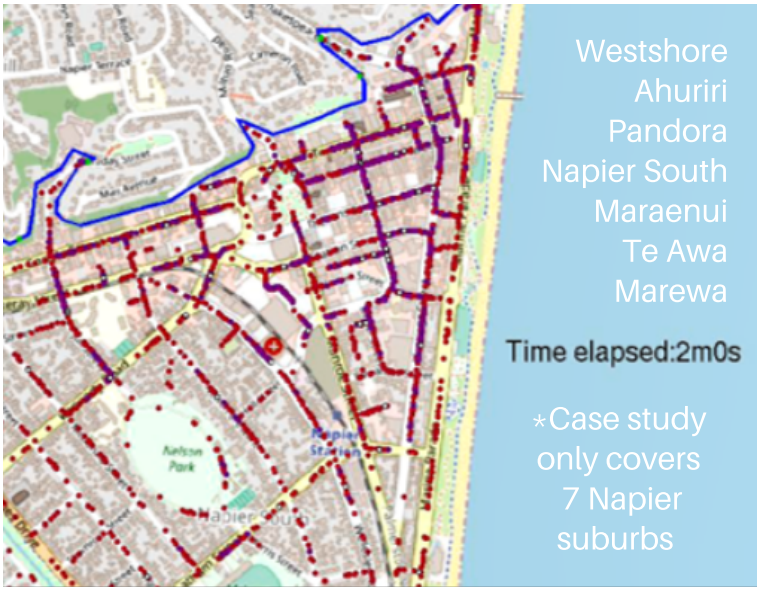
## Background:

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: Napier




## Findings:

### Maraenui, Te Awa, & Marewa

- Maraenui residents have some of the largest distances to cover and longest times to reach safety
- The shortest route to safety is towards the southwest end of Napier Hill
- The tracks up the hill are likely to get congested, especially outside of working hours

### Napier South

- The shortest route to safety is towards Napier Hill.
- The tracks up the hill are likely to be congested, especially during working hours.

### Westshore

- The shortest route to safety is towards Napier Hill but this involves crossing the Pandora Bridge, which may not be safe after the earthquake
- The distance from the north end of Westshore to Napier Hill is quite long, some evacuees may still be on the Pandora Bridge when the main tsunami waves arrive

### Napier Hill

- The tracks up Napier Hill could become very congested.Napier Hill will have an influx of evacuees
- It is very important that people keep moving once they have crossed into the safe zone to make space for new people arriving

# 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 hīkoi**
3. **Record you tsunami hīkoi data** – validate our models
4. **Share what you know with the others** – help 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 including directional signage**
**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. C**onsider:
-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:** NZ does not currently have building guidelines for vertical evacuation structures.

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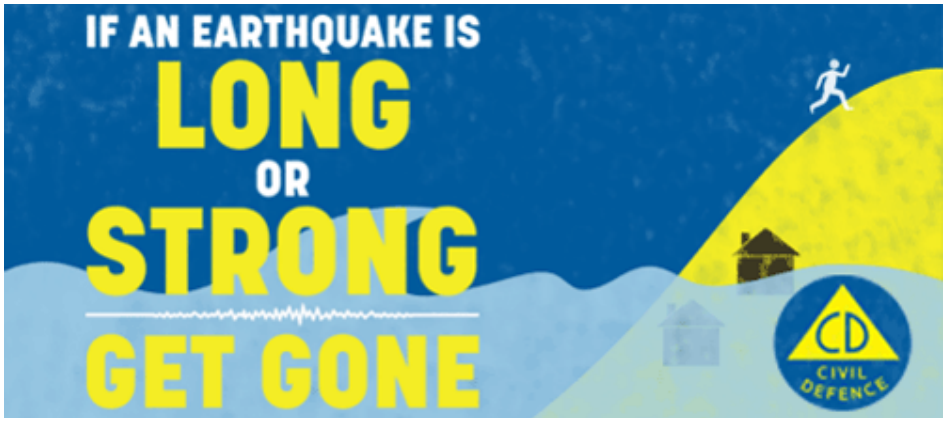


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