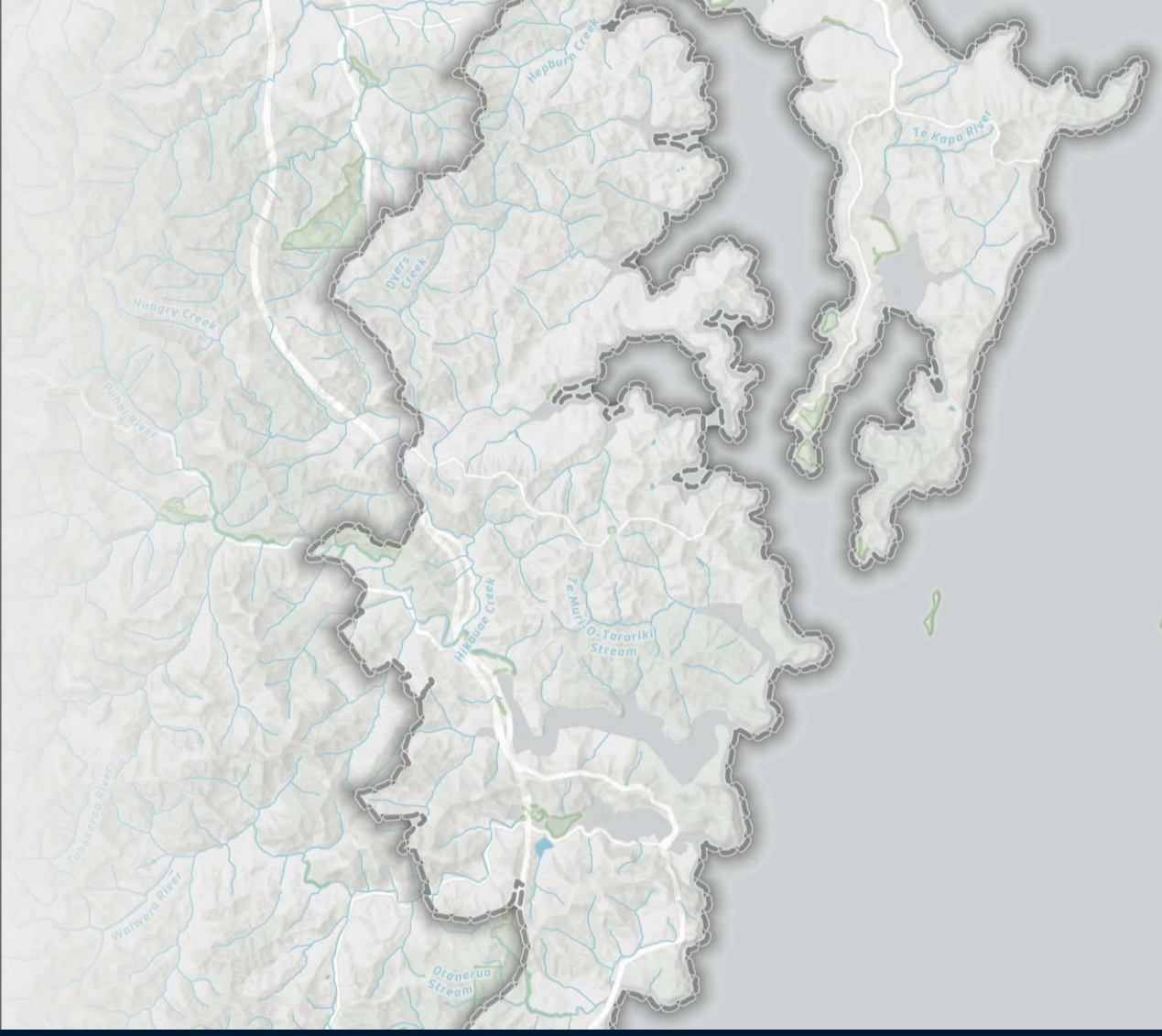

Ngā mahere whakaurutau mō te takutai

Shoreline Adaptation Plan

Snells Beach to Ōrewa Hibiscus Coast
Volume 3: Adaptation Strategies

July 2025, Version 1.0

2025

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Shoreline Adaptations Plan area overview map for Snells Beach to Ōrewa Hibiscus Coast. Prepared for Auckland Council by Tonkin + Taylor 2023.

