

PREFERRED OPTIONS

WWW.DUNEDIN.GOV.T.NZ/2GP

Outline of presentation



- Why are we doing this?
- How have we done it?
- What it means for you?

The District Plan



- Required by Resource Management Act
- Manages the effects of land use to achieve sustainable management of Dunedin's natural and physical resources
- Reviewed every 10 years
- Keep a record of natural hazards
- Manage land use to avoid or mitigate the effects of natural hazards
- Consider the effects of climate change

2GP Consultation Process



2GP Strategic Directions



Natural Hazard Goals

- Protection of life
- Minimise risk of injury and risk to health
- Minimise damage to property
- Create liveable communities
 - People able to live without stress and fear
 - Appropriate development - affordable and appropriate infrastructure

Approach to Risk



Risk management focus:

- a) high probability
- b) low probability but high potential impact

Goal:

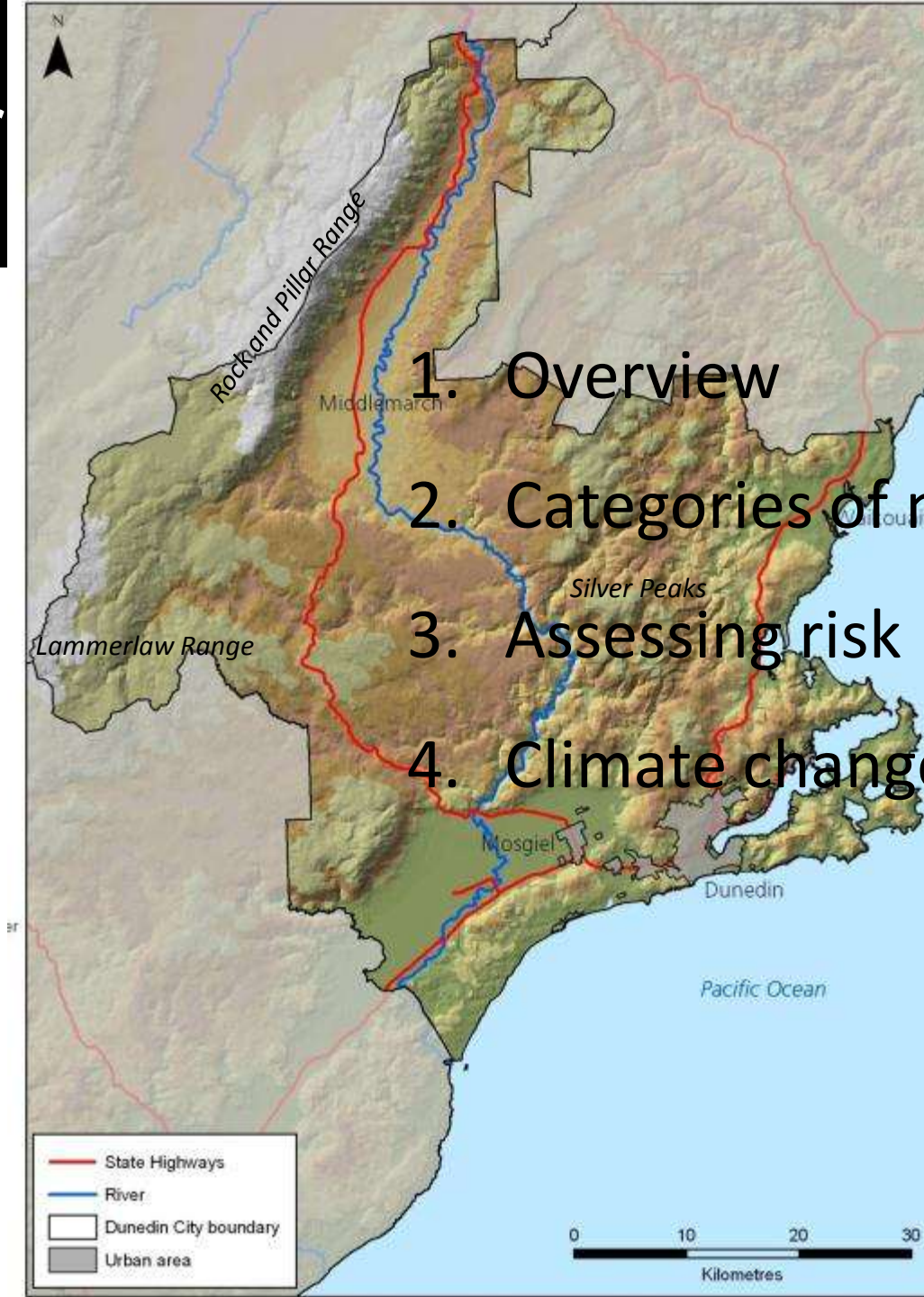
- a) To respond to risks in a balanced, reasonable manner
- b) Ability to use land weighed against significance of risk

Outline of presentation



- Why are we doing this?
- How have we done it?
- What it means for you?

