

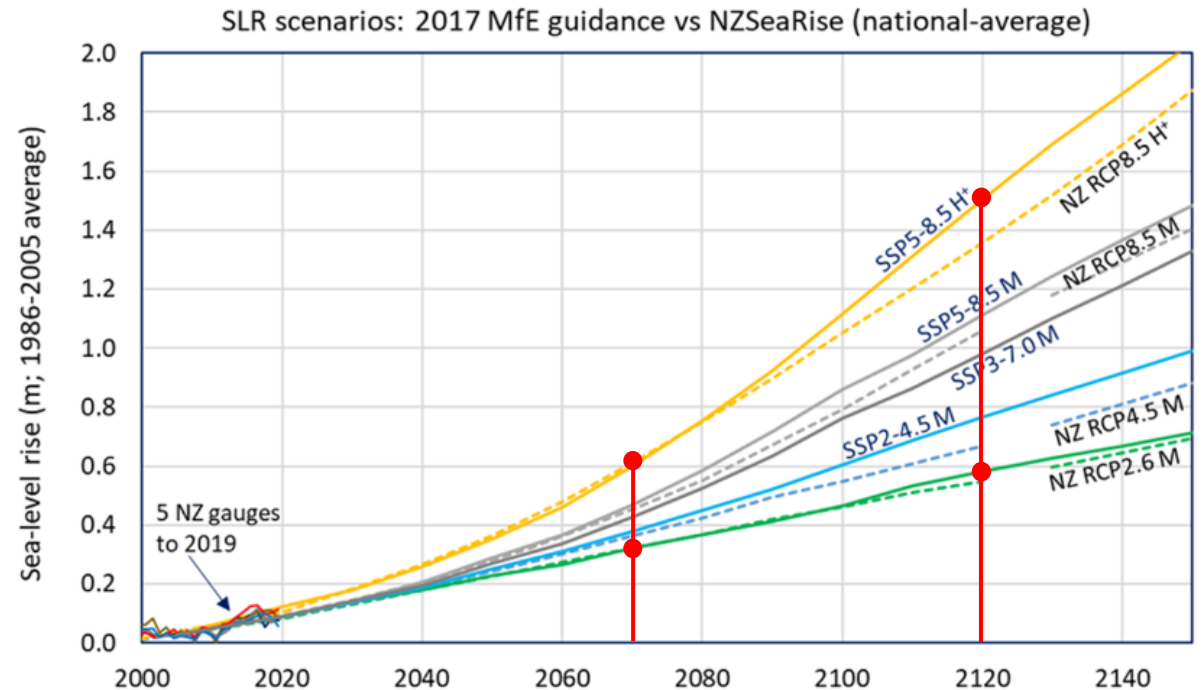
COASTAL CONVERSATIONS

A scenic coastal view of a beach with waves, a small island in the distance, and a tree in the foreground. The sky is clear blue with some light clouds on the horizon. The water is a deep blue, and the beach is a mix of sand and rocks. A tree with long, thin leaves is in the foreground on the right side.