Mātauranga Protection Statement (Disclaimer)

Auckland Council acknowledges that all cultural information within this document is the intellectual property of iwi who have contributed to the development and co-authoring of this Shoreline Adaptation Plan (SAP). To ensure the protection of Mātauranga Māori, cultural information must not be recirculated to other workstreams without direct consultation with and approval by iwi, to whom this information belongs and how it can be used.

To ensure that cultural values and associations are recognised and provided for in any works programme, it is fundamental that this partnership and co-management approach with the iwi of Tāmaki Makaurau is applied to each specific coastal stretch when implementing the direction set out in this SAP. Failure to do so has the potential to result in significant adverse cultural impacts.

Early and meaningful engagement with the relevant iwi groups on projects under this SAP is an essential requirement. This will ensure that Auckland Council and Auckland Council-owned organisations meet their obligations to Ngā Mana Whenua o Tāmaki Makaurau and Te Tiriti o Waitangi. Iwi must be given the opportunity to act in their role as Kaitiaki when implementing projects under this SAP.

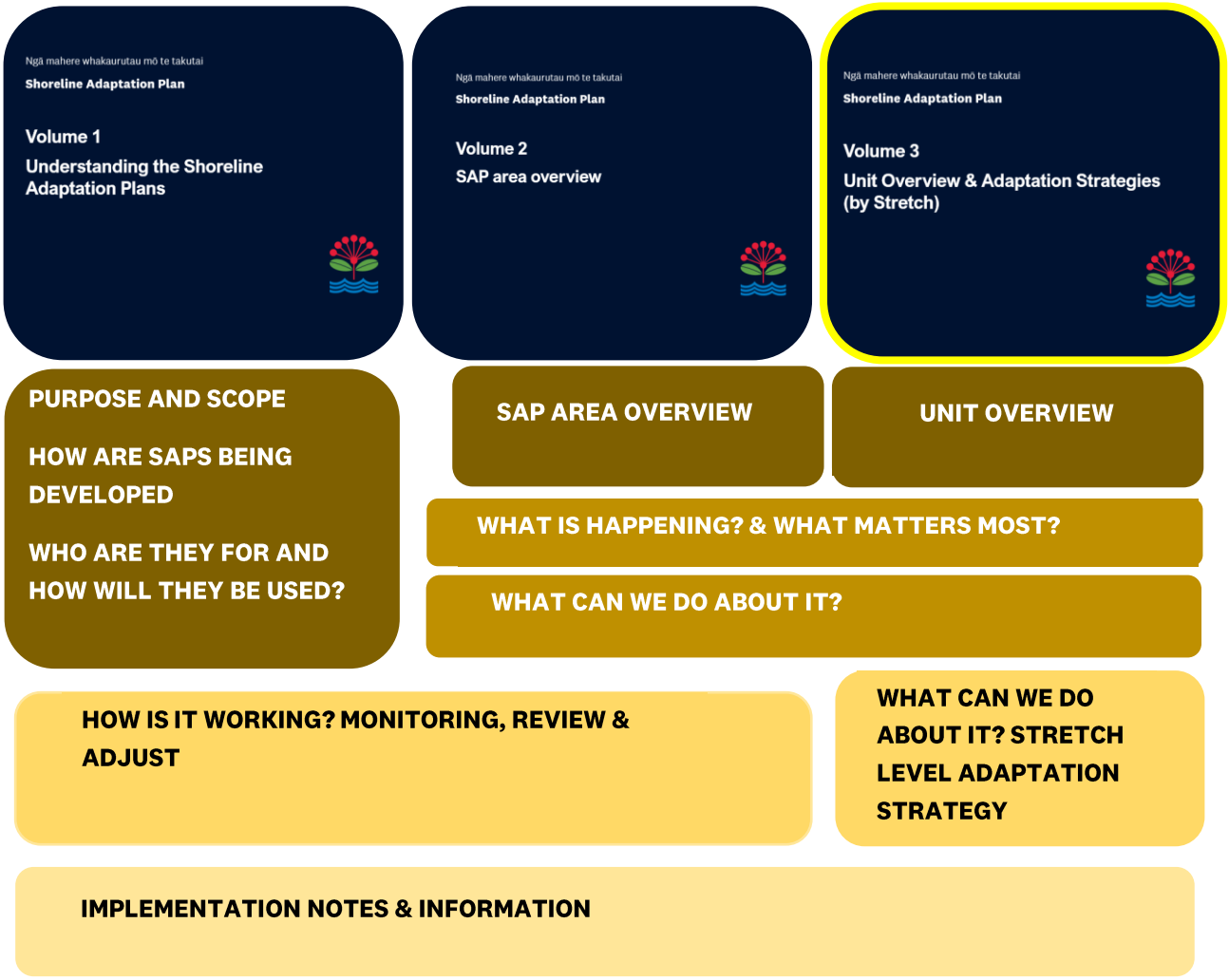
Contents

Figures

Quick Reference

The Shoreline Adaptation Plan (SAP) programme is presented across three volumes of reporting:

- **Volume 1:** Understanding the Shoreline Adaptation Plans - programme and regional scale context
- **Volume 2:** Shoreline Adaptation Plan area specific overview – subregional scale (across 20 SAP areas)
- **Volume 3:** Unit (and stretch) context and adaptation strategies set for each section of Auckland's 3,200 km of coastline.



Glossary

Key terminology and infographics commonly used within this volume and all of the shoreline adaptation plan documents are outlined below.

Term	Definition
Adaptive planning	• Adaptive planning encompasses the hazard assessments, the values and objectives and the vulnerability and risk assessments that feed into the dynamic adaptive pathways planning approach, and the measures to implement them through the Resource Management Act 1991, Long-Term Plans, asset plans and other Auckland Council plans, along with the monitoring framework for review and adjustment (Ministry for the Environment, 2024).