Natur



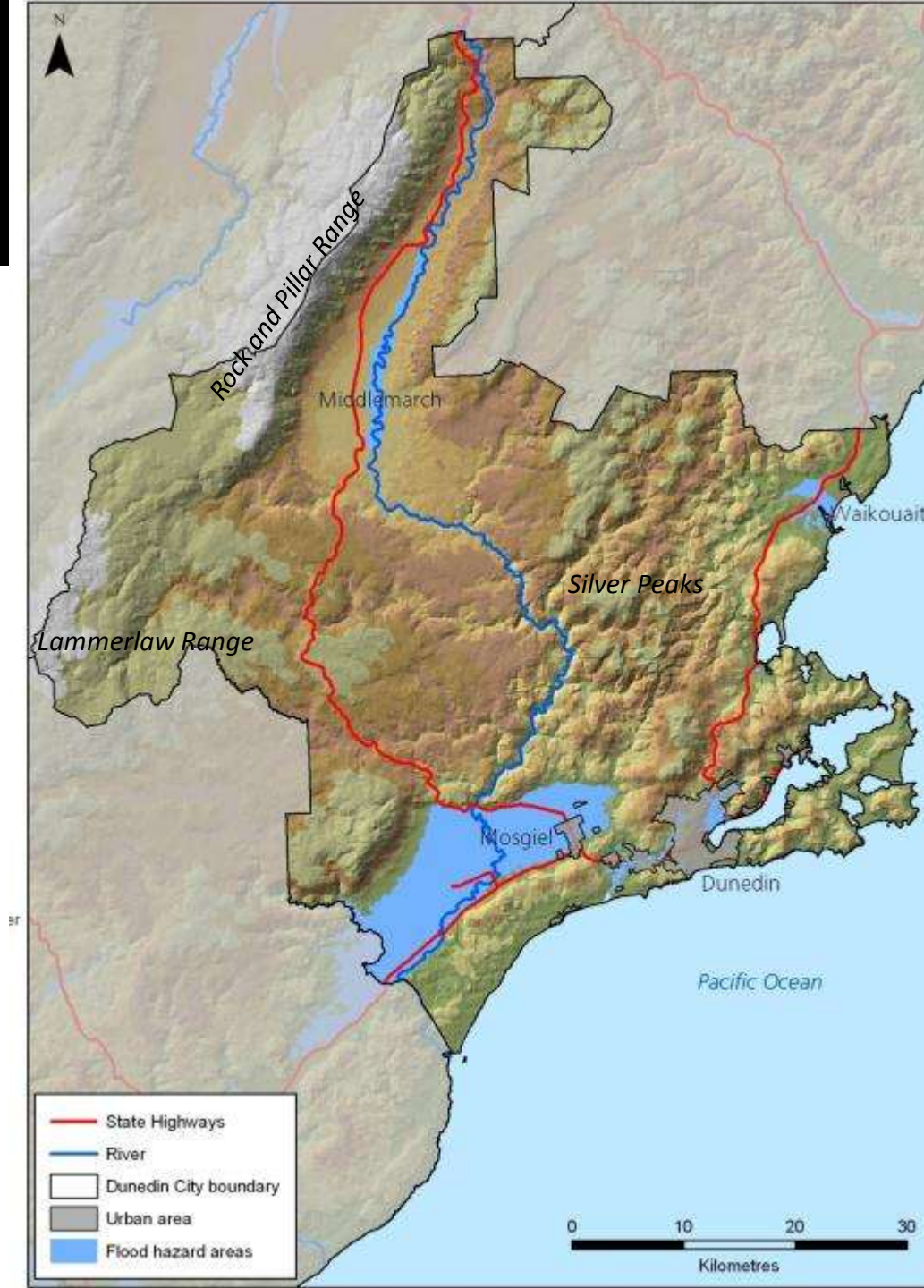
1. Overview

2. Categories of natural hazards

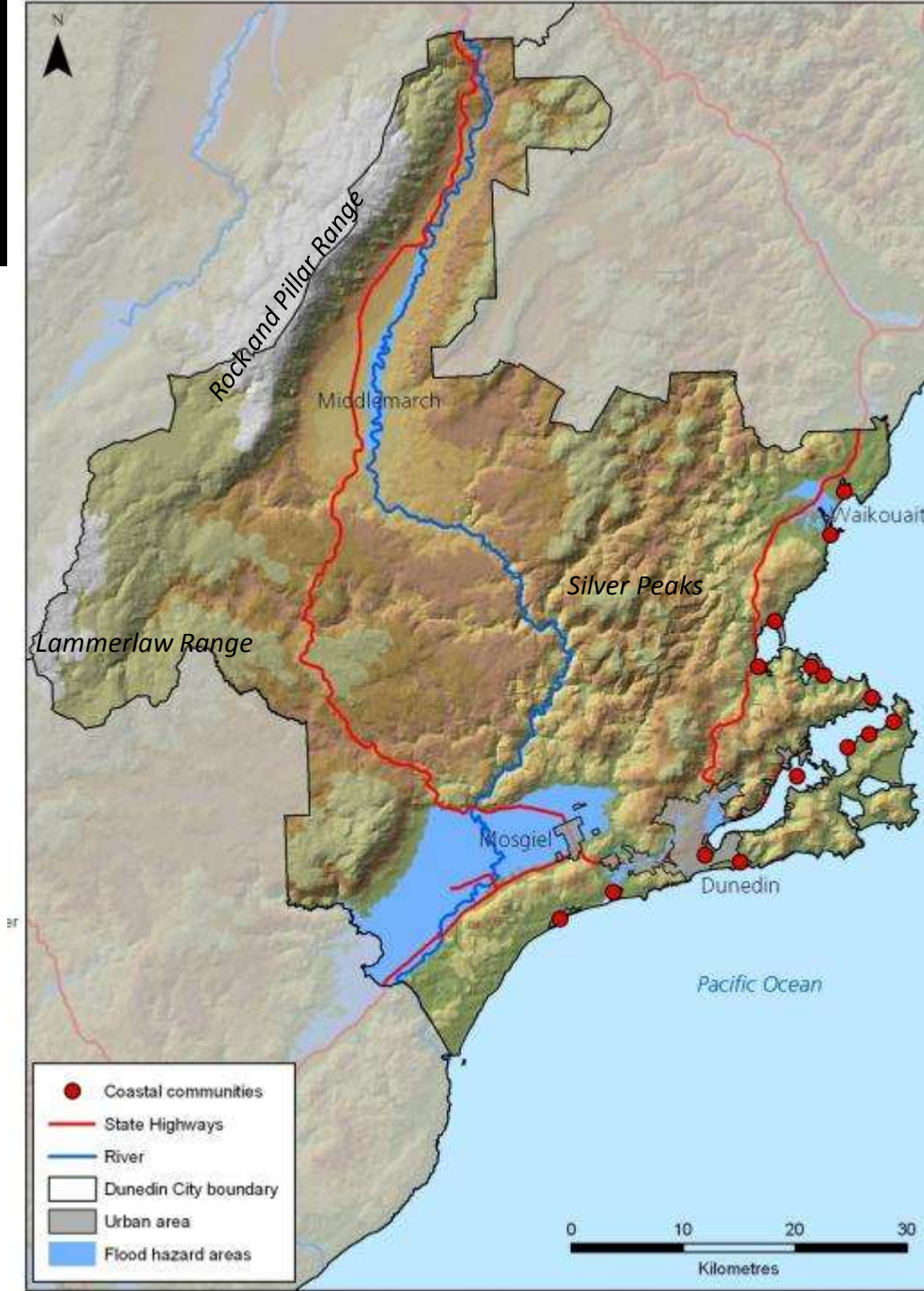
3. Assessing risk

4. Climate change / sea-level rise

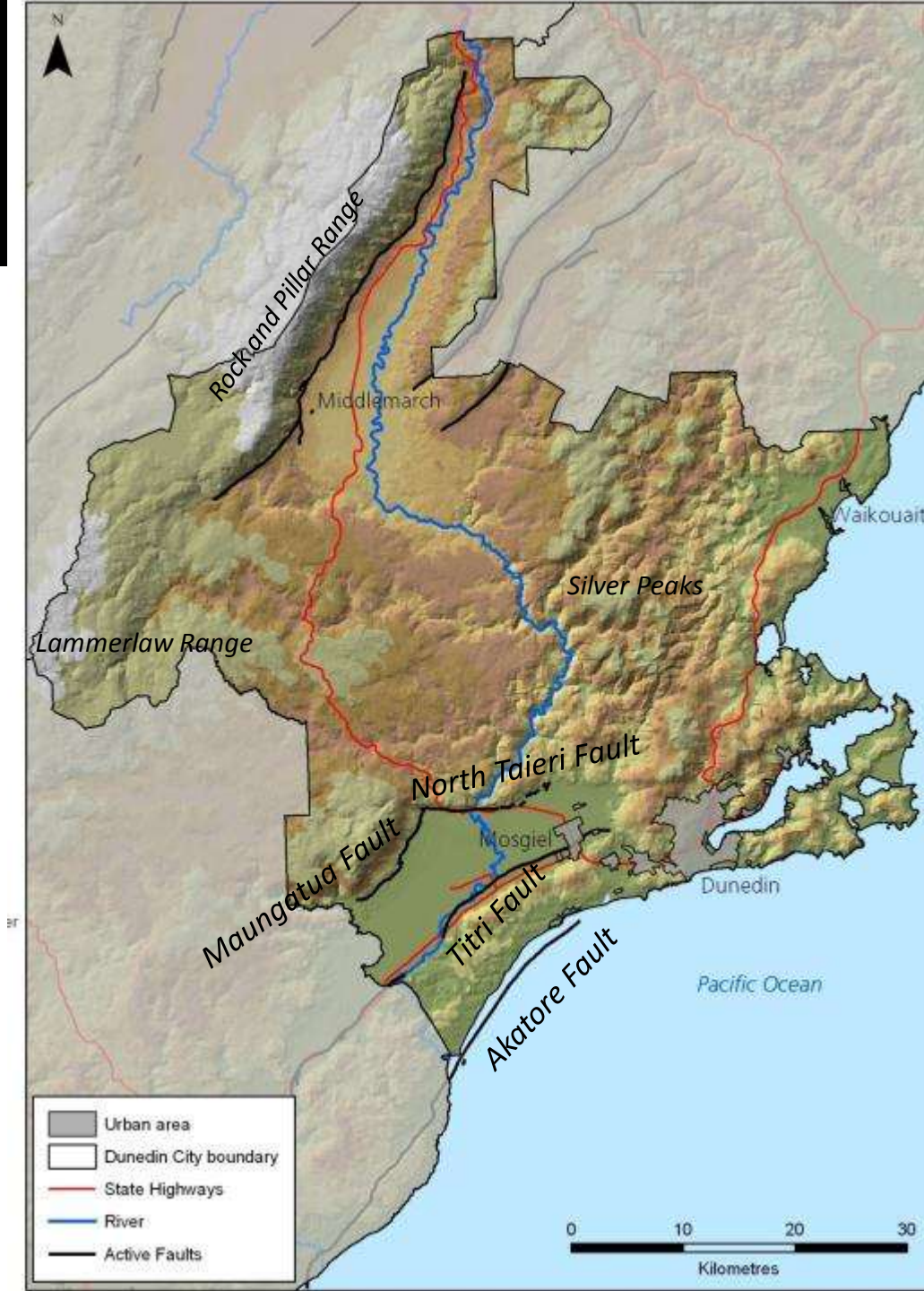




Flood

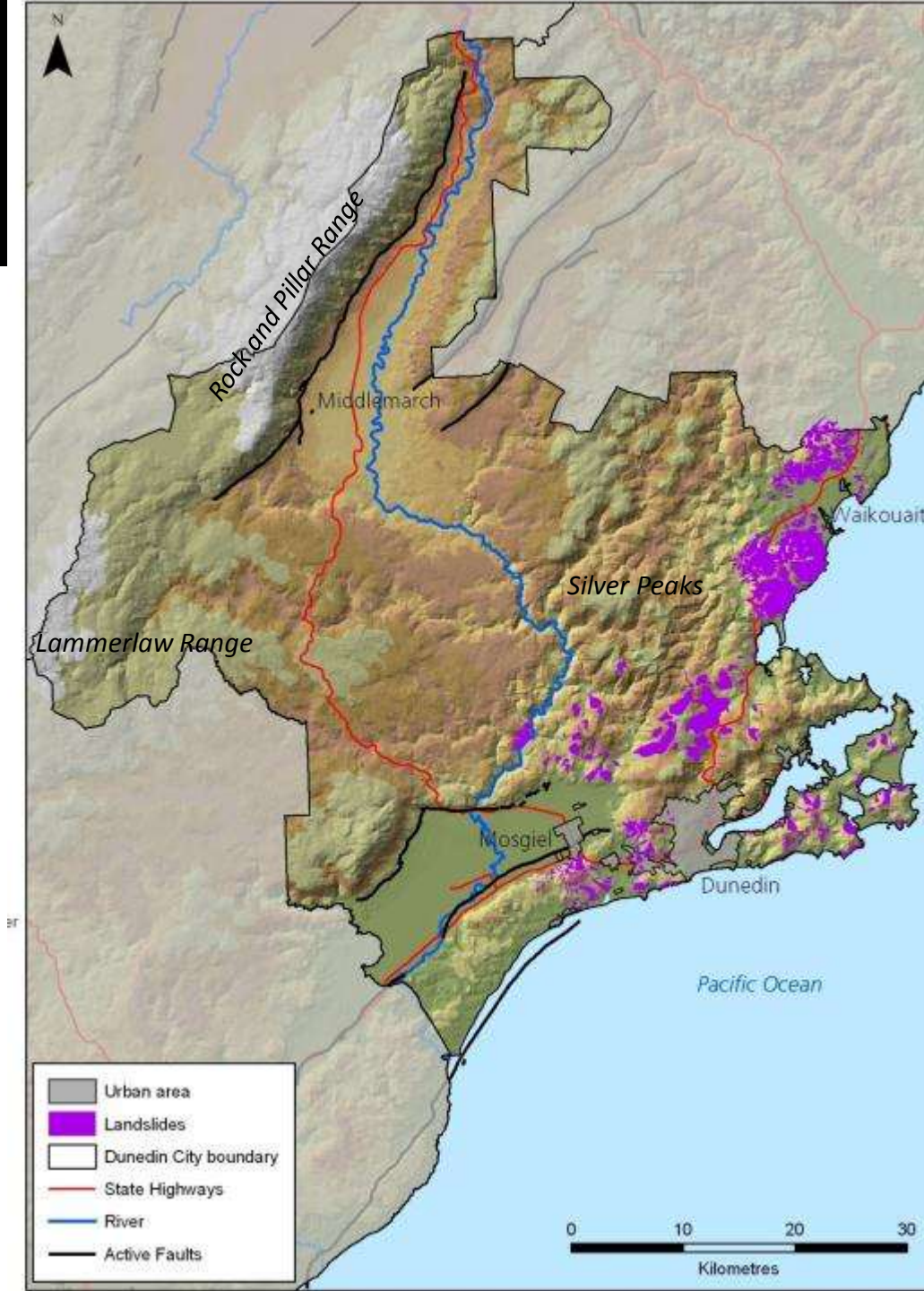


Coastal



Land-based:

- Seismic



Land-based:

- Landslide

Natural hazard categories



Flood:

- Alluvial fans
- Rivers
- Overland flow
- Ponding areas

Coastal:

- Storm surge, tsunami
- Erosion
- Sea-level rise

Land:

- Landslides / rockfall
- Liquefaction



**Wainui Bay, Tasman District
December 2011**

Natural hazard categories



**Kaikorai Stream above Main
South Road Bridge, March
1994**

Flood:

- Alluvial fans
- **Rivers**
- Overland flow
- Ponding areas

Coastal:

- Storm surge, tsunami
- Erosion
- Sea-level rise

Land:

- Landslides / rockfall
- Liquefaction

Natural hazard categories



Flood:

- Alluvial fans
- Rivers
- **Overland flow**
- Ponding areas

Coastal:

- Storm surge, tsunami
- Erosion
- Sea-level rise

Land:

- Landslides / rockfall
- Liquefaction



Overland flow from Water of Leith,
Cumberland Street, May 1923

Natural hazard categories



North Taieri,
April 2006

Flood:

- Alluvial fans
- Rivers
- Overland flow
- **Ponding areas**

Coastal:

- Storm surge, tsunami
- Erosion
- Sea-level rise

Land:

- Landslides / rockfall
- Liquefaction

Natural hazard categories



Natural hazard categories



Flood:

- Alluvial fans
- Rivers
- Overland flow
- Ponding areas



Coastal:

- **Storm surge, tsunami**
- Erosion
- Sea-level rise

Land:

- Landslides / rockfall
- Liquefaction

Harwood, July 2011

(source: ODT)

Natural hazard categories



St Kilda
Beach,
2007



Flood:

- Alluvial fans
- Rivers
- Overland flow
- Ponding areas

Coastal:

- Storm surge, tsunami
- **Erosion**
- Sea-level rise

Land:

- Landslides / rockfall
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Natural hazard categories



Flood:

- Alluvial fans
- Rivers
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Coastal:

- Storm surge, tsunami
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- **Sea-level rise**

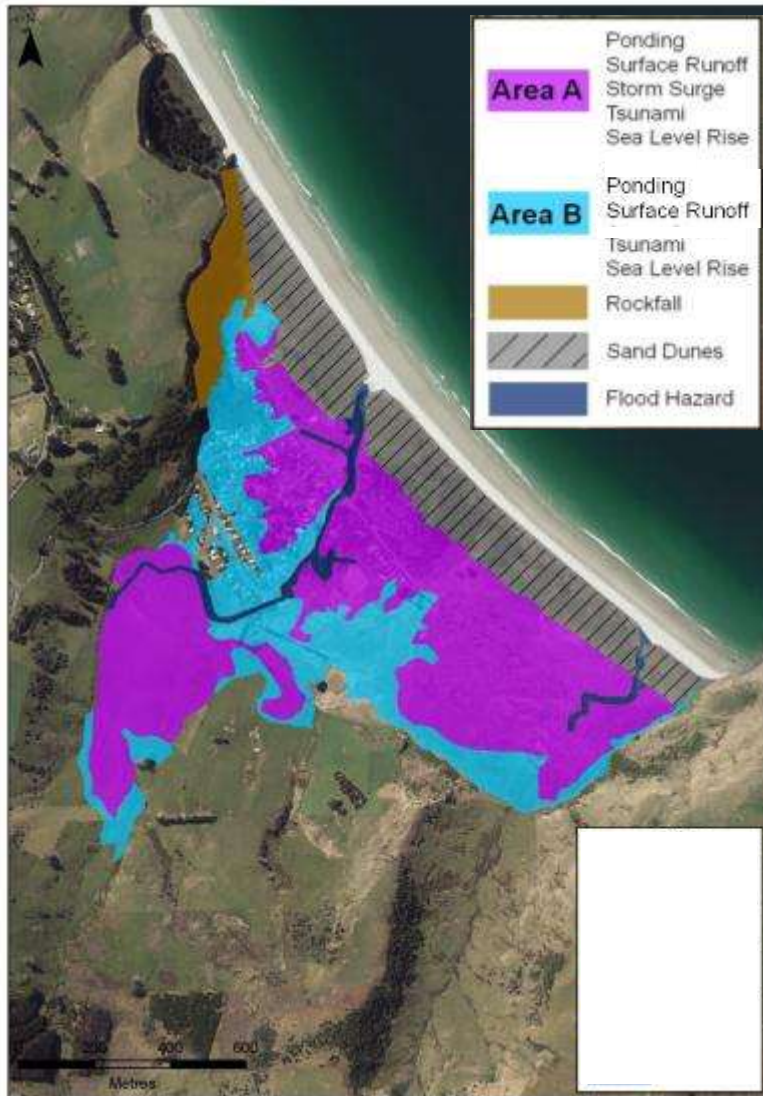
Land:

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- Liquefaction



Teviot Street,
June 2013

Natural hazard categories



Flood:

- Alluvial fans
- Rivers
- Overland flow
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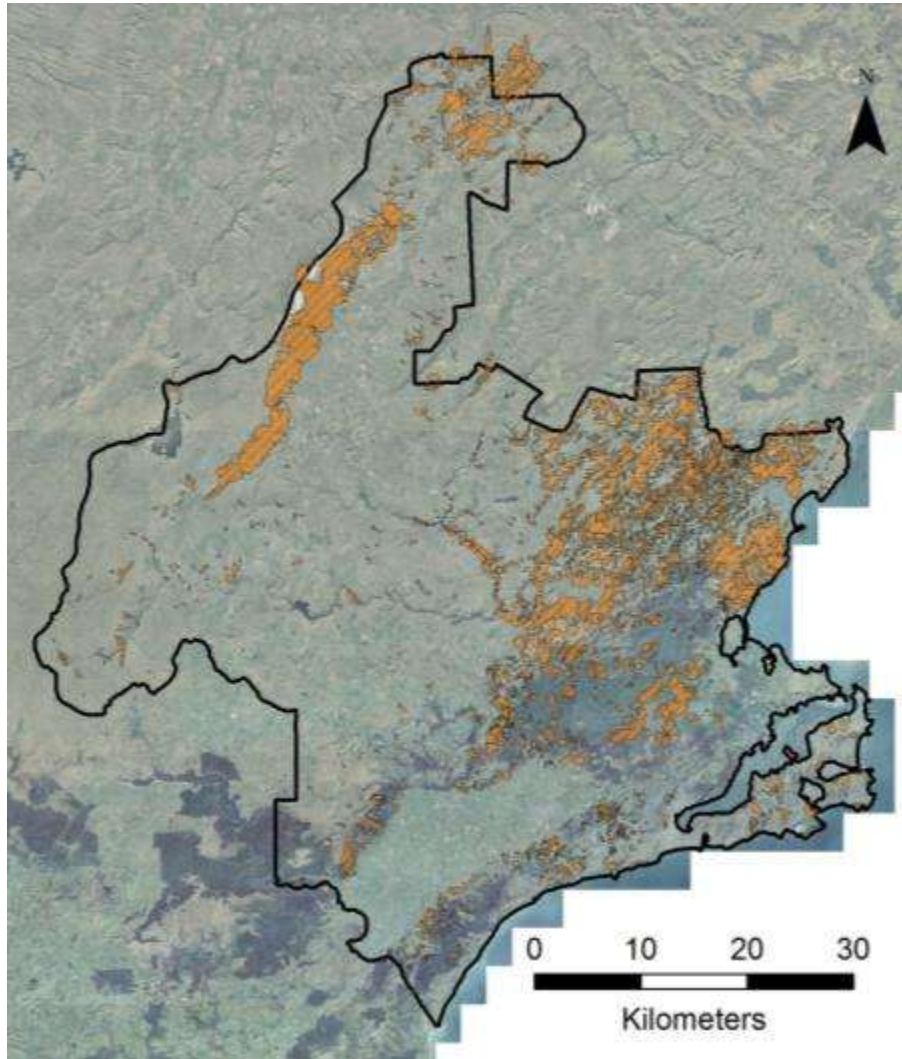
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- **Storm surge, tsunami**
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Natural hazard categories



Flood:

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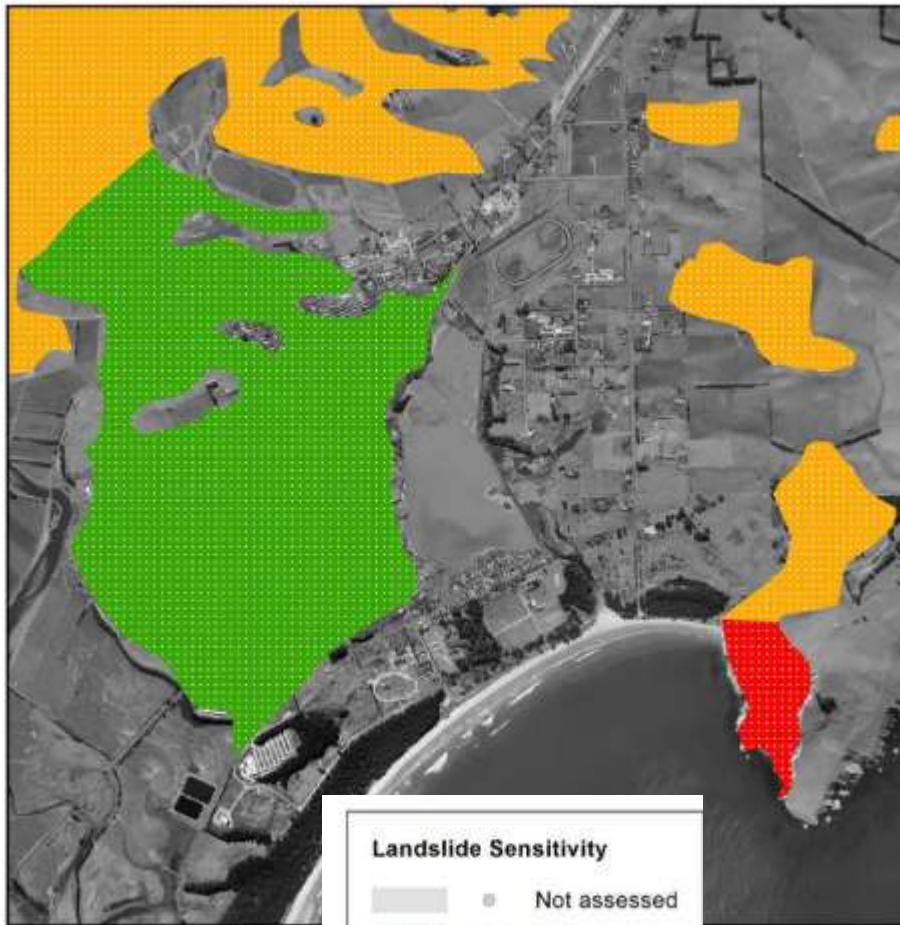
Coastal:

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Land:

- **Landslides / rockfall**
- Liquefaction

Natural hazard categories



Landslide Sensitivity

Not assessed	Not assessed
Low	Low
Moderate	Moderate
High	High

Flood:

- Alluvial fans
- Rivers
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Coastal:

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Land:

- **Landslides / rockfall**
- Liquefaction

Natural hazard categories



Christchurch, February 2011



Flood:

- Alluvial fans
- Rivers
- Overland flow
- Ponding areas

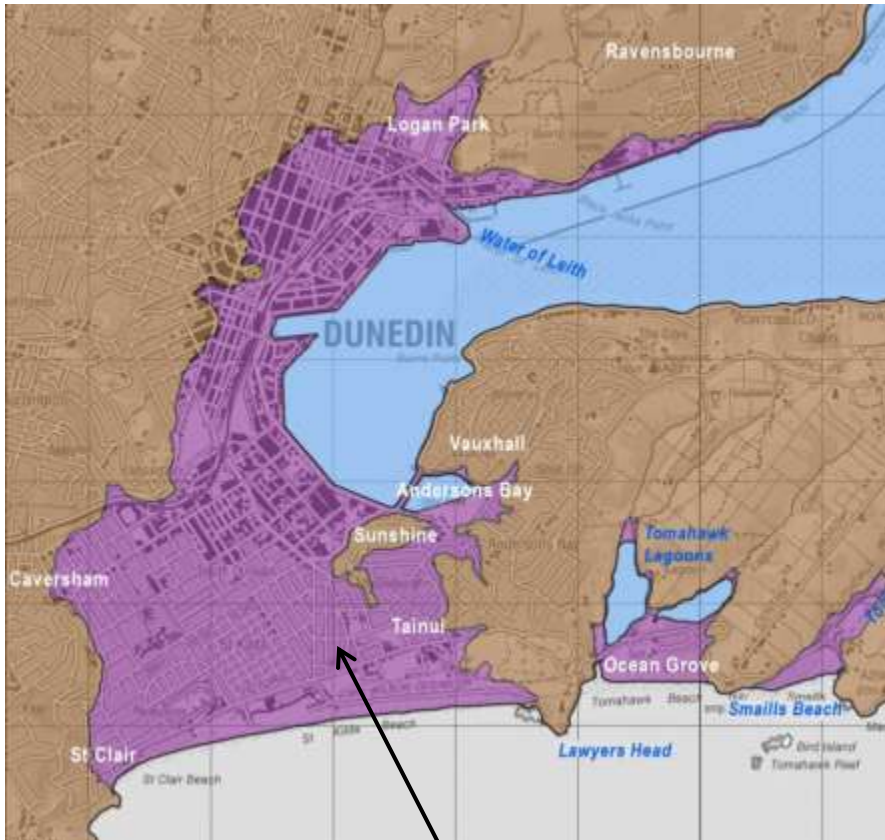
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Land:

- Landslides / rockfall
- **Liquefaction**

Natural hazard categories



Flood:

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- Rivers
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Coastal:

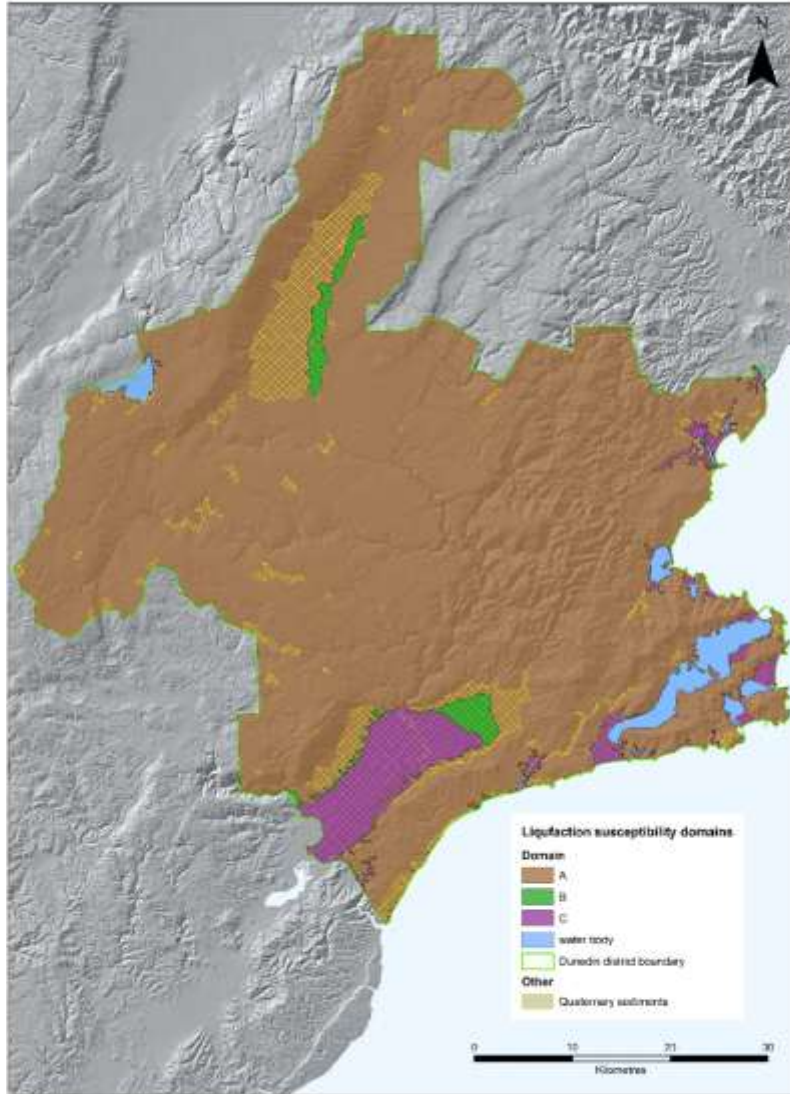
- Storm surge, tsunami
- Erosion
- Sea-level rise

Land:

- Poorly consolidated marine or estuarine sediments with shallow water table
- Moderate to high likelihood of liquefaction-susceptible materials being present

- Landslides / rockfall
- **Liquefaction**

Natural hazard categories



Flood:

- Alluvial fans
- Rivers
- Overland flow
- Ponding areas

Coastal:

- Storm surge, tsunami
- Erosion
- Sea-level rise

Land:

- Landslides / rockfall
- **Liquefaction**

Risk assessment



1. Consider *all* hazards...
2. Likelihood over *longer term*
3. Impact of *repeat events*
4. *Consequences* of the hazard

Risk assessment



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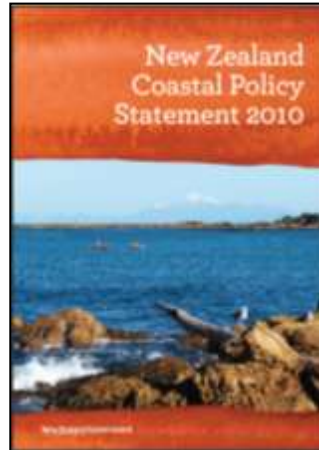
Risk assessment