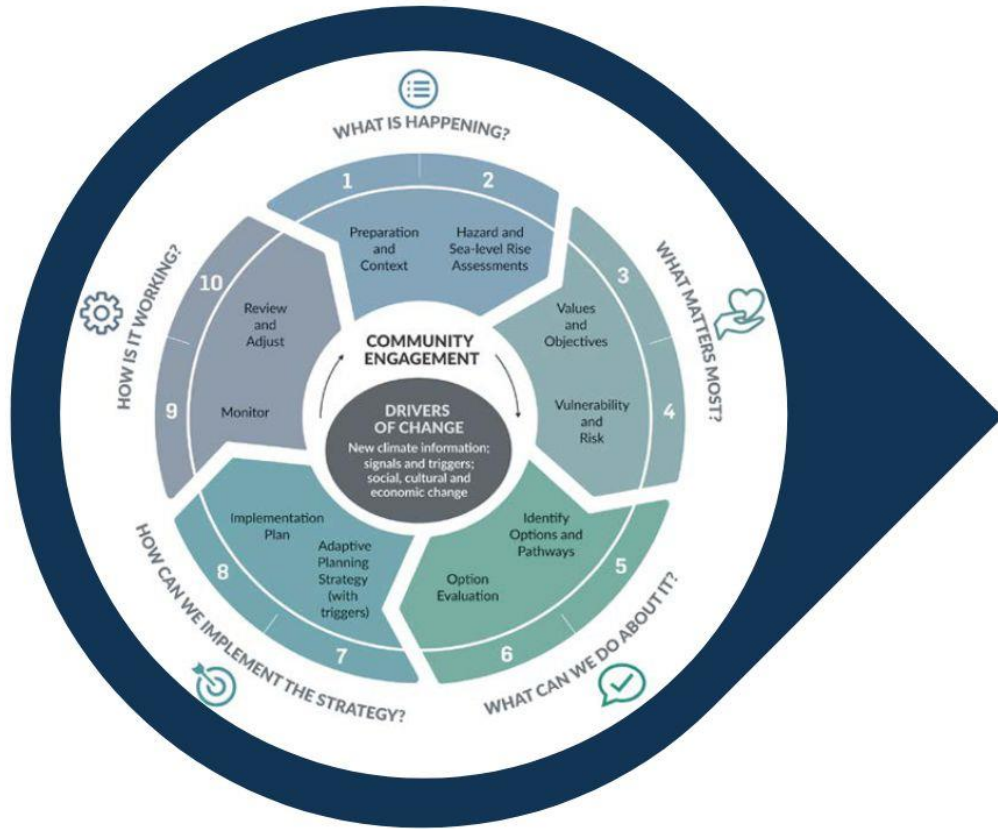
Metunau
9 February 2023

Adaptive Planning

- Takes a long-term planning approach
- Enjoy an area for as long as possible
- 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



Our project



Phase 1

• **WHAT IS HAPPENING?**

Phase 2

• **WHAT MATTERS MOST?**

Phase 3

• **WHAT CAN WE DO ABOUT IT?**

Phase 4

• **HOW CAN WE IMPLEMENT THE STRATEGY?**

What is happening?



What matters most?

- Public and private assets are protected where it is cost effective to do so.
- Safe access is provided to and along the foreshore.
- The Motunau River mouth remains accessible for boating.



What can we do about it?

Most options have been disregarded

Motunau Beach
COASTAL ADAPTATION EXPLORER

Choose Erosion and Flood Management Options

Option	2020	2050	2070	2120
Wave Wall (Rocks)	✓	✓	✓	✓
Wave Wall (Blocks)				
Wave Wall (Concrete)				
Reinstate Rocks				
Stormwater Controls	✓	✓	✓	✓
Sandy Bay Renourishment (sand)	✓	✓	✓	✓
Sandy Bay Rock Toe				
Maintain District Plan (floor levels and setbacks)				
Managed Retreat				

Choose a Future Scenario

- How Will You Measure Success?
- Climate Change Scenario

Location

Option Pathway Summary

- Total Cost of Options: \$5M
- Damage Avoided: \$6.5M
- Total Benefit: \$1.5M
- Buildings Protected from Flooding: 0
- Buildings Protected from Erosion: 14
- Roads Protected: 19%

Multiple Criteria

- Ecology
- Landscape
- Cultural Heritage
- Social & Cultural Wellbeing
- Public Access & Recreation
- Legal Risk
- Coastal Erosion Risk
- Coastal Flooding Risk
- Adaptability