Annual Exceedance Probability (AEP)	• The probability of an event occurring in any given year. For example, the 1% AEP has a 1% chance of being met or exceeded in any given year.
AVD-46	• Auckland Vertical Datum – 1946 was the mean sea level established in 1946 and used to define the zero datum for land development.
Biodiversity Focus Area (BFA)	• Prioritised areas of ecological significance that guide a delivery of conservation activity and were identified as they protect a representative range of all indigenous species and ecosystems within the region.
Catchment flooding	• Flooding which occurs when the amount of rainfall exceeds the capacity of an urban stormwater network or the ground to absorb it.
Climate hazard	• The potential occurrence of climate-related physical events or trends that may cause damage and/or loss.
Coastal erosion	• The removal of the material forming the land due to natural processes, resulting in the coastline moving inland over time.
Coastal inundation	• The flooding of low-lying coastal land that is normally dry, due to elevated sea levels.
Council-controlled organisation (CCO)	• Organisations in which Auckland Council has the responsibility to appoint at least 50% of the board of directors or trustees. Auckland Council has four substantive CCOs: Auckland Transport, Tātaki Auckland Unlimited, Eke Panuku Development Auckland, and Watercare.
Coastal Marine Area	• The coastal marine area is defined as the area of sea from the line of Mean High Water Springs (MHWS) to 12 nautical miles off the coast.
Council	• Auckland Council
Cultural Heritage Inventory (CHI)	• An Auckland Council database which contains records for archaeological sites, historic buildings, historic botanical sites, shipwrecks, and other places of heritage interest in the Auckland region.
Dynamic Adaptive Pathways Planning (DAPP)	• A decision-making approach to analyse the flexibility of options and pathways under conditions of uncertainty using scenarios for stress testing options and monitoring of signals and triggers for anticipatory planning (MfE).
Exposure	• The nature and degree to which a system is exposed to significant climate variations.
Fetch	• The length of an area of the harbour, estuary or sea in which waves are generated by wind, measured in the direction of the wind.