**Abbotsford
landslide, August
1979**

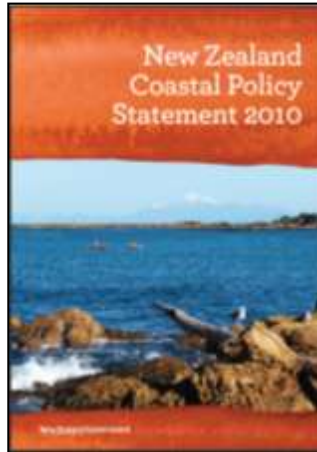
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2. Likelihood over *longer term*
3. Impact of *repeat* events
4. *Consequences* of the hazard

Climate change



1. Assessment been guided by
 - National / International guidance
2. Effects of 'extreme' events
 - Rainfall & storminess
 - Flood magnitude
 - Landslide initiation
 - Alluvial fans

Sea-level rise



1. Assessment been guided by
 - National / International guidance
 - Coastal Policy Statement
2. Used most recent guidance
 - 1m sea-level rise by 2115
 - 10mm/year beyond 2100

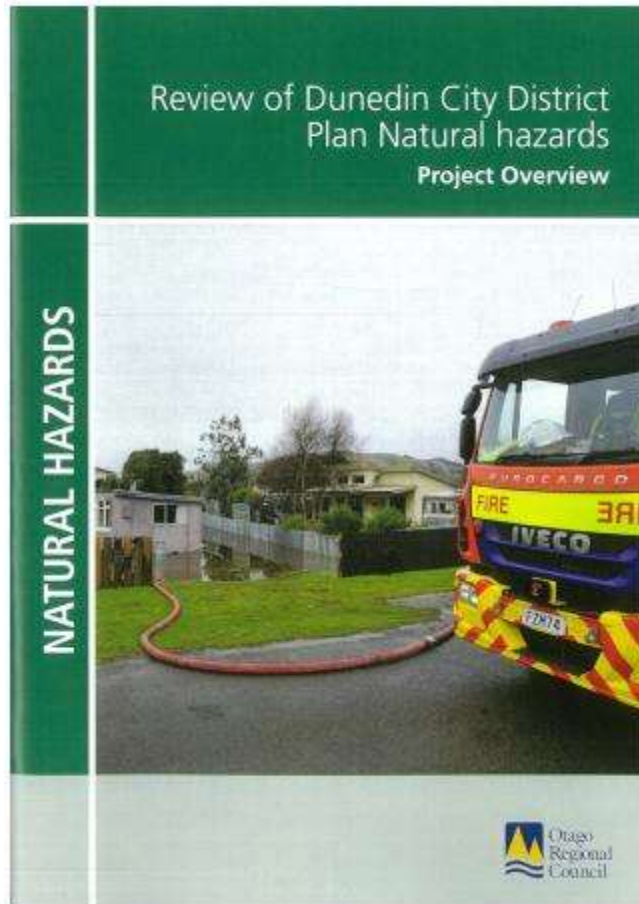
Natural hazards not assessed



- Snow
- Wind
- Drought
- Fire

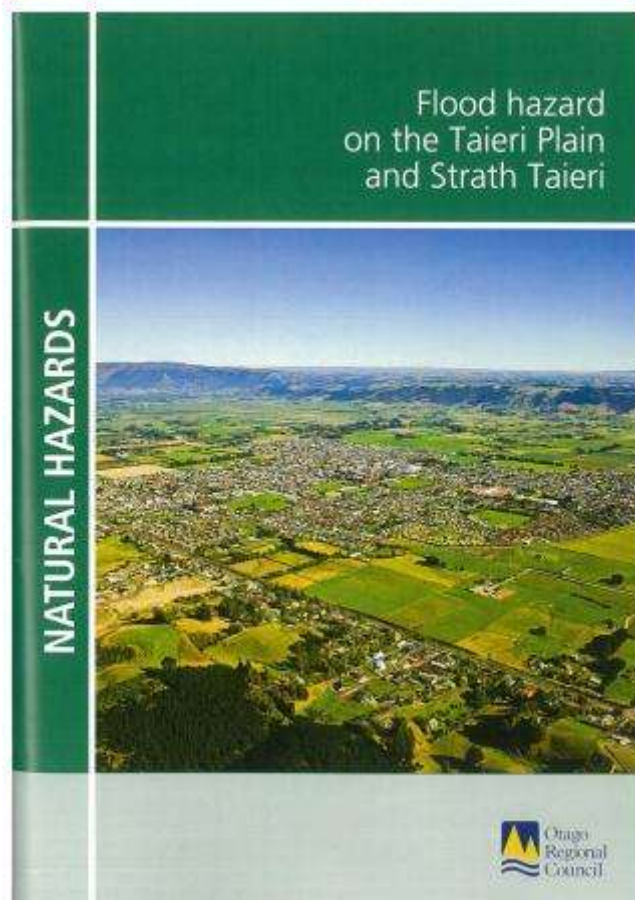
Managed through the Building Act (2004), and NZ Standards (eg, 3604).

Sources of information



1. **Project overview**
2. Technical reports
3. ORC website
 - www.orc.govt.nz
 - Publications and reports
 - Natural hazards database