Properties at Risk of Erosion

Epoch	Do Nothing	With Options
2020	0	0
2050	10	0
2070	15	0
2120	45	30

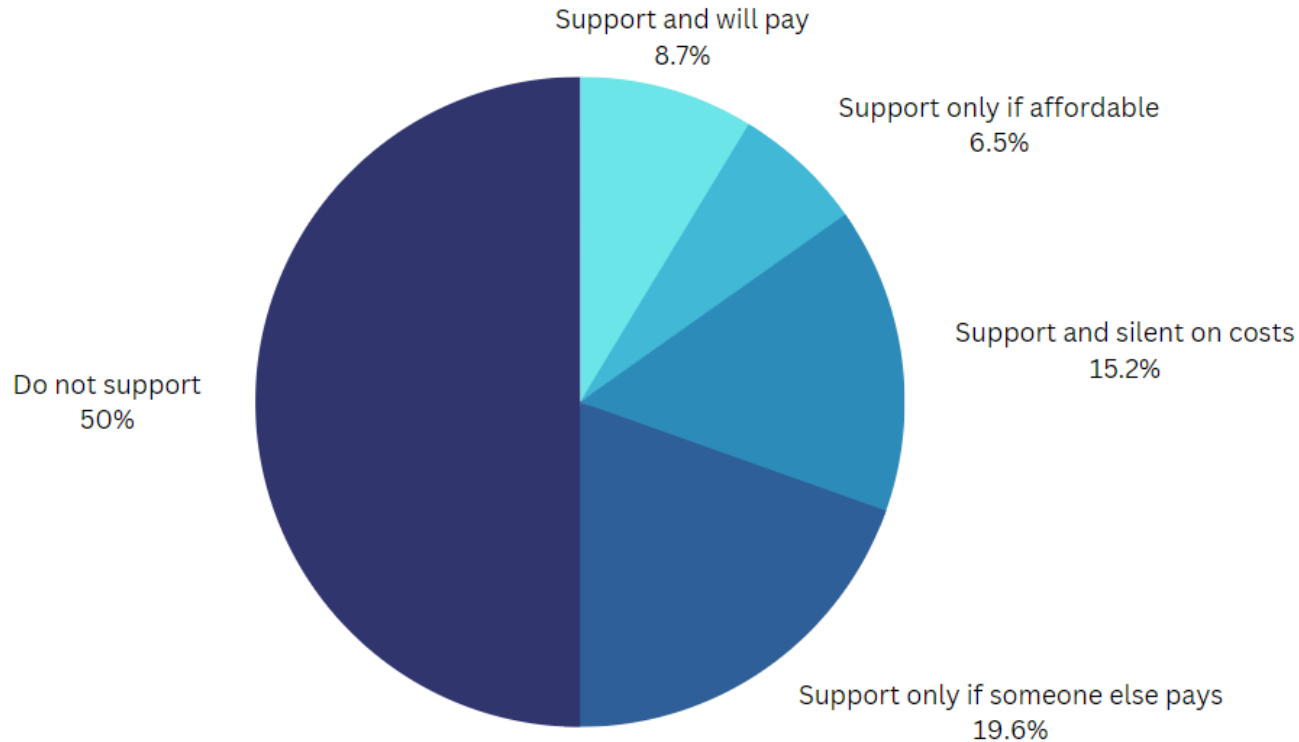
Properties at Risk of Flooding

Epoch	Do Nothing	With Options
2020	10	10
2050	12	12
2070	13	13
2120	14	14

Critical Roads at Risk

Epoch	Do Nothing	With Options
2020	0%	0%
2050	1%	1%
2070	2%	2%
2120	32%	32%

Wave trip wall



Issues have been known since the 1960s and people bought knowing the issues.

This is a huge expense to only benefit a small amount of rate payers who are not permanent residents.

No manmade structure will work.

