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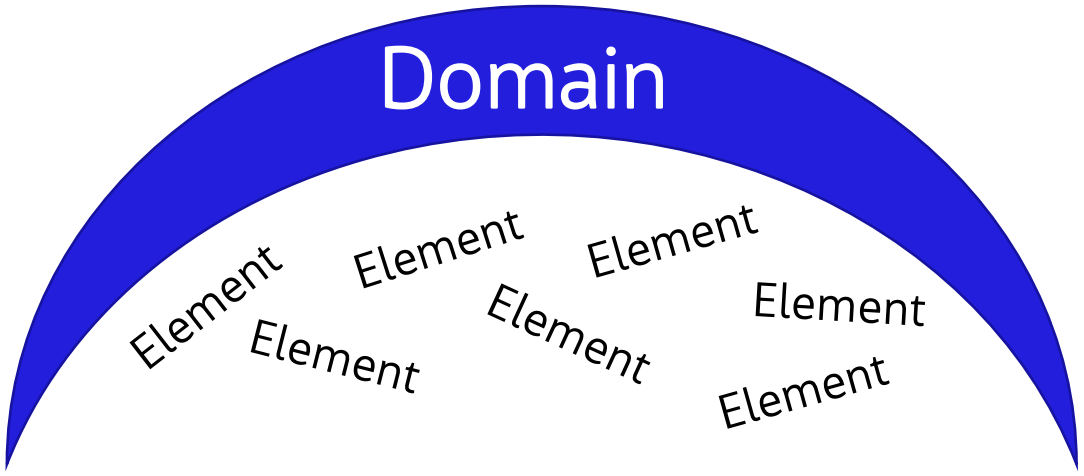
Raumati Adaptation Area Risk Assessment

CAP Meeting 15th November 2023

Agenda

- Risk Assessment Re-cap: Purpose and process
- Risk Assessment Results – By Domain
  - Built Environment
  - Natural Character
  - Ecological (TBC)
  - Human (TBC)
  - Cultural (TBC)