Sources of information

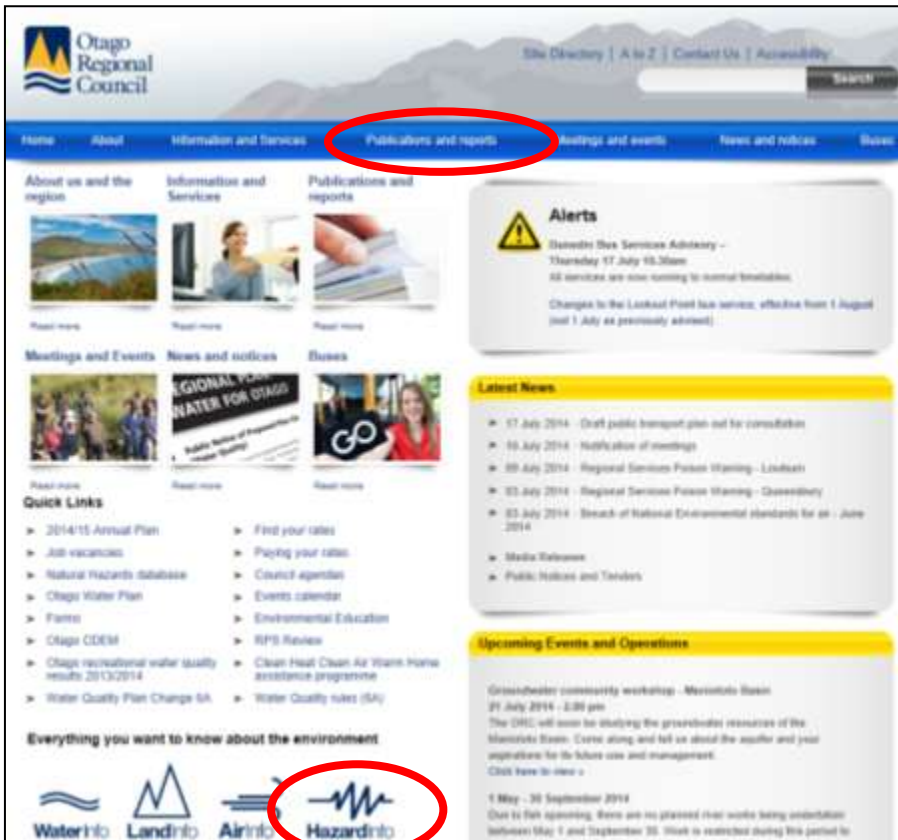


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Refining our assessment



Submission form

- Review
- Further investigations?

Preferred Options Consultation
Natural Hazards: June - July 2014

FEEDBACK FORM

Please let us know what you think about the proposed approach to managing the risks of natural hazards in our city. Your feedback will help shape and influence preferred options before they are included in the draft Second Generation District Plan (2GP).

The closing date for submission of feedback is Friday 1 August 2014.
Prefer to do it online? Visit: www.dunedin.govt.nz/2gp/feedback

Name: _____
Company/organisation (if relevant): _____ Suburb: _____
Email: _____

☐ I would like an email receipt of my feedback.
☐ I would like to receive an email newsletter on 2GP and other City Development updates.

Tell us what you think.
The Preferred Options Natural Hazards Q&A sheet outlines the goals and proposed changes to managing the risks of natural hazards through the 2GP. Please tell us what you think of these, and anything else you think we need to consider.

* Feel free to include extra pages folded inside.

Please note that all feedback provided to the DCC is public information. Your name and submission are available to the media and the public, on request, and may be included in future reports prepared on the Second Generation Plan. Your feedback will only be used as part of the Second Generation District Plan.

Outline of presentation



- Why are we doing this?
- How have we done it?
- What it means for you?

What is changing to respond to this?



Bringing natural hazards into 2GP

- Map vulnerable areas as Natural Hazard Overlay Zones
 - Only applies to areas within overlays
- Activities managed according to their sensitivity
- Primarily impacts on new development
- Liquefaction susceptibility NOT included in hazard overlay zones

Extreme Risk



Hazard Characteristics

- Floodways, flood protection areas, dune systems, buffering features
- Sudden onset of hazard
- Threat to life
- High risk of significant property damage

2GP Approach

- New sensitive development never appropriate

High Risk



Hazard Characteristics

- Cumulative and repetitive hazard events
- Threat to health and safety
- Risk of significant damage to property

2GP Approach

- New sensitive development only appropriate in exceptional circumstances

Moderate Risk



Hazard Characteristics

- Threat to health and safety but low risk of loss of life
- Range of risk to property from minor to significant property damage

2GP Approach

- New sensitive development may be acceptable
- Assessed on case by case basis

Low Risk



Hazard Characteristics

- Lower risk to health and safety
- Some risk of property damage
- Effects can generally be tolerated if development managed

2GP Approach

- New development acceptable but managed to reduce risk

Overview of approach to managing risk



LAND USE ACTIVITY STATUS TABLE

ACTIVITY	EXTREME RISK HAZARD OVERLAY	HIGH RISK HAZARD OVERLAY	MODERATE RISK HAZARD OVERLAY	LOW RISK HAZARD OVERLAY
All residential activities	Pr	NC	RD	P
Early Childhood Centres	Pr	NC	RD	P
Farming & Forestry	P	P	P	P
Industry	Pr	P	P	P
Retail & Office	Pr	P	P	P
Service Station	Pr	Pr	Pr	D
Subdivision creating new vacant lot	Pr	NC	NC	RD

BUILDING, STRUCTURE AND SITE DEVELOPMENT ACTIVITY STATUS TABLE

ACTIVITY	EXTREME RISK HAZARD OVERLAY	HIGH RISK HAZARD OVERLAY	MODERATE RISK HAZARD OVERLAY	LOW RISK HAZARD OVERLAY
Accessory buildings/ Garages and Car Ports	RD	P	P	P
Building additions that increase footprint	RD	P	P	P
New Residential Building	Pr	NC	RD	P
All other buildings	NC	RD	RD	P
Earthworks	RD	RD	P	P

ACTIVITY STATUS TYPES

Permitted Activity	
P	No resource consent is required, provided that any performance standards associated with the permitted activity in the District Plan are complied with. The ability to undertake an activity as a permitted activity is often referred to being 'provided for as of right'.
Controlled Activity	
C	Resource consent is required, but must be granted. Conditions can be imposed on the consent, but can only relate to matters that the DCC has specified in the District Plan.
Restricted Discretionary Activity	
RD	Resource consent is required, and can be granted or declined on a case-by-case basis. If the consent is granted conditions can be imposed, but can only relate to the matters that the DCC has specified in the District Plan.
Discretionary Activity	
D	Resource consent is required, and may be granted or declined on a case-by-case basis. If the consent is granted conditions can be imposed on any matters that the DCC considers necessary to address effects on the environment.
Non-complying Activity	
NC	Resource consent is required, and can only be granted if the effects are minor or the activity is consistent with the objectives and policies of the District Plan. If the consent is granted, conditions can be imposed on any matters that the DCC considers necessary to address effects on the environment.
Prohibited Activity	
Pr	No resource consent will be granted for a prohibited activity.

NOTE 1. The underlying zone may have a stricter activity status that will apply eg in a residential zone industry would be a non-complying activity.

NOTE 2. Activities may also be subject to performance standards.

Key Performance Standards



- Minimum floor levels
- Relocatable dwellings
- Earthworks
- Vegetation clearance
- Fences
- Subdivision

Risks from earthquakes



Liquefaction Assessment

- Inform zoning, greenfield developments
- Geotechnical assessment for larger subdivisions, plan changes for urban use
- Building safety addressed through Building Act

Summary



- To respond to risks in a balanced, reasonable manner
- Ability to use land weighed against significance of risk
- Create liveable communities