

COASTAL CONVERSATIONS

A wide-angle photograph of a coastal scene. On the left, a dense line of tall, dark green trees borders a pebbly beach. The beach is composed of grey and black stones, with shadows cast across it. The ocean is a vibrant blue-green, with white-capped waves breaking onto the shore. The sky is a clear, bright blue, dotted with soft, white clouds. In the distance, low hills or mountains are visible on the horizon.

Amberley Beach
26 January 2023

Agenda for tonight

- 1 – Insurance Council presentation and questions
- 2 – Summary of feedback received
- 3 – Discussion on triggers for change





Hurunui District Council Community Meeting

Tim Grafton, Chef Executive, ICNZ 26 January 2023

Frequently asked questions

- (1) How insurance companies insure property, what factors influence the insurance cover, premiums and excess?
- (2) How does information about hazards on LIMs affect insurance? What about other council records/reports?
- (3) How do insurance companies treat climate change impacts?
- (4) What is insurance retreat and when would it come into play e.g. how many floods before insurance is withdrawn?
- (5) Do local resilience measures affect insurability? e.g. raising electrical equipment and power points, raising houses
- (6) What affect do climate change adaptation strategies have on insurance?

General Observations

NZ Insurers take an all-risks approach

Flood



Landslip



Wind



Earthquake



Fire



Storm surge



Three fundamentals

Insurance transfers risk from the insured to the insurer - it does not reduce the risk.

Unless climate change risks are reduced, insurers will respond through price, increasing excesses, exclusions or refusal to go on risk, so reducing the availability and accessibility of insurance, but this will occur incrementally.

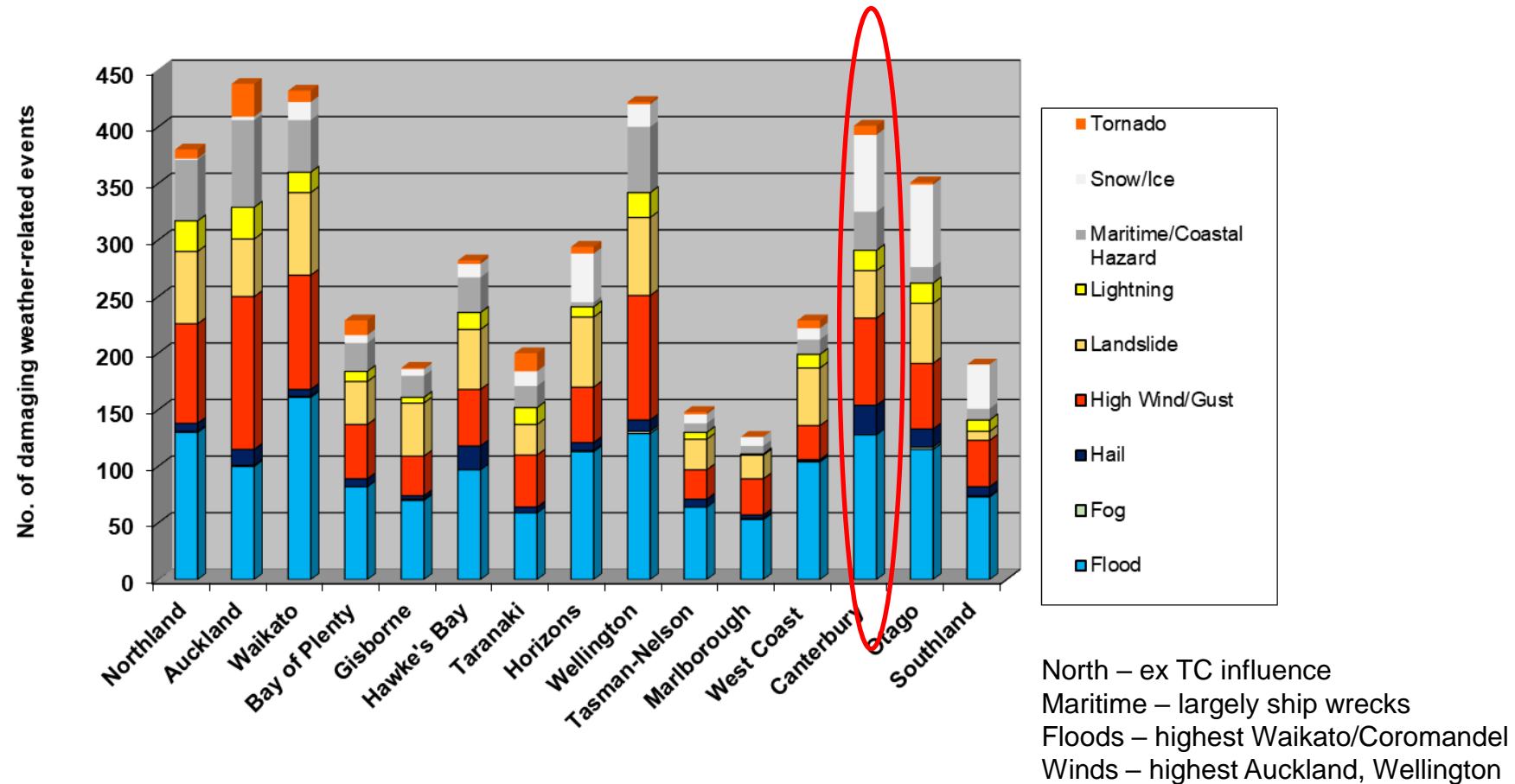
Banks rely on insurance to underwrite their mortgage lending risk; if there is no insurance, all the risk falls on homeowners. This will likely significantly depress asset values.

