## **Risk-based planning**

CAP Meeting 6 December 2023

Information prepared by TAG



# Agenda

- 1. Summary of KCDC District Plan
- 2. Summary of regulatory framework
- 3. Risk-based approach for Kāpiti

Outcomes:

- Understand the planning framework and why a risk-based approach is likely to be required
- Discuss what a risk-based approach could look like for Kāpiti including discussing hazard areas and planning constraints



The Panel is to recommend coastal adaptation options for Council's consideration. **The recommendations**, including any potential cost associated with those options, **should also guide development of District Plan provisions to manage coastal issues and an approach for the district dealing with coastal hazards.** 

Points 13 and 14 of the CAP's <u>terms of reference</u> are also directly applicable to Wednesday's meeting; of particular note, point 13 is:

13. Deliver recommendations to Council that:

- a) are consistent with national and regional direction and requirements; and
- b) strike an appropriate balance of providing enough direction to make the desired policy intent clear, whilst leaving the detail of plan drafting and section 32 evaluation of proposed provisions to be worked through by the Council following delivery of the Panel's recommendations.
- c) have been consulted on with the wider public, giving the "social licence to proceed" with the coastal plan change.

# **District Planning**

- District Plan controls land use landward of Mean High Water Springs
- District Plan has been recently reviewed and become operative in 2021
- Coastal Hazards provisions were withdrawn in 2014 and 2017
- 1999 provisions remain operative
- Current provisions don't give effect to higher order documents as required

## **Adaptation Planning vs District Planning**

- Adaptation planning is focused on higher-level strategic planning. Considers all possible intervention approaches (in which district planning is one of them).
- The District Plan controls land use landward of Mean High Water Springs. Regional Plans control land seaward of Mean High Water Springs.
- Adaptation planning is encouraged through legislation but is not yet required. District Planning is a statutory requirement.

## **Resource Management Act 1991 (RMA)**

Implications on a plan change process

- Part 2 Matters
- S32 Requirements for preparing and publishing evaluation reports
- S74 & S75 Matters to be considered by a territorial authority and district plan (i.e., iwi management plans)
- RM Reform



# **Existing use rights (s10 RMA)**

### 10 Certain existing uses in relation to land protected

- (1) Land may be used in a manner that contravenes a rule in a district plan or proposed district plan if—
  - (a) either—
    - (i) the use was lawfully established before the rule became operative or the proposed plan was notified; and
    - (ii) the effects of the use are the same or similar in character, intensity, and scale to those which existed before the rule became operative or the proposed plan was notified:
- A risk-based planning approach is about controlling sensitive activities in areas, dependent on the degree of risk faced.
- The proposed risk-based planning approach does not recommend any steps be taken at this time to facilitate retreat because managed retreat is not being considered as a likely short term action anywhere on the Kapiti coastline. The CAP should note:
  - Managed retreat cannot be implemented through a district plan change alone.
  - Managed retreat would require a plan change to both the Natural Resources Plan (GWRC) as well as the District Plan.

# Give effect to: New Zealand Coastal Policy Statement

#### **Objective 5**

To ensure that coastal hazard risks taking account of climate change, are managed by:

- locating new development away from areas prone to such risks;
- considering responses, including managed retreat, for existing development in this situation; and
- protecting or restoring natural defences to coastal hazards.

Policies require:

- Precautionary approach
- Identification of coastal hazards
- Avoiding inappropriate development in areas potentially affected by coastal hazards over at least the next 100 year
- *Provide for protection of natural defences where appropriate*
- Promotion of long-term sustainable risk reduction, assessment against do nothing, focus on approaches that don't require hard protection.

## **Give effect to:**

## **Regional Policy Statement for Greater Wellington**

Policy 29 requires:

District plans shall identify areas at high risk from natural hazards; and include polices and rules to avoid inappropriate subdivision and development in those areas.

*Policy 51 requires consideration of:* 

- Frequency and magnitude of natural hazard and residual risk
- Effect of climate change and sea level rise
- Whether hazard mitigation is to be required
- Potential for risk and injury
- Avoiding inappropriate development in high risk areas
- The need to locate floor levels above the 1:100 year flood level

## Have regard to: Change 1 to RPS

Policy 29 Avoiding inappropriate Managing subdivision, use and development in areas at risk from natural hazards – district and regional plans

Regional and district plans shall:

- (a) identify areas affected by natural hazards; and
- (b) <u>use a risk-based approach to assess the consequences to subdivision, use and development from natural hazard</u> <u>and climate change impacts over a 100 year planning horizon;</u>
- (c) include <u>objectives</u>, polices and rules to <u>manage</u> subdivision, <u>use</u> and development in those areas <u>where the</u> <u>hazards and risks are assessed as low to moderate; and</u>
- (d) <u>include objectives, polices and rules to avoid subdivision, use or development and hazard sensitive activities</u> where the hazards and risks are assessed as high to extreme.