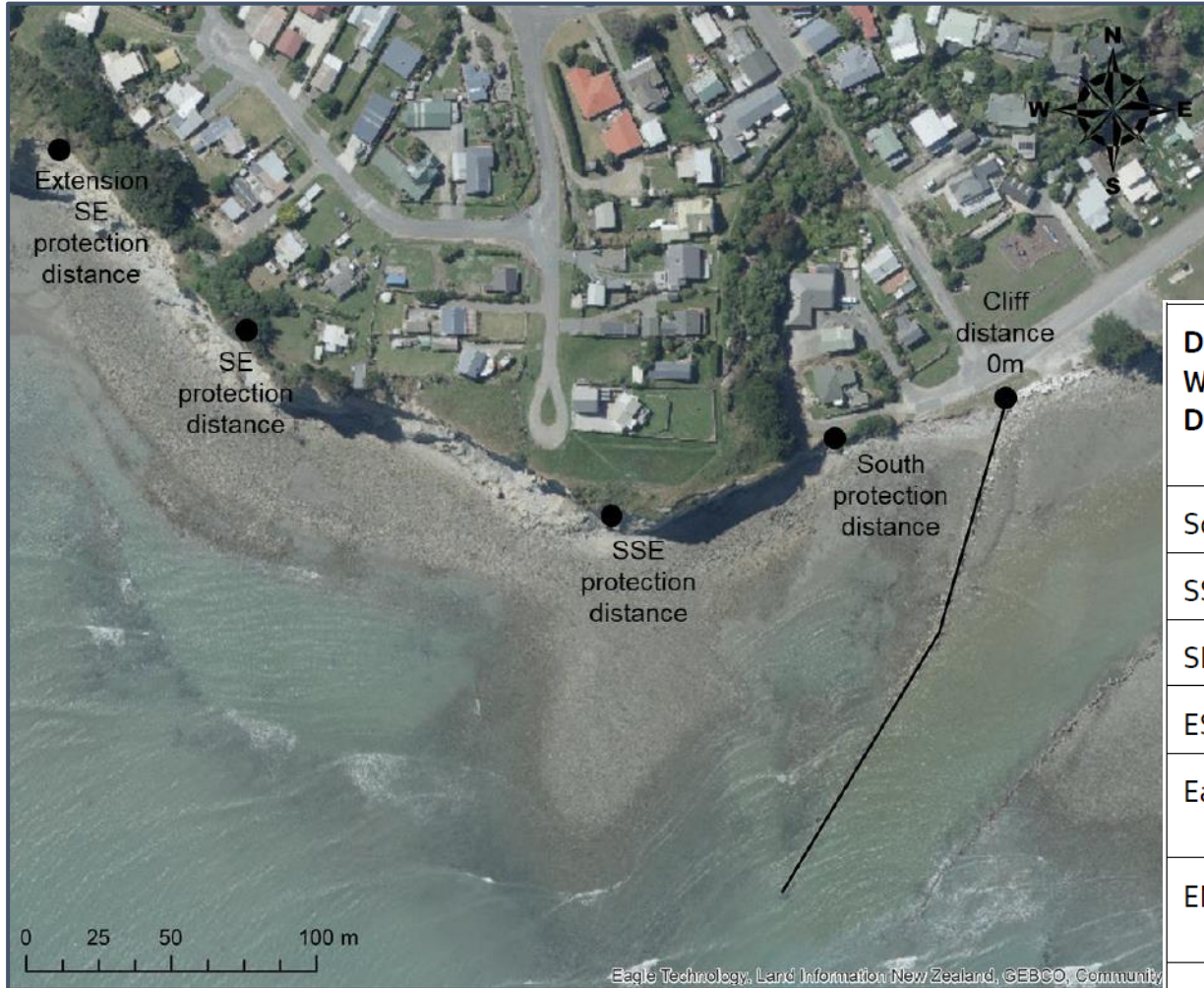
Don't want to be burdened with a rate once my property has been eroded.

No human is smarter than nature.

Alternative options to consider

1. Upgrade the River Mouth Training Wall
2. Stormwater Management
3. Planting at Sandy Bay
4. Sandy Bay Rock Toe
5. Maintain / enhance planning provisions
6. Retreat