Drivers of increasing insurance losses

- **population increase**
- improved living standards, so **higher value assets**
- **aggregation** of people/assets in urban areas
- **settlement** and **investment in vulnerable areas**
specially coastal areas and areas close to rivers
- **Climate Change** – intensification and accumulation of
extreme weather events

Canterbury near the top of the table

Historic Weather Events by main hazard type for New Zealand regions (1840-2017)

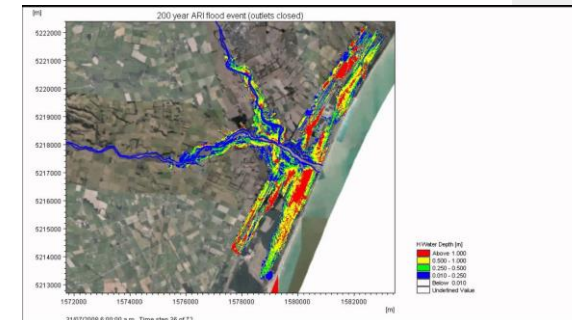
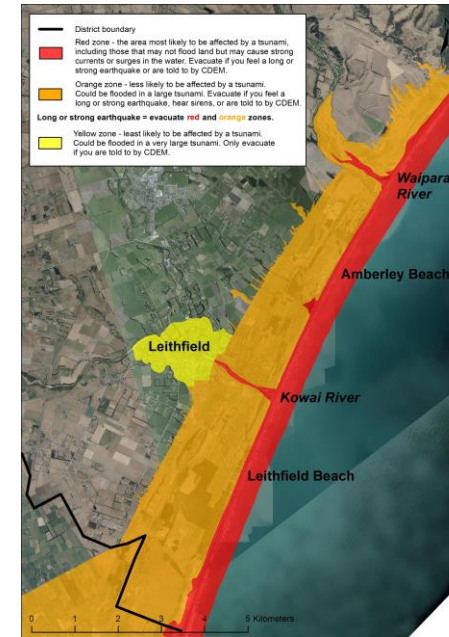


Data source: HWE catalogue, NIWA and Dr Rob Bell

North – ex TC influence
 Maritime – largely ship wrecks
 Floods – highest Waikato/Coromandel
 Winds – highest Auckland, Wellington

Flooding - causes

- (1) High river flows/run-off from hinterland
- (2) No shortage of rivers – Ashley, Blythe, Conway, Hurunui, Kowai, Waiau, Waipara and Waitohi rivers
- (3) Inundation on coastal plain
- (4) Storm surge on coast/rivermouth
- (5) Groundwater levels close to surface



**(1). Factors influencing insurance cover,
premiums and excess?**

(2). UIMs, Data sources etc

Data is the key

Risk for insurers is a financial sum based on:

***Frequency* x *Severity* = Average Annual Damage (AAD)**

Frequency based probability of event in any one year e.g. 1:100 year = 1% in any year

Severity is a measure of actual damage incurred due to any given event; this can be estimated by models using historic events, house type and age

Traditionally, risk rated on historic losses

Data is changing the game:

Multiple sources – councils, NZGD (geo-technical database), Geographic Information System, GNS, LINZ, mix of open source/specialist suppliers e.g. CoreLogic or modellers

Type of data - flood maps, hydrology, topography, Lidar, coastlines, landslips, fault lines

Insurers' own models – some larger insurers have their own models

Move from community to risk-based pricing or mix of the two:

Community based - all pay the same regardless of likelihood of risk e.g. EQC levy

Risk-based - differentiated pricing reflecting risk + financial incentive to manage it

Average Annual Damage for flood

AAD

- cost of potential flood events integrated with the annual probability of occurrence, so if a 1:50 year is modelled to cause insured loss of \$100m, the AAD = \$100m x 2% (1:50 chance) = \$2m per annum losses

This will cover:

- houses affected by flood very often but with only minor damage
- houses affected by flood rarely, but when it does significant damage occurs
- Though common in Australia and likely to be applied here (see next slides) houses can be categorised into **H**igh, **M**edium and **L**ow bands reflective of the financial risk