## Have regard to: Porirua District Plan

### **Risk Categories**

Coastal Hazard Overlay	Hazard areas
Tsunami Hazard – 1:100 year inundation extent	High
Coastal Hazard – Current Inundation; and	
Coastal Hazard – Current Erosion	
Tsunami Hazard – 1:500 year inundation extent	Medium
Coastal Hazard – Future Inundation (with 1 m SLR);	
and	
Coastal Hazard – Future Erosion (with 1 m SLR)	
Tsunami Hazard – 1:1000 year inundation extent	Low

#### Sensitivity

- Hazard-Sensitive Activities (e.g., childcare services, hospitals, residential units)
- Potentially-Hazard-Sensitive Activities (e.g., commercial activity, retail activity)
- Less-Hazard-Sensitive Activities (e.g., parks facilities, temporary activities).

# Have regard to: Wellington District Plan

### **Risk Categories**

Coastal Hazard Overlay	Hazard areas
Tsunami – 1:100 year scenario inundation extent with	High
1 m sea level rise	
Existing coastal inundation extent with a 1:100-year	
storm	
Tsunami – 1:500 year inundation extent with 1 m sea	Medium
level rise	
Coastal inundation extent – with 1.49 m sea level rise	
scenario and 1:100 year storm	
Tsunami – 1:1000 year inundation extent with 1 m sea	Low
level rise	

#### Sensitivity

- Hazard-Sensitive Activities (e.g. childcare services, hospitals, residential units)
- Potentially-Hazard-Sensitive Activities (e.g. commercial activity, retail activity)
- Less Hazard Sensitive Activities (e.g. parks facilities, marine emergency activities).

## Have regard to: Horowhenua District Plan

- One combined Coastal Natural Character and Hazard Area
- Policy 4 of NZCPS requires a coordinated approach across local authority boundaries. KCDC will need to consult Horowhenua District Council and Horizons Regional Council when preparing plan change.

### Caveats:

- Prepared prior to the introduction of "the management of significant risks from natural hazards" as a matter of national importance in RMA s6(h)
- Prepared under a different regional policy statement (Horizons One Plan)
- Does not implement the National Planning Standards

### **Role of Guidance Documents:**

NZCPS 2010 Guidance Note: Coastal Hazards (DOC 2017), Coastal Hazards and Climate Change: Guidance for Local Government (MfE 2017), Interim guidance on the use of new sea-level rise projections (MfE 2022)

- NZCPS Policy 24(1) requires coastal hazards identification to take account of national guidance
- Non-statutory documents
- No hierarchy between guidance documents

## **Regulatory Summary**

- A s32 analysis will be required as part of any proposed plan change
- Plan changes are statutory processes and have separate consultation requirements to Takutai Kapiti
- Plan changes must give effect to higher order documents
- Currently need to determine high hazard risk areas and areas at risk of coastal hazards in 100 years
- Likely to be required to take a risk-based approach
- Some discretion as to what is low, medium or high risk
- Some discretion as to what constraints exist within these areas

### **Relative Sea Level Rise Scenarios - Principles**

- 1. Consistent with the National Adaptation Plan (NAP), NZCPS, and Regional Policy Statement:
  - NAP Directs council to use SSP5-8.5
  - NZCPS requires councils to consider coastal hazards over at least the next 100 years
- 2. Cognisant of the precautionary approach required in coastal planning by the NZCPS to account for uncertainties in the RSLR projections and current modelling
- 3. Consistency between selected scenarios for inundation and erosion planning.
- 4. Need to reflect the timeframe and RSLR magnitude.

### **Relative Sea Level Scenarios – <u>Example</u>**

An example of appropriate increments of RSLR to consider for a risk-based approach to land use planning are from the:

- SSP5-8.5 scenario
- coupled with a -1 mm/yr VLM rate
- over 50- and 100-year time frames

These increments are:

- 0.45 m SLR by 2070, and
- 1.25 m SLR by 2130.