Term	Definition
Hazardscape	• The net result of natural and man-made hazards and the risks they pose to an area.
Indigenous biodiversity	• A living organism that occurs naturally in Aotearoa, and the ecological complexes of which they are part of – this includes all forms of indigenous flora, fauna, fungi, and their associated habitats.
Highest Astronomic Tide (HAT)	• The highest tidal level that can be predicted to occur under average meteorological conditions and any combination of astronomical conditions.
Mean High Water Springs (MHWS)	• The average of high levels of spring tide.
Nature-based solution	• A collection of approaches to address societal issues, including climate change, through the protection, management, and restoration of ecosystems.
SAP	• Shoreline Adaptation Plan
SAP area	• An identified area for the purposes of the SAP development of Shoreline Adaptation Plans. There are 20 SAPs for the Auckland region.
SAP stretch	• Each SAP unit is typically broken down into smaller stretches considering coastal processes, Auckland Council-owned land and asset location, pubic-land boundaries, and infrastructure considerations.
SAP unit	• The SAP area is divided into smaller SAP units to enable a more detailed and comparative view of how risk is attributed across the subject area.
Sea-level rise	• The increase in the level of the ocean, caused by the melting of glaciers and ice sheets and thermal expansion of water as it warms.
Significant Ecological Area	• Significant Ecological Areas (SEAs) have been identified by the Auckland Unitary Plan (AUP: OP) for terrestrial areas, and parts of the coastal marine area. **Marine Significant Ecological Area (SEA-M):** • Identified areas of important indigenous vegetation or habitats of indigenous fauna located in the coastal marine area, and are afforded protection under the AUP:OP. **Terrestrial Significant Ecological Area (SEA-T):** • Identified areas of important indigenous vegetation or habitats of indigenous fauna located on land or in freshwater environments and are afforded protection from the adverse effects of subdivision, use and development.
Site and place of significance to Mana Whenua	• Sites and Places of Significance to Mana Whenua applies to sites and places in the Tāmaki Makaurau/ Auckland region that are protected for their significance to mana whenua. It acknowledges that sites and places have tangible and intangible cultural values in association with historic events, occupation, and cultural activities.
Statutory Acknowledgement Areas (SAA)	• A statutory acknowledgement is an acknowledgement by the Crown that recognises the mana of a tangata whenua group in relation to specified areas - particularly the cultural, spiritual, historical, and traditional associations with an area.
Social Infrastructure	• Facilities and assets that support social activities, interactions, and wellbeing within a community.

Shoreline Adaptation Plan Areas

Tāmaki Makaurau, Auckland, is a coastal city, bounded to the east and west by the South Pacific Ocean and the Tasman Sea. The region has around 3,200 km of dynamic coastline and encompasses three major harbours: the Kaipara, Manukau and Waitemata. Due to its location, much of the city's urban development and supporting infrastructure is concentrated in coastal areas and exposed to coastal processes such as erosion and inundation. These natural processes are considered hazards when they impact on things or locations of value. Climate change related to greenhouse gas emissions is contributing to rising sea levels, which have a range of impacts including increasing the frequency and magnitude of coastal hazard events. Auckland Council began developing a series of Shoreline Adaptation Plans (SAPs) in 2021. These area-based plans form the first step for the SAP programme in achieving a resilient future for Auckland's coasts. A more detailed discussion on the SAP Program can be found in *Volume 1: Understanding Shoreline Adaptation Plans*. Twenty separate SAPs make up Auckland's ~3200 km of coast as follows:

- Aotea Great Barrier and the Hauraki Gulf Islands
- Āwhitu
- Beachlands and East
- Central Auckland
- Highbrook to Whitford
- Kaipara Harbour Moana
- Manukau Harbour East
- Manukau Harbour North
- Manukau Harbour South
- Ōrākei to Tahuna Torea
- Pahurehure Inlet
- Pākiri to Matheson Bay
- Snells Beach to Ōrewa
- Tāmaki Estuary
- Ti Point to Sandspit
- Waiheke Island
- Waimanawa Little Shoal Bay mini SAP
- Waitematā Harbour West
- Weiti Estuary to Devonport Peninsula
- Whangaparāoa
- Whatipu to South Head