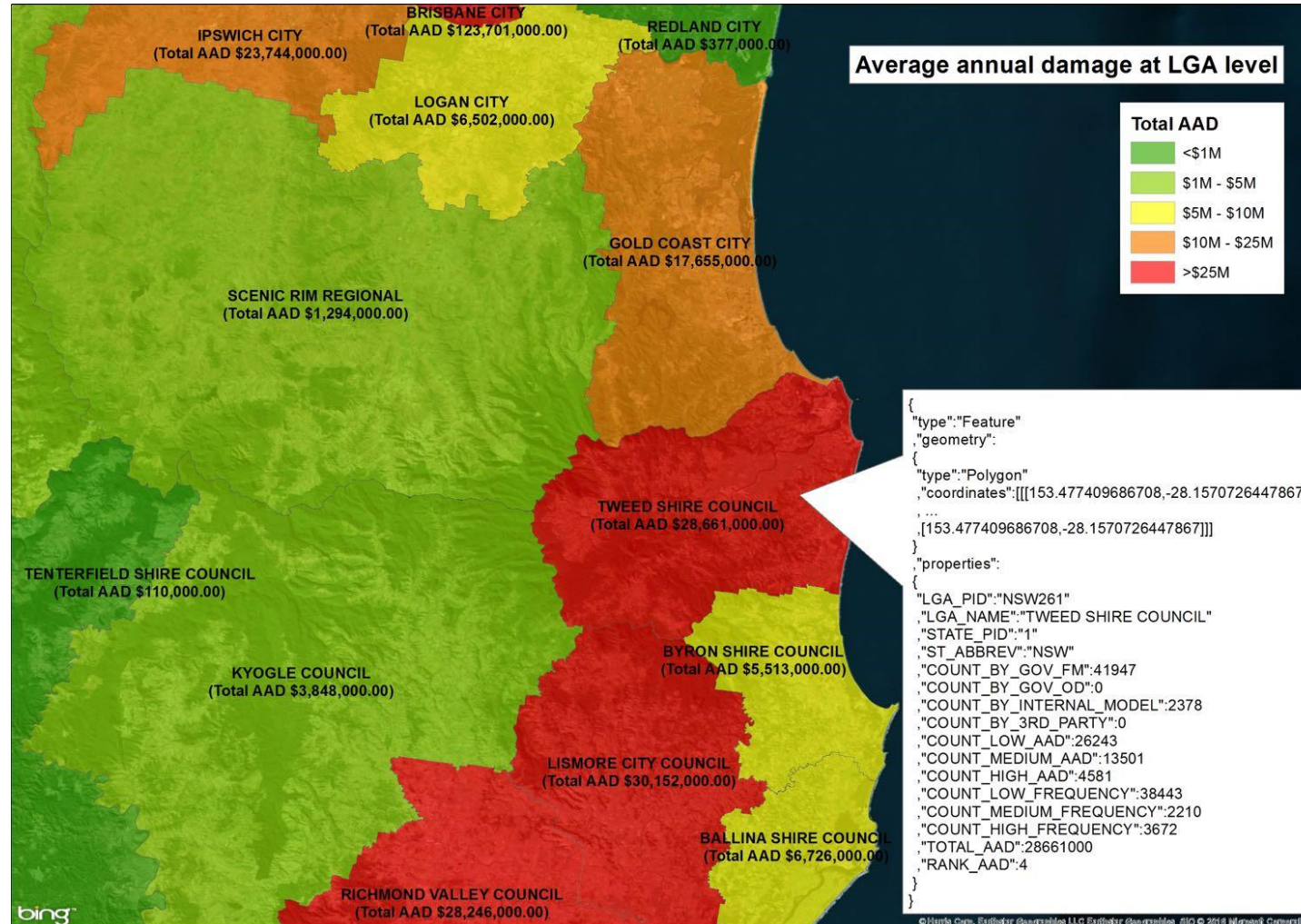
Premiums

- Insurers can build an actuarial model based on the data to forecast how often customers will claim and for how much = Average Cost Claim Per Policy (CPP)
- Insurers will adjust the CPP for various risk factors that statistically affect the claims risk e.g. flood location, type of house build etc

Australian example – but individual property flood risk likely with more granular data



Or it can be done at regional or post code level At a regional level –currently NZ practice



Components of the premium

(1) Technical Premium

(1) Technical Premium (best cost estimate to cover claims, operating expenses, staff, reinsurance, regulator solvency requirements)

Simplified Example

Insurer needs to collect \$1,000 from Houses A and B to meet average claims costs. Both could be charged \$500, but House A is 10% more likely to suffer damage than House B. So, House A is charged \$525 and House B \$475 to create a \$50 difference (10% of \$500) between the two premiums and reflect the 10% risk.

Components of the premium

(2) Base Premium

(1) Technical Premium (best cost estimate to cover claims, operating expenses, staff, reinsurance, regulator solvency requirements)



(2) Base Premium (price Insurer wants to sell policy)

How base premium is varied:

- customer discounts e.g. no claims, multiple policies
- price moderation e.g. caps to avoid bill shock
- business pricing to attract new customers/retain existing
- profit margin to meet business goals, investment and return to shareholders

Example House B

Technical premiums	\$475
Profit margin (10%) + \$47.50	\$522.50
Discount (5%) - \$26.12	\$496.38
Capping -\$10	\$486.38
Base Premium	\$486.38

Components of the premium (3) Total Premium

(1) Technical Premium (best cost estimate to cover claims, operating expenses, staff, reinsurance, regulator solvency requirements)



(2) Base Premium (price Insurer wants to sell policy)



(3) Total Premium (Tax/levies to collect)

Components of the premium

Technical Premium (best cost estimate to cover claims, operating expenses, staff, reinsurance, regulator solvency requirements)



Base Premium (price Insurer wants to sell policy)



Total Premium (Tax/levies to collect)

Example House B

Base premium		\$486.38
EQC levy (house + contents)	\$300	\$786.38
FENZ levy (house + contents)	\$127.20	\$913.58
GST (15%)	\$128.04	\$1,050.61
Total customer cost		\$1,051.61

**What is insurance retreat?
When would it come into
play?**

(1) Retreat

- will occur incrementally, but pick up pace if climate impacts accelerate
- first steps will involve premium increases/increases in excess, then limits to cover e.g. flood exclusion
- there will be signals from other sources too e.g. local council
- Climate Change Adaptation Bill/Act (2024?) will empower councils to manage retreat regardless of insurance signals

(2) When?

- depends on the local impacts of climate change
- because it is incremental and each insurer has a different risk appetite and commercial responses it will not happen uniformly
- academics have tried to estimate when this might occur (Storey – see next slides) using basic assumptions

(1)Method

- reviewed international patterns to see when insurers start to partially retreat (apply higher excesses/premiums) and when they fully retreat from flood cover
- concluded that
 - the 1:50 year flood recurrence triggers partial retreat
 - the 1:25 year flood recurrence triggers withdrawal of cover
- reviewed climate change scenarios (RCCP 2.6, 4.5 and 8.5) and concluded
 - until 2040 little difference in sea-level rise impact
 - but a small sea-level change e.g. 5-7 cm can double flood recurrence e.g. 1:100 year event becomes a 1:50 year event (**NB** this is just SLR and does not account for storm surges).

(2) When?

- estimates that Wellington and Christchurch will start to experience partial retreat from 2030 based on RCP 4.5 with full retreat from 2040
- RCP 4.5 would see 2-3 degrees warming above pre-industrial levels by the end of the century with GHG peaking about 2040 and declining to half their 2050 levels by 2100
- Wellington impacted before Auckland b/c its tidal range (1.2m) is much smaller than Auckland (2.8m) as wider tidal ranges can absorb more storm surge

**Do resilience measures
affect insurability?**

**What affect do climate
change adaptation
strategies have on insurance?**

Impact of resilience measures

(1) Resilience measures and insurability

- yes, risk reduction measures can reduce premiums/excesses – examples being Flockton Basin in Christchurch, Roma in Queensland, but remember though:

- house insurance is based on all perils, so premium is not just about flood
- premiums will reflect how granular the risk is assessed – property, suburb, post code or regional level
- what level of resilience are we talking about? How affordable is this, specially for small communities and low rateable base? How much will central government contribute?
- what will a cost-benefit analysis conclude?
- there are many other much better reasons to become resilient than insurance - socio-economic disruption, asset value decline, loss of amenity values

What do we do if increasing risk is the “new norm”?

- (1) **Apply a risk management framework** – control, avoid, transfer or accept
- (2) **Accept Climate Change requires a paradigm shift in thinking** – we can't continually react, clean up and stay put
- (3) **If we protect** – what are the limits to this approach, acknowledging some risk will always exist?
- (4) **Anticipate and adapt** – build back better or somewhere else
- (5) **Take an adaptive pathway** – work with uncertainty, think about timely interventions and investment (not too soon nor too late)
- (6) **Rethink land use planning** – reduce, hold or avoid the increasing risk

Climate Strategies and Insurance

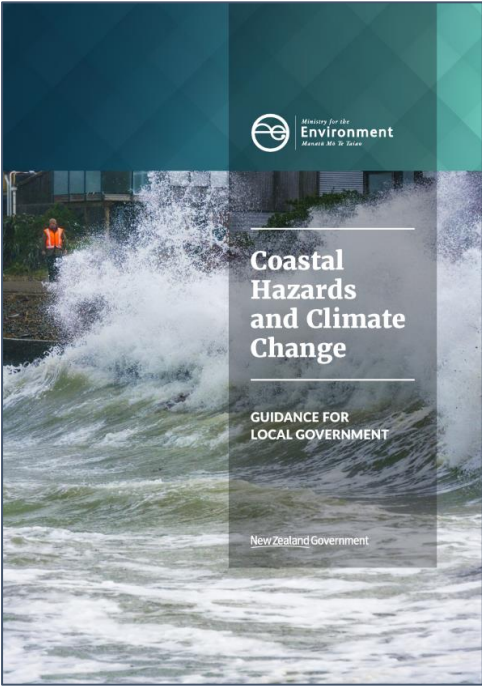
What affect do climate change adaptation strategies have on insurance?

- adaptation is as critical as reducing emissions
- insurers face climate impacts on all sides:
 - they underwrite physical assets e.g. houses
 - they are significant investors (US\$30 trillion) so as the world transitions to a low carbon economy, their assets/investments will change due to Government regulatory decisions, rapid changes in consumer/investor behaviour etc.
 - they provide liability insurance e.g. protect entities like councils from decisions they may/don't make that impact third parties e.g. climate change adaptation decisions
- large insurers (and banks) will be required to make climate-related disclosures in their financial statements to provide information to inform investors and the public (NZ law from 2023)
- Regulators (RBNZ and FMA) will look at the extent of insurance exposure to climate risk and its impacts on financial stability and how it discloses climate risks
- Insurers must collect sufficient premium to cover their risks, costs and minimum solvency set by the RBNZ.

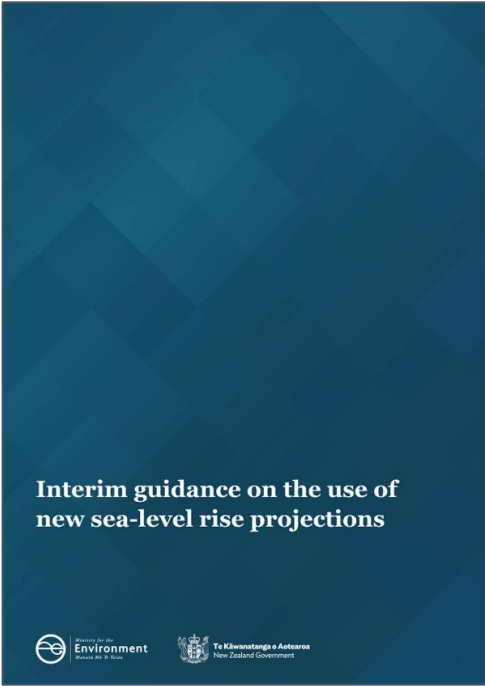


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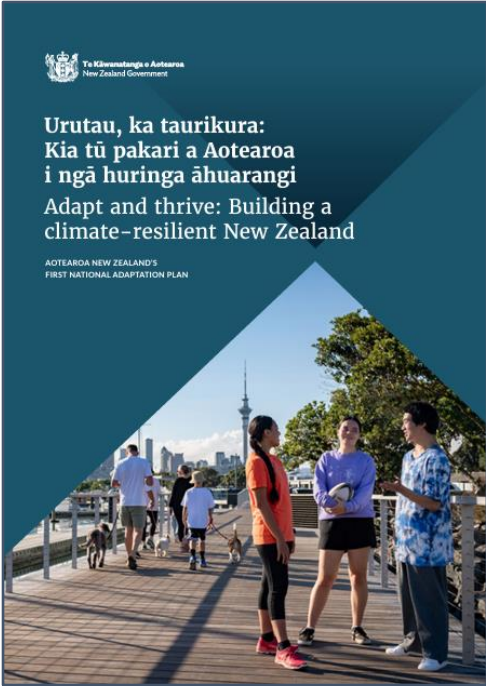
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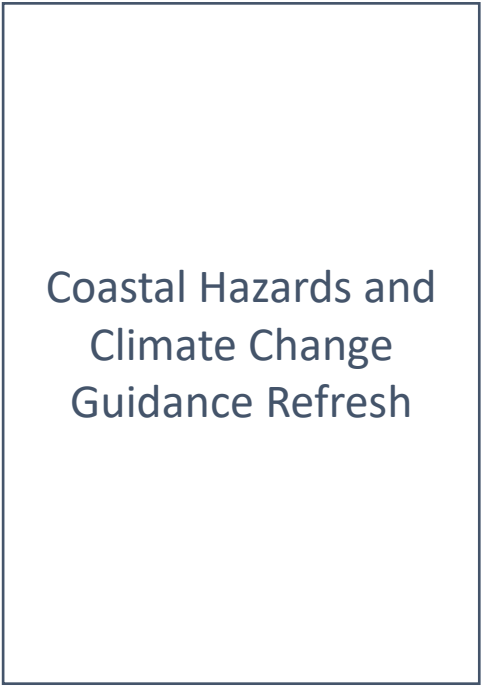
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2022



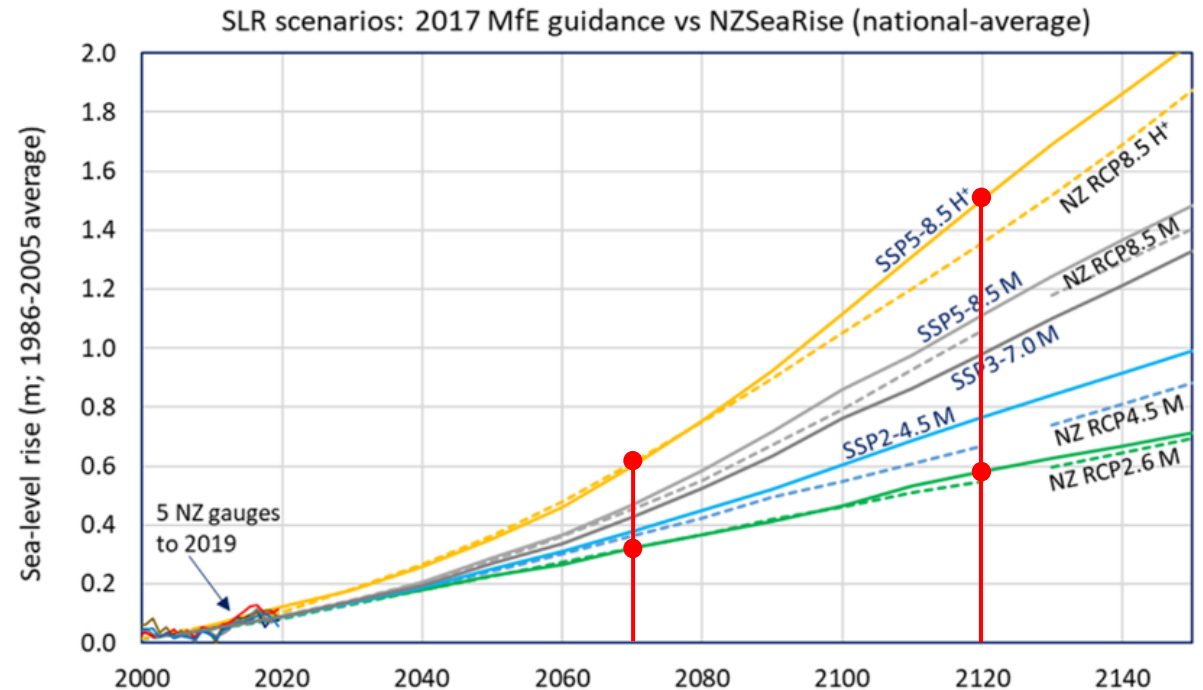
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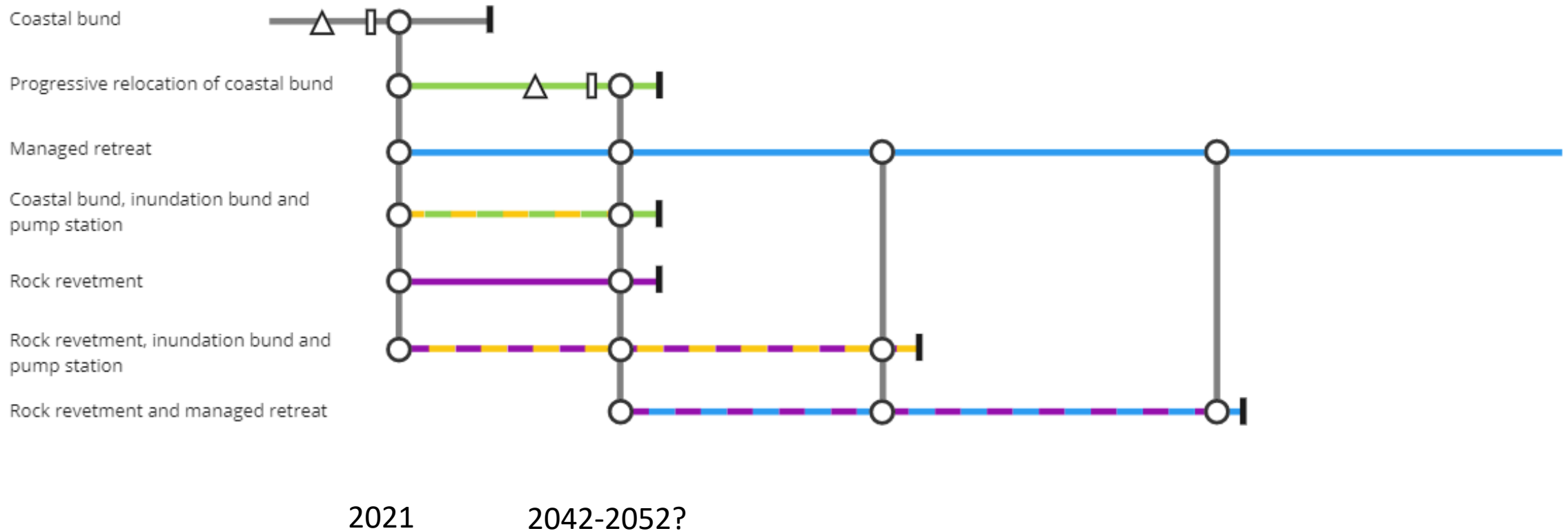
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Adaptive Planning

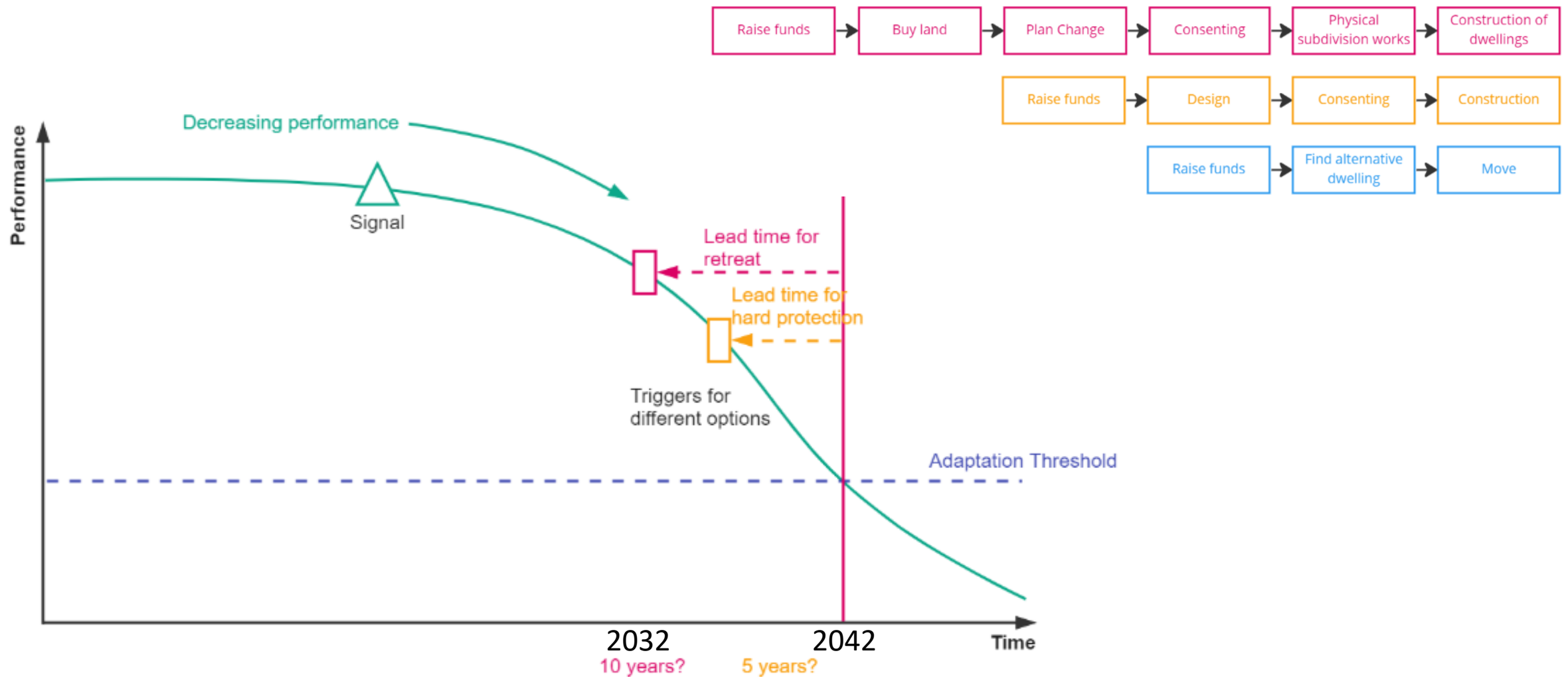
- The future is uncertain
- Don't want to lock in options – but want to know they exist and can be implemented
- Trigger based not time based
- Allows us to monitor change and act before things deteriorate
- Funding



Coastal Adaptation Plan? Or Coastal Adaptation Plan including Implementation Plan?



Implementation – when do we do things differently?



Managed Retreat Land Banking Example Timeframes

2022 Renew bund consent for further 30 years.

2023 Confirm agreement for retreat.
Secure land.
Prepare contracts.
Seek funding partners.

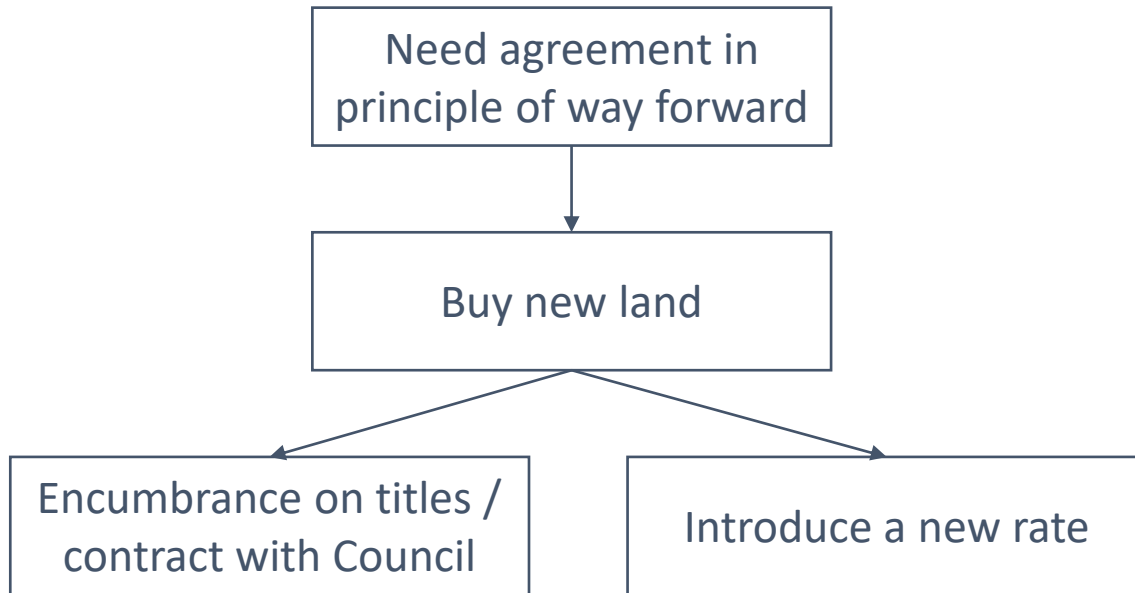
2035 Revisit plan – Is there easier legislation? Funding for adaptation? Cheaper protection options? Has change happened as fast as predicted?

2038 If retreat is still the preferred option complete subdivision process (or revise the date in which the plan needs to be revisited).

2043 onwards Relocation – Could be in stages. Possible drivers include – need for significant investment in existing home, increased risk at site, personal preference to relocate sooner.

How can we implement a plan with such uncertainty?

1. Need a way to raise money – land banking?



- Conditions
- Money is to be returned if not required for retreat? Ability to put this money towards protection works?
- Timings for vacating existing lot?
- Rating obligations – when do you start and stop paying?
- The contract and change to your title protects your equity

2. Need agreed monitoring and review programme

Example Actions

1. Renew the bund consent for as long as possible
2. CoastSnap monitoring
3. Investigate changes in sediment supply which we can help revise model
4. Shoreline monitoring
5. Review new science and policy information
6. Stormwater management from higher in the catchment
7. Purchase new land (conditional on pathway)
8. Design work for hard protection (conditional on pathway)

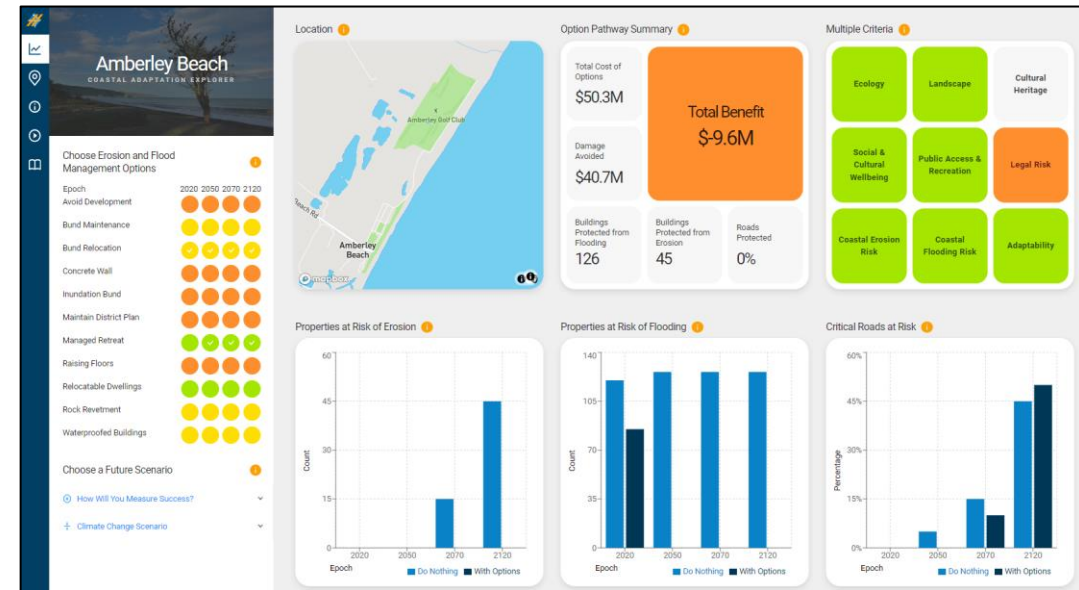


Breakdown of costs for retreat

	Indicative cost
Purchase of suitable land	\$1,000,000
Subdivision of land through to title based on 109 sections of minimum of 700m ²	\$7,630,000
109 new 120m ² dwelling	\$39,240,000
Demolition and disposal of existing dwellings	\$2,180,000

These costs do not include the following.

- The redevelopment of the old settlement land.
- The cost of the plan change process.
- Additional legal costs.
- Any money saved through the relocation of existing dwellings.
- Any money generated from the leasing of land banked.
- Any money generated from developing more sections.



Breakdown of costs for retreat

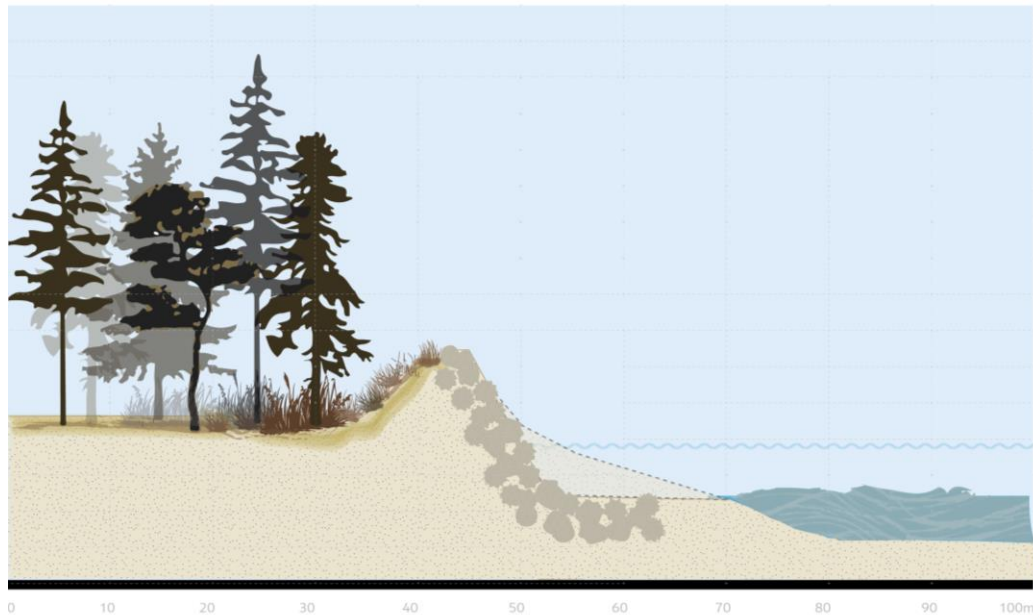
	Indicative cost
Purchase of suitable land	\$1,500,000
Subdivision of land through to title based on 200 sections of minimum of 700m ²	\$14,000,000
	\$15,500,000

	Indicative cost
109 sections pay \$1 per day for 30 years (\$10,950 per property total)	\$1,193,550
91 sections pay market rate (\$180,000 for this example)	\$16,380,000
	\$17,573,550
	less real estate / legal fees etc

Will need to seek additional funding to help with other aspects of retreat.

Alternative options

	Total cost	Cost per year per property for 30 years	Cost per property per year for 30 years if cost is split 50/50 with rest of District
Rock revetment	\$22,500,000	\$12,907	\$6,453
Interlocking concrete wall	\$8,882,000	\$5,095	\$2,548



Triggers for change

Proactive triggers

- Cost of maintaining the bund is too great?
- Ponding of water is becoming a nuisance?
- Nuisance flooding becoming more regular?
- Threat of insurance retreat?
- Cost of managing the flood risk is too great?
- Groundwater intrusion into sewer system?
- Seawater intrusion into wastewater pipes?
- New capital works are required?

Reactive triggers

- Large event?