## **Relative Sea Level Scenarios – Justification**

- 1. Consistent with the National Adaptation Plan and the Interim guidance on the use of new sealevel rise projections (MfE, 2022).
- 2. Considered to be an appropriate precautionary approach to hazard planning but not overly precautionary (e.g. SSP5-8.5 H+).
- 3. Gives effect to higher order documents Policy 25 of the NZPCS requires hazard risk to be assessed over at least 100 years (1.25 m RSLR 2130)
- 4. Reflects the slightly higher most recent SSP-RCP projections.
- 5. Consistent with Wellington City Council (SSP5-8.5, 1.43 m SLR over the next 100 years).
- 6. The scenario is not dependent on global political responses to reduce emissions.
- 7. Good certainty that the SLR Increments are unlikely to be exceeded within reasonable planning timeframes.

## **Risk-Based Thresholds – Erosion Principles**

*"XXX probability that erosion will occur within yyy timeframe under zzz scenario"* 

Selection of thresholds to include:

- Acceptable levels of "Statistical Uncertainty"
- Consistency between open coasts and hydro-systems
- Suitable 'minimum width' of a hazard overlay for each category
- Additional width for 'dune resilience'?

## **Risk-Based Thresholds – Erosion Examples**



Example of potential erosion thresholds:

- High Erosion Hazard 66% probability of occurrence with 0.45 m RSLR by 2070
- Medium Erosion Hazard 66% probability under 1.25 m RSLR by 2130
- Low Erosion Hazard 10% probability under 1.25 m RSLR by 2130.

### **Risk-Based Thresholds – Inundation Principles**

### **Develop a set of risk-based thresholds which:**

- 1. Is consistent with RMA, NZCPS, and RPS.
- 2. Can be applied to a simple bathtub approach.
- 3. Considers the sensitivity of the activity to inundation.

### Categorise 'coastal flood risk' based on three factors:

- Likelihood of flooding
- Consequences of flooding or flood hazard
- Change in likelihood and consequence in the future because of climate change

### **Risk-Based Thresholds – Inundation Principles**

#### Likelihood

Flood magnitude	ARI	450	Chance an event will occur during a period of				
		AEP	30 years	60 years	100 years		
'Small'	5 years	20%	100%	100%	100%		
Ť	10 years	10%	96%	100%	100%		
Ť	20 years	5%	79%	95%	99%		
Ť	50 years	2%	45%	70%	87%		
Ť	100 years	1%	26%	45%	63%		
'Large'	200 years	0.5%	14%	26%	39%		

### Change in likelihood and consequences in the future



#### Consequence



## **Risk-Based Thresholds – Example (Inundation)**

Coastal Flood Risk Category	1% AEP Flood Hazard with 0.45m RSLR		1% AEP Flood Hazard with 1.25m RSLR		Flood	High	MEDIUM RISK	MEDIUM RISK	MEDIUM RISK	HIGH RISK
5,	Hazard	Depth Range	Hazard	Depth range	hazard in HIGHER climate	Medium	LOW RISK	LOW RISK	MEDIUM RISK	HIGH RISK
Very Low	None	Dry	Low	<0.5 m	change scenario (1.25 m	Low	VERY LOW RISK	LOW RISK	MEDIUM RISK	HIGH RISK
Low	Low	< 0.4 m	Medium	0.5m – 1.2 m	RSLR)	None	NO RISK	LOW RISK	MEDIUM RISK	HIGH RISK
Medium	Medium	0.4 m – 1.2 m	High	1.2 m – 2.0 m			None	Low	Medium	High
High	High	>1.2 m	High	>2.0 m			Flood hazard in LOWER climate change scena (0.45 m RSLR)			

### **Risk-Based Thresholds – Example (Inundation)**



## **Summary: CAP Endorsement**

The following planning approach is proposed to the CAP for their endorsement as part of their CAP recommendation report:

- Use of a risk-based approach similar to that adopted by Porirua City Council and Wellington City Council in their recent District Plan reviews.
- Coastal hazards planning rules and provisions will constrain subdivision, use and development according to levels of risk.
- Risk areas will be mapped based on relevant national and regional direction (NZCPS & RPS) and relevant national guidance.

Note: This mapping, planning provisions and rules will be developed by Council district planners after Takutai Kapiti in partnership with mana whenua and consultation with the community.