Terminology

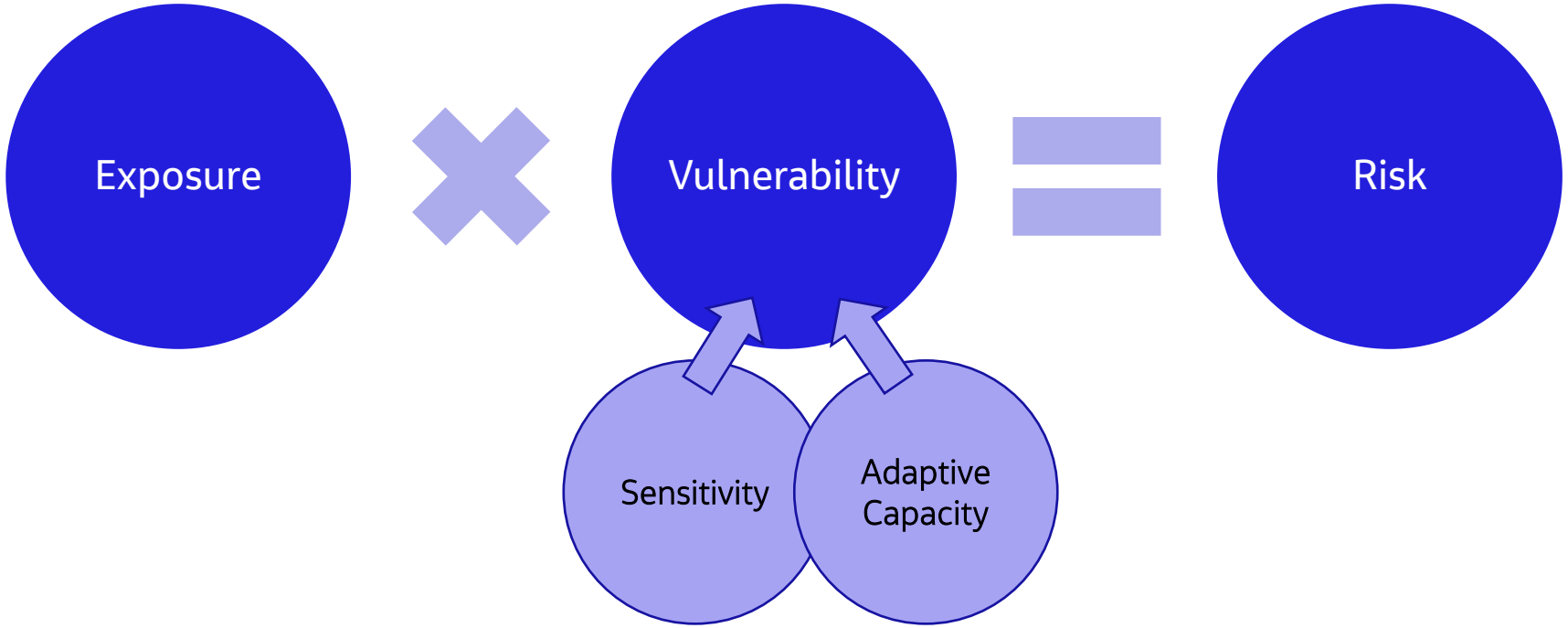


Domain	Element
Built Environment	e.g. Roads, Property, Water Supply
Ecological	**Still to be completed**
Natural Character	e.g. Areas of high natural character
Human	**Still to be completed**
Cultural	**Still to be completed with Iwi input.**