Option 1 – Upgrade of the River Mouth Training Wall




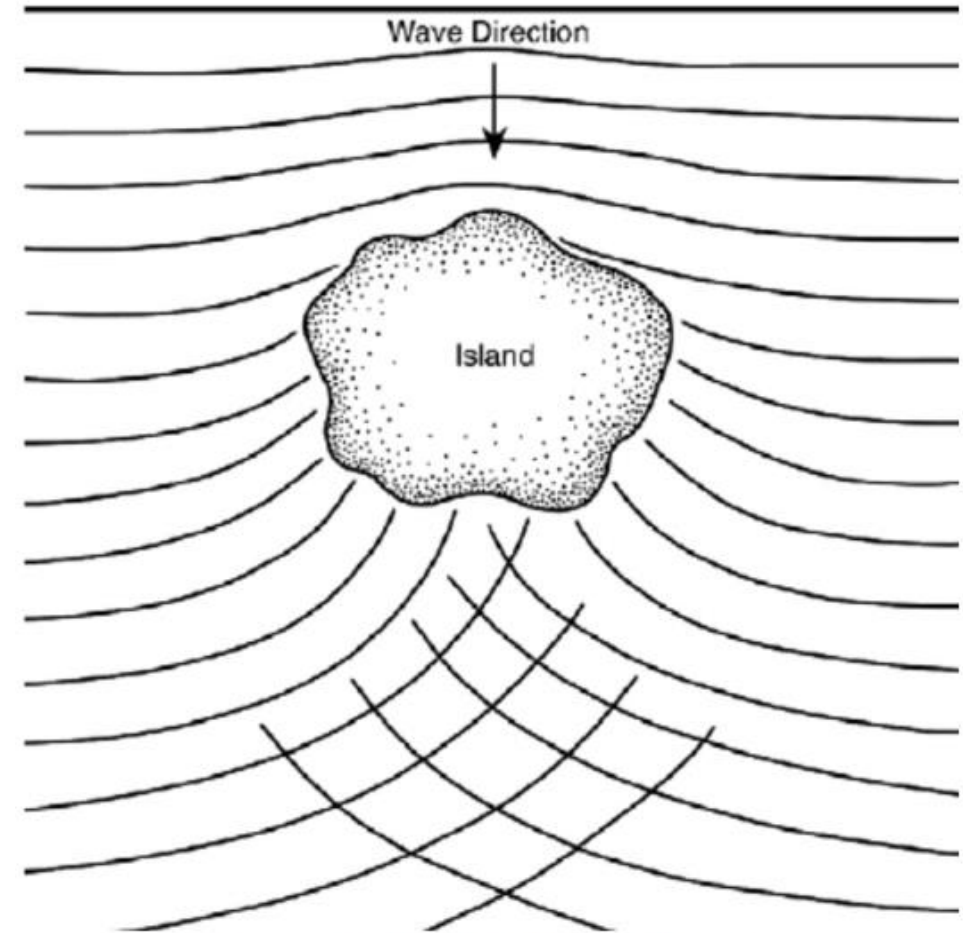
Deep Water Storm Wave Approach Direction	Refracted Inshore Wave Approach Direction	% of storm waves	Cliff Protection Lengths for existing wall length	Cliff Protection Lengths for wall length extended by 20 m
South	SSE	18%	140 m	160 m
SSE	SE	9%	280 m	370 m
SE	SE	9%	280 m	370 m
ESE	SE	9%	280 m	370 m
East	ESE	14%	>400 m (Total length)	>400 m (Total length)
ENE	ESE	4%	>400 m (Total length)	>400 m (Total length)
NE	ESE	33%	>400 m (Total length)	>400 m (Total length)

Limitations

- Consent does not cover the extension or increase in height.
- Should be designed to a 1% AEP storm tide.
- Should be about 1.4m higher at landward end and over 2m higher at the seaward end of the wall to meet current day requirements (2.3-3.5m landward and up to 3m at the seaward end to meet 50 year design life).
- Limited understanding on refractions around Motunau Island.