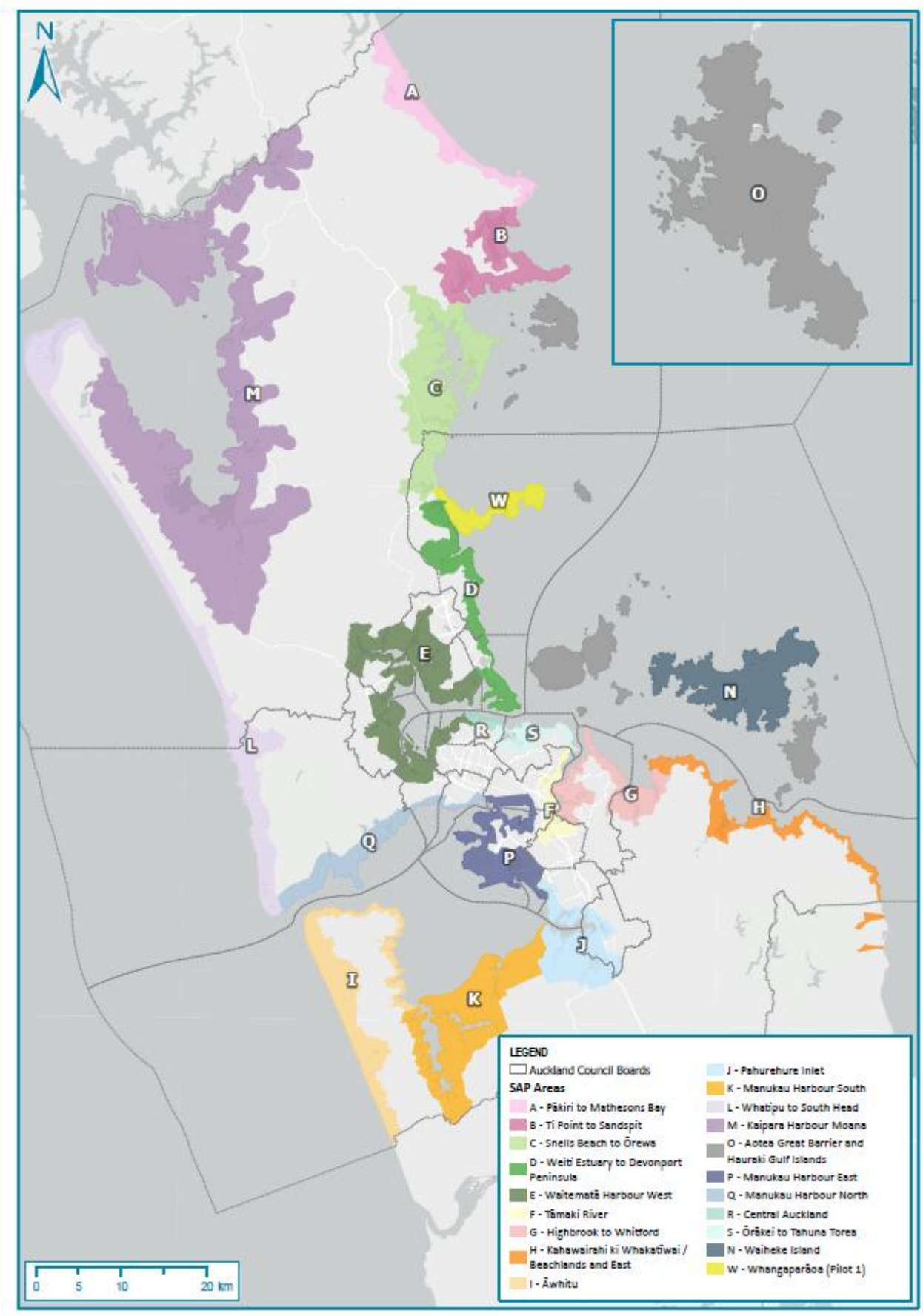
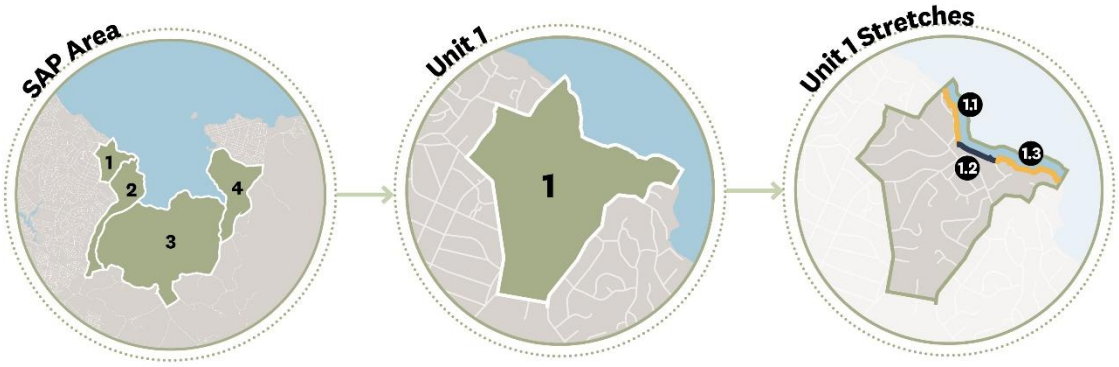