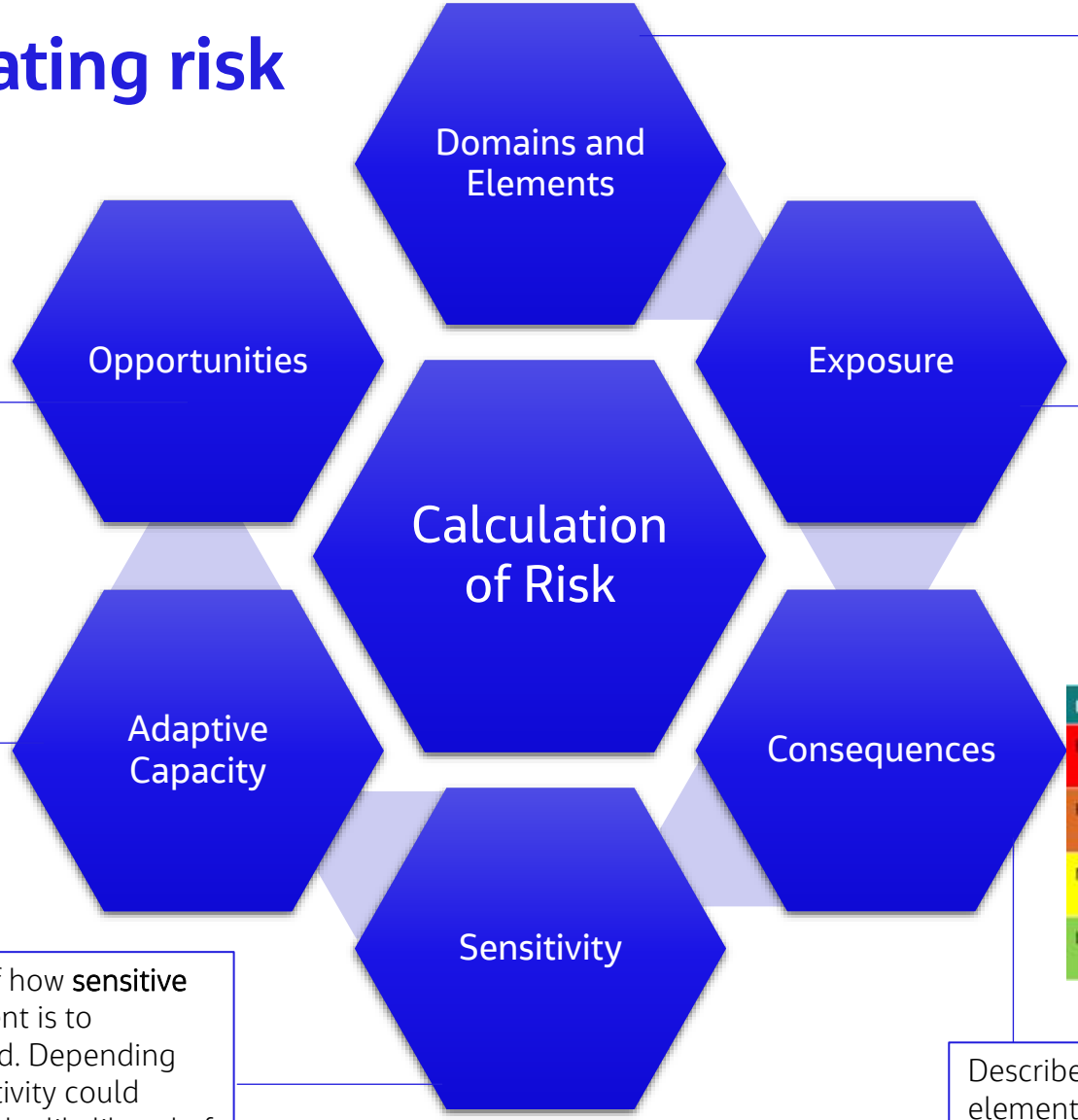
Purpose

What is a risk assessment?	Why do we need one?	What is it not?
A systematic way to assess the potential risks that may impact a person, activity, or asset from a hazard over time. It considers: - How **exposed** is an element to the hazard? - What are the **consequences** of the element being exposed? - And therefore, how **sensitive** is the element to being exposed? - Can the element **naturally adapt** with the hazard? It is a snapshot of what a 'do nothing' scenario may look like in the future. It looks at the RAA as a whole unit. It provides a 'baseline' that throughout the TK process we can use to assess our pathways against – e.g. do our pathways achieve what we need? It is based on the data we have available now, and can be built on in the future.	• To understand **what is in the Raumati Adaptation Area (RAA), and what is at risk** to coastal erosion and inundation - now and in the future with SLR. • To understand **when** elements may become at risk. • To help us determine **where** we should focus our efforts to reduce risks in the future. • To help inform our objectives (what are we trying to achieve).	• Domains aren't prioritised – That is for the CAP to decide in your objectives. • It does not include economics or governance Domains– it is based on the information we have available to date. • It is not a broad climate change risk assessment, it only deals with coastal erosion and coastal inundation information available at this stage (e.g does not include AWA fluvial/pluvial-groundwater flooding). • This is not an extensive risk assessment – does not include every single council asset. It recognises the key infrastructure and values of the district and uses available data to assess the risk. • It is not going to solve all our problems today! – This will show us what is at risk. In our next few workshops we will be determining how best to reduce the risks in the future.

Process – Calculating Risk



Process – Calculating risk



Identify the **domains and elements** that will be assessed.
- Built environment
- Human
- Ecological
- Natural Character
- Cultural (to be completed)

Description of potential **opportunities** there are for the element to have positive outcomes as a result of the hazard occurring, or potential opportunities outside of the adaptation planning scope to deal with the hazard.

Identify the **exposure** of the element to the hazard. Where possible, this is done using geospatial information to overlay with the hazard, and the exposure rating scale (MfE, 2017) is used, as per below. In some cases where the geospatial data was not available, these have been subjectively assessed.
Extreme, high, moderate, low ranking

A subjective measure of how easily/efficiently an element at risk can **adapt** naturally when exposed to a climate hazard.
Very low, low, moderate, high ranking

Exposure rating	Qualitative definition	Quantitative definition
Extreme	Significant and widespread exposure of elements to the hazard	>75% of sector or element is exposed to the hazard
High	High exposure of elements to the hazard	50–75% of sector or element is exposed to the hazard
Moderate	Moderate exposure of elements to the hazard	25–50% of sector or element is exposed to the hazard
Low	Isolated elements are exposed to the hazard	5–25% of sector or element is exposed to the hazard

Subjective measure of how **sensitive** (or tolerant) an element is to exposure to the hazard. Depending on the element, sensitivity could increase over time as the likelihood of exposure increases.
Extreme, high, moderate, low ranking