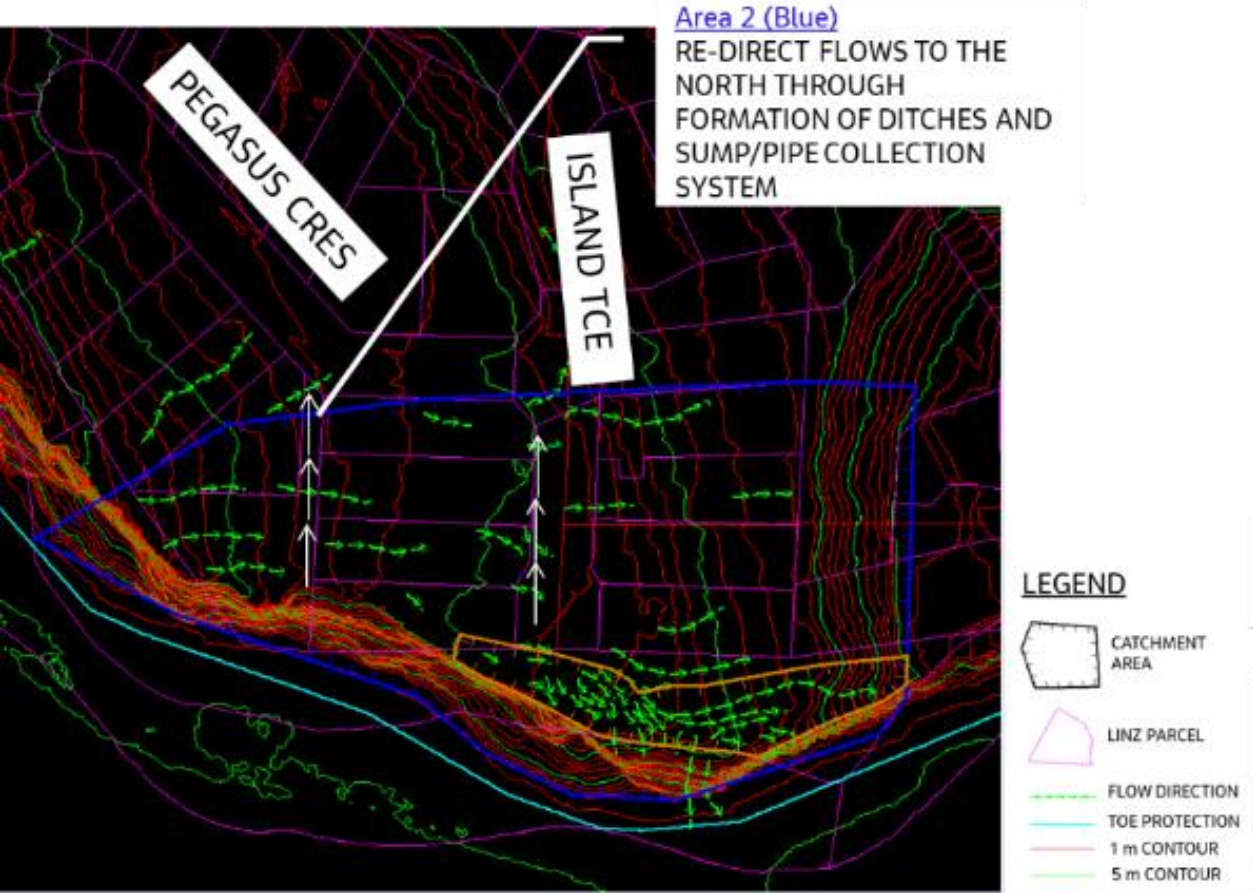


Wave diffraction around the tip of a breakwater. Image Google Earth. 



Diagrammatic representation of wave refraction patterns around an island in the open ocean. As a wave passes around an island, the parts closest to land encounter shallow water and are slowed relative to the parts remaining over deeper water. As a result, refraction occurs and a pattern of wave interference is often formed on the leeward side of the island. In principle, turtles might exploit such wave patterns to help them localise islands once they have drawn near.

Option 2 – Stormwater management



Holistic review of Motunau stormwater



IDENTIFY ISSUES (2022)

HDC Engineers have been on site and looked at multiple stormwater issues (coastal and non-coastal).



SCOPING PROJECTS (FEB 2023)

HDC Engineers will scope projects including the work involved, cost and effectiveness of the proposal.



PRIORITISATION (MID 2023)

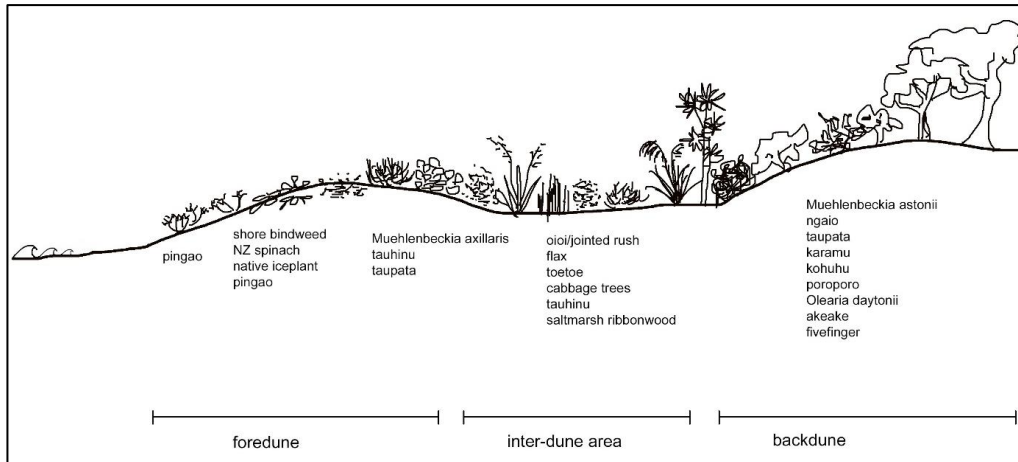
These projects can be presented to the community to decide how much you are willing to spend annually. This will help determine what projects can happen when.