Figure 1: Regional overview of Shoreline Adaptation Plans

SAP areas, units and stretches

Within each SAP area, the coastline has been broken up into coastal stretches based on coastal processes, Auckland Council-owned land and asset location, public land boundaries, and infrastructure considerations. Coastal stretches have been grouped into broader coastal unit areas. It is important to note here that coastal units and stretches do not strictly reflect the historical cultural boundaries which often extend over multiple units or coastal stretches. The figure below outlines the delineation of scale between each SAP area, its sub-units and stretches:



Climate change scenarios (timeframes for change)

For the SAPs, the following scenarios are used to evaluate how exposure to coastal inundation, erosion and instability and sea-level rise may impact coastal land and assets.

Table 1: Shoreline Adaptation Plan climate change scenarios

	Sea-level Rise	Coastal Inundation	Coastal Erosion	Catchment flooding
Low climate change	• Present day (relative) sea level • Up to 0.5 m	• 1% AEP storm surge event	• Erosion and instability susceptibility line '2050' • (RCP 4.5) • includes consideration of 0.28 m of sea-level rise)	1% AEP rainfall event + climate change projections for rainfall
Moderate climate change	• 0.5 m • Up to 1 m	• 1% AEP storm surge event plus 0.5 m of sea-level rise	• Erosion and instability susceptibility line '2080 RCP 4.5 and 8.5' • Includes consideration of 0.55 m of sea-level rise	
High climate change	• 1.0 m • Up to 2 m	1% AEP storm surge event plus 1.0 m, 1.5 and 2 m of sea-level rise	• ASCIE 2130 (RCP8.5 and 8.5H+) • Includes consideration of 1.18 m and up to 1.52 m of sea-level rise	

Auckland Council's adaptation strategies

High-level adaptation strategies are developed for each coastal stretch under a low, moderate and high climate change scenario (inclusive of sea-level rise projections), with an indication of how these choices reflect the escalating risk, considerations of infrastructure providers, and the values and objectives of local iwi and the local community. Importantly, strategies outlined within each unit and subsequent coastal stretch apply only to the area of Auckland Council-owned land and assets along the coastal margin. These recommended strategies do not apply to offshore activities (such as marine farms) or private property. Each high-level strategy provides flexibility for how it is applied to different assets. The value of the strategic approach is to ensure general continuity across asset management, acknowledging hazard risks and impacts of management of one asset class may impact on or have implications for others. Coastal adaptation strategies applied to each coastal stretch are described in further detail below:

No Action

- There are limited risks identified to Auckland Council land and assets as a result of coastal hazards and climate change.
- Natural coastal processes may be complementary to the natural coastal environment or its values.

Maintain

- Better decision-making today for Auckland Council land and assets.
- Actions manage risk, build resilience and support best practice coastal management outcomes.

Protect

- Uses and assets are maintained in their current location.
- Protection measures (mitigations) are required to manage risk, and nature-based solutions and hard protection may be utilised.

Adaptation Priority Area

- Auckland Council land and assets are exposed to hazard risk including the impacts of climate change.
- The value and importance of assets, complexity of the hazardscape and social, cultural or ecological values are present which requires further adaptation planning to determine a management response.

Unit 1
Snells Beach to Ōrewa Hibiscus Coast

Rocky points within this unit are covered in coastal forest dominated by pōhutukawa.

Matakana River

Coastal protection structures armour many areas of the Snells beach coast. When renewed walls have been located to provide beach space and support access to the coast

Brick Bay Sculpture Park

Brick Bay

Ecological values & bird habitat

Community value and support for ecological values and habitats

Grange St

Tamatea Dr

Ariki