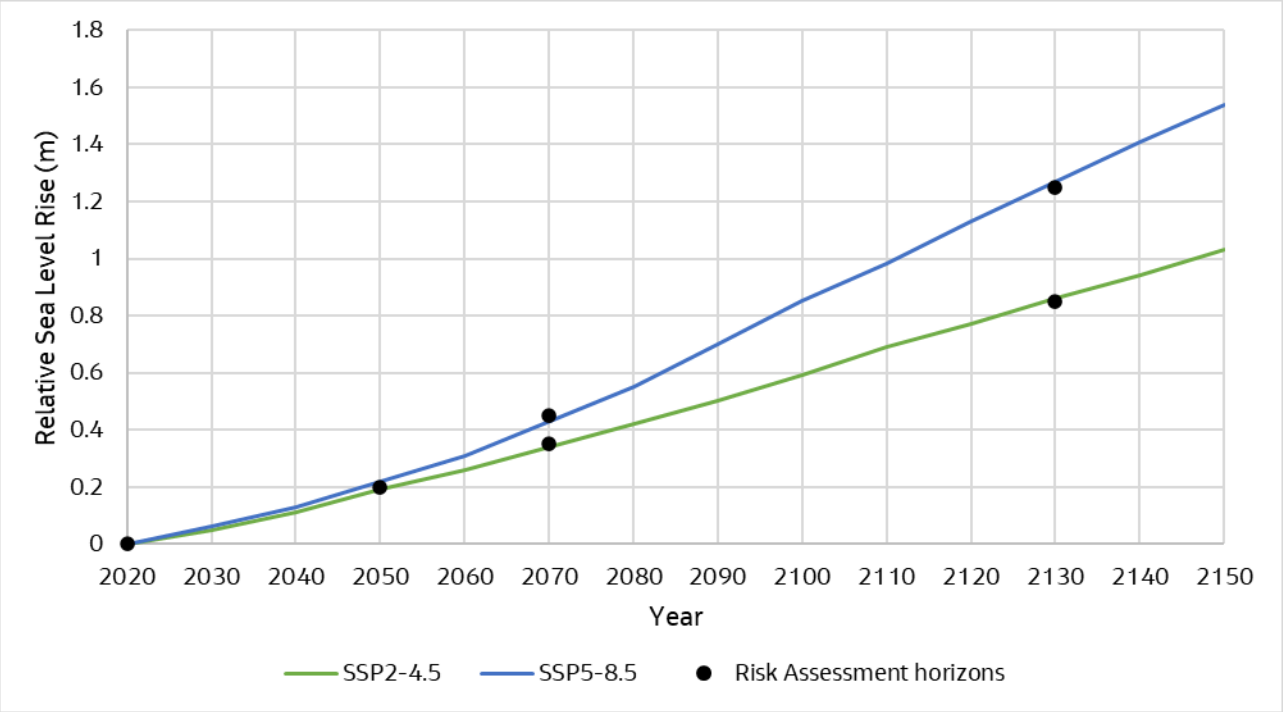
Describe the **consequences** of an element being exposed to the hazard.

Process - Risk Ranking

		Exposure			
		Low (L)	Moderate (M)	High (H)	Extreme (E)
Vulnerability	Extreme (4)	Moderate	High	Extreme	Extreme
	High (3)	Low	Moderate	High	Extreme
	Moderate (2)	Low	Moderate	Moderate	High
	Low (1)	Low	Low	Moderate	High

From: Ministry for the Environment. 2021. *He kupu ārahi mō te aromatawai tūraru huringa āhuarangi ā-rohe / A guide to local climate change risk assessments.* Wellington: Ministry for the Environment.