SCHEDULING (2024)

A new stormwater rate would be introduced to fund this programme of works in the 2024/2025 Long Term Plan. Works would happen over multiple years with the priority of projects being determined by the community.

Option 3 – Sandy Bay planting



Option 4 - Sandy Bay Rock Toe

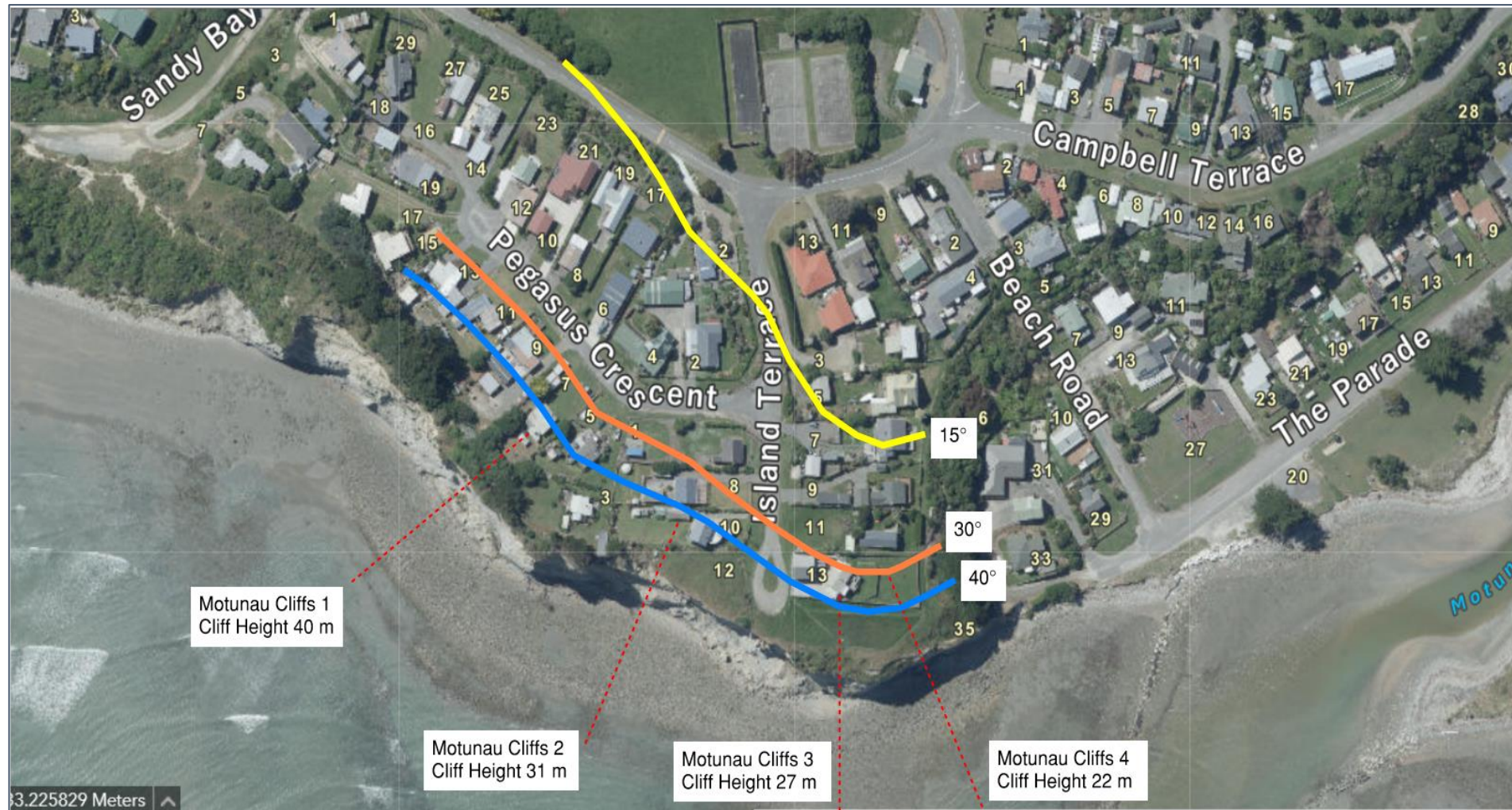