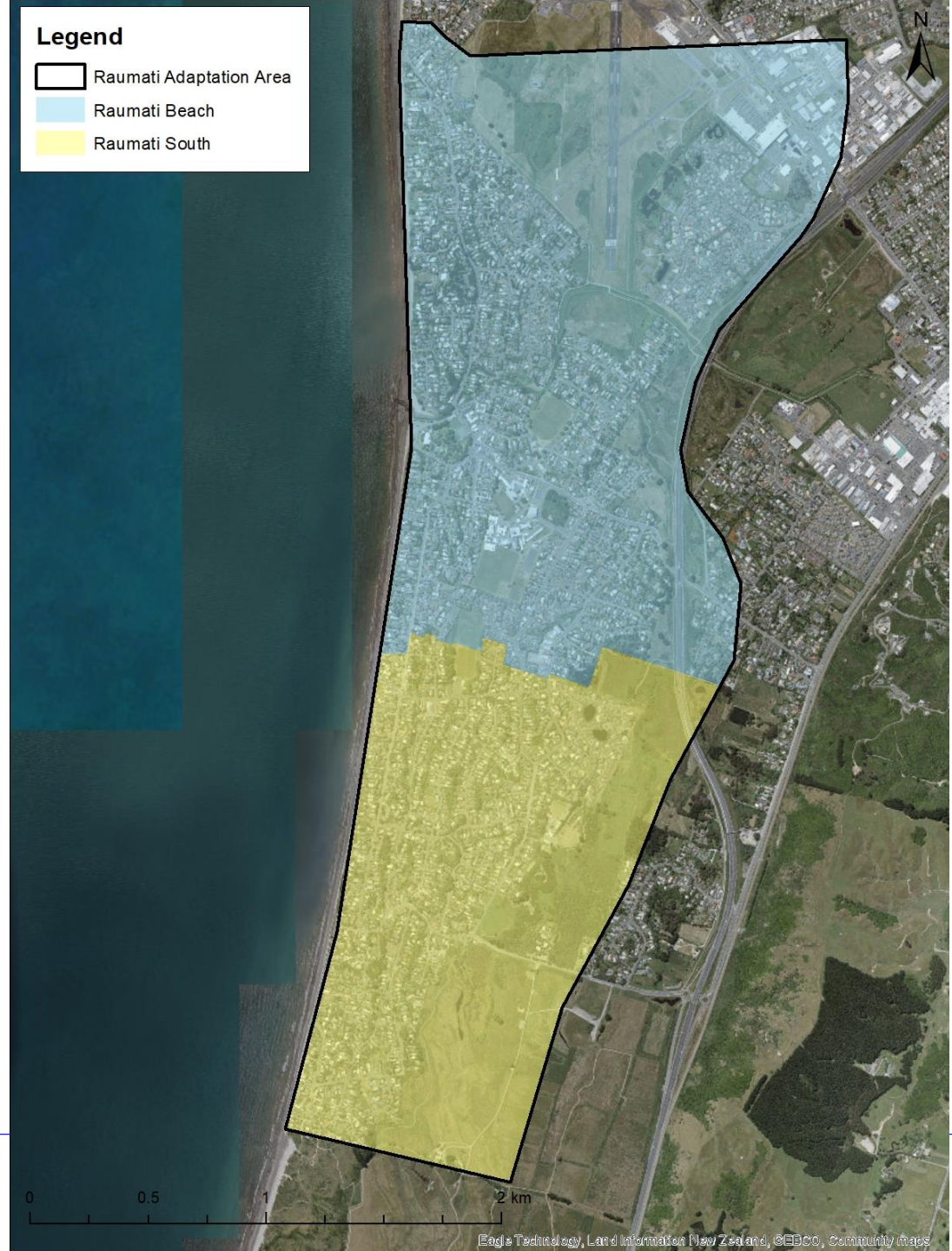
Process – Likelihoods and Scenarios



Timeframe	Sea level rise scenario	Erosion Hazard Probability Used	Inundation Hazard Probability Used
Present Day	0m RSLR	10% Probability of shoreline exceeding landward limit of mapped extent (e.g. P10)	1% Annual Exceedance Probability storm event
2050 (30 years)	0.2 m RSLR (SSP2-4.5 & SSP5-8.5)		
2070 (50 years)	0.35 m RSLR (SSP2-4.5) 0.45 m RSLR (SSP5-8.5)		
2130 (110 years)	0.85 m RSLR (SSP2-4.5) 1.25 m RSLR (SSP5-8.5)		

Raumati Adaptation Area Risk Assessment Results

Raumati Adaptation Area

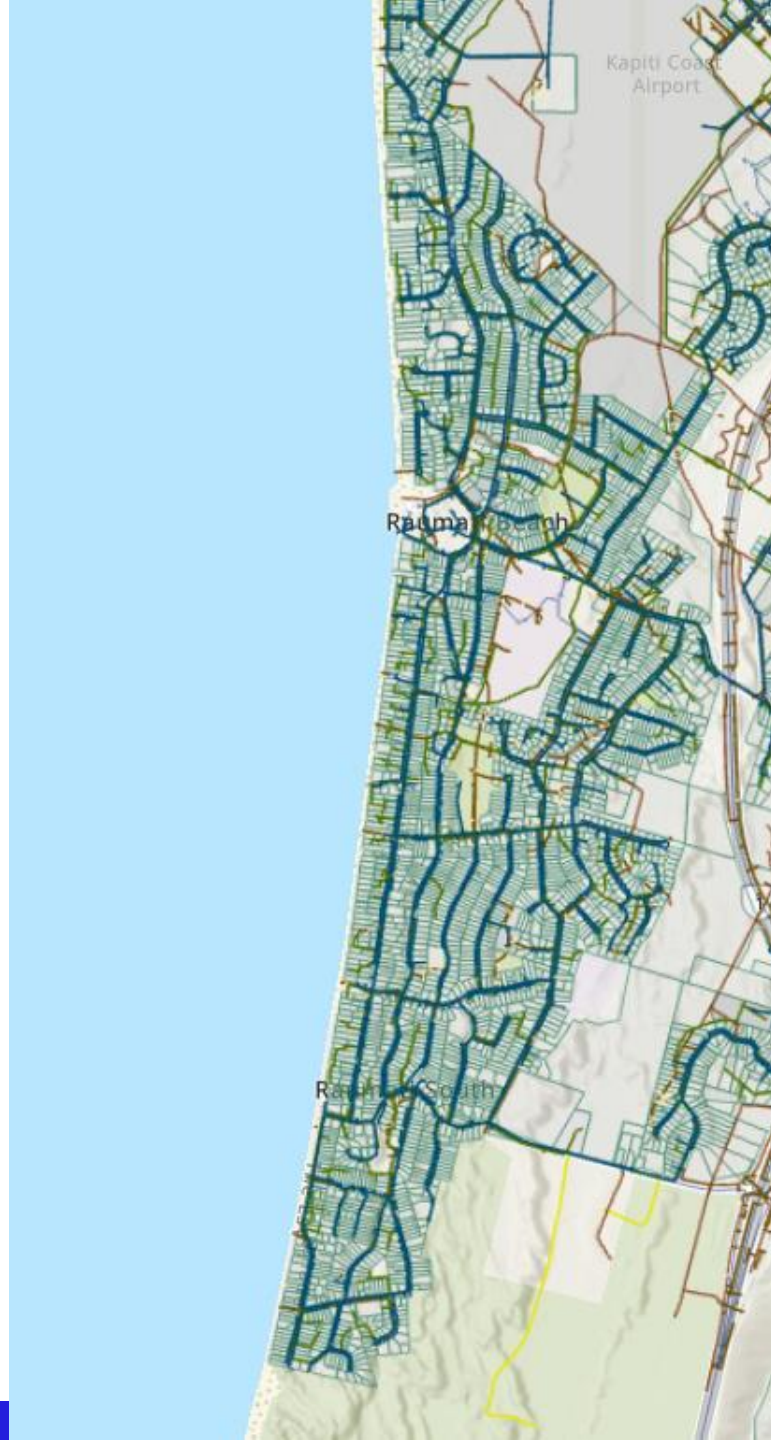


Built Environment Domain

The built environment encompasses assets, infrastructure and property that provide a service or critical function to the livelihood of the community.

Elements assessed:

- Private property
- Roads and bridges
- Wastewater services (pump stations, pipes)
- Water supply services (pipes, bores, treatment plants, pump stations)
- Stormwater services (pipes, outfalls, pump stations)
- Electrical supply and transmission (overhead and underground transmission lines)
- Natural gas supply



Built Environment Domain - Risk

	Coastal Erosion						Coastal Inundation					
Climate Change Scenario	Both		SSP2-4.5		SSP5-8.5		Both		SSP2-4.5		SSP5-8.5	
Element	Present	2050	2070	2130	2070	2130	Present	2050	2070	2130	2070	2130
Built Environment												
Properties - Whole Adaptation Area	M	M	M	M	M	M	L	L	L	L	L	L
Properties - Raumati Beach*	E	E	E	E	E	E	L	L	L	L	L	L
Properties - Raumati South*	E	E	E	E	E	E	L	L	L	L	L	L
Water Supply Infrastructure	L	L	L	H	L	H	L	L	L	L	L	L
Wastewater Infrastructure	M	H	H	E	H	E	L	L	L	L	L	L
Stormwater Infrastructure	L	L	L	H	L	H	L	L	L	L	L	L
Roads and Bridges	L	L	L	H	L	H	L	L	L	L	L	L
Electrical Transmission and supply infrastructure	L	L	L	M	L	M	L	L	L	L	L	L
Natural gas supply mains	L	M	M	H	M	H	L	L	L	L	L	L

*For coastal erosion this is based on the number of beachfront properties impacted; For coastal inundation this is based on a broader settlement footprint.