Option 5 - Maintain / enhance planning provisions

Updating provisions to enable adaptive planning



Option 6 – Retreat ad hoc or supported?

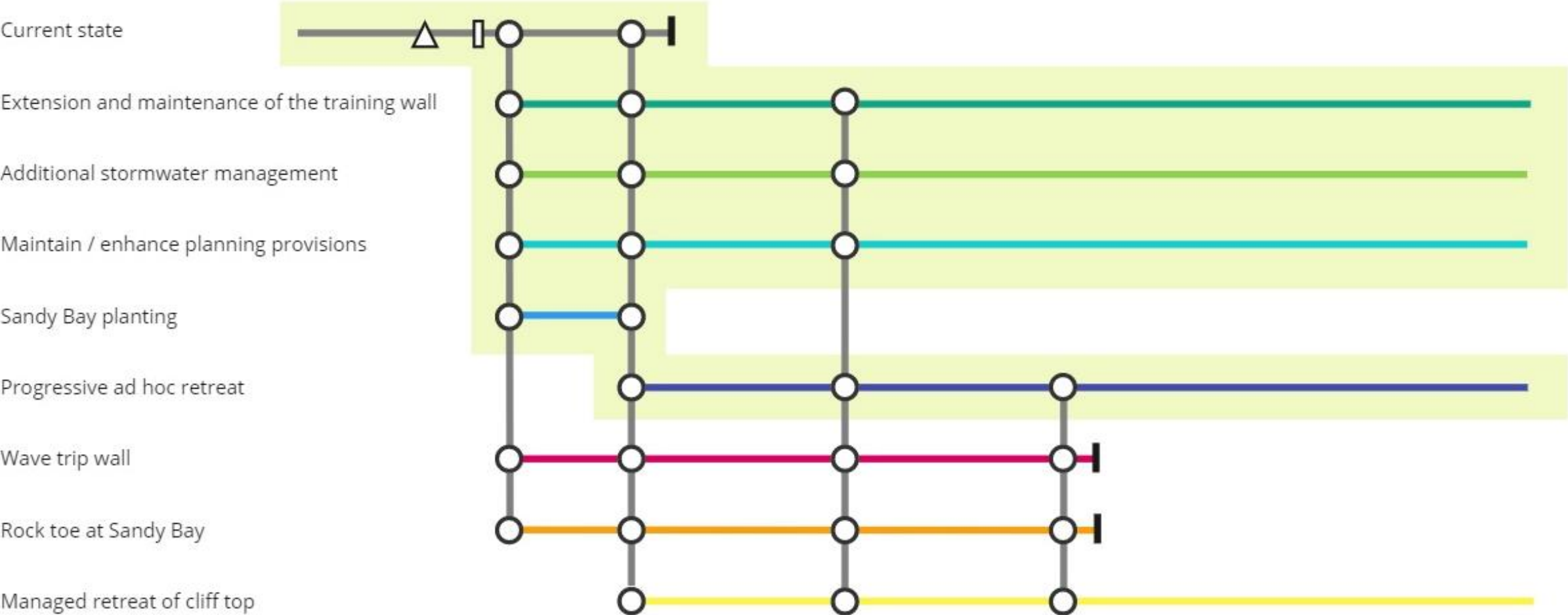




Seaward of the erosion lines:

- Around 13 properties in the next 50 years
- Around 40 properties in the next 100 years

Proposed plan



Phase four: How can we implement the strategy?