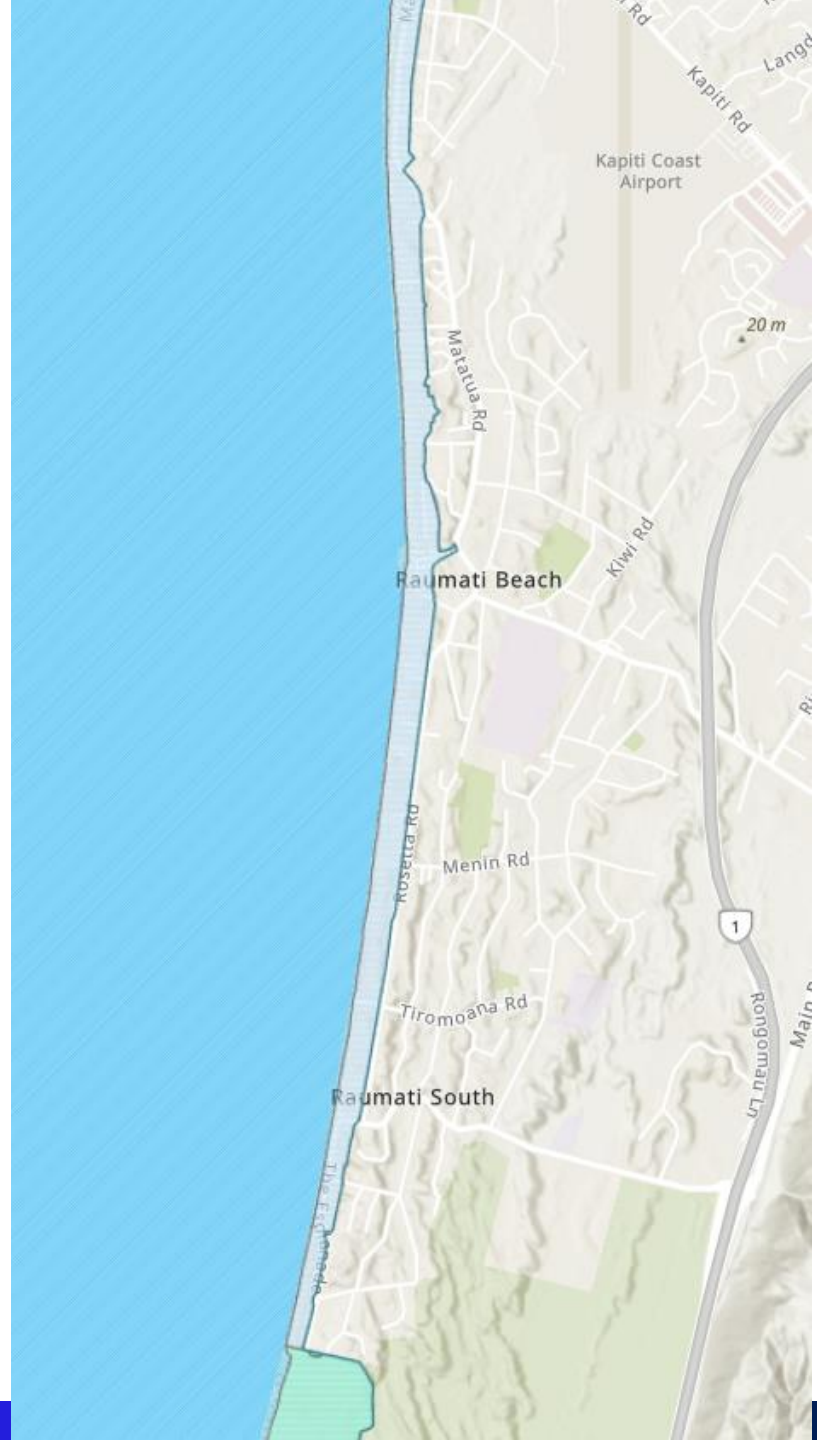
Overall, for coastal erosion, due to the difference in erosion distances between scenarios across timeframes being very small, the risks are considered to be the same.

Natural Character Domain

Natural character is the ‘naturalness’ or degree or modification of an area, as well as an areas distinct combination of natural characteristics and qualities.

Elements assessed:

- **CTA2: Paraparaumu and Waikanae**



Natural Character - Risk

	Coastal Erosion						Coastal Inundation					
SLR Scenario	Both		SSP2-4.5		SSP5-8.5		Both		SSP2-4.5		SSP5-8.5	
Element	Present	2050	2070	2130	2070	2130	Present	2050	2070	2130	2070	2130
CTA2: Paraparaumu and Waikanae	M	M	M	H	M	H	L	L	L	L	L	L

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Important

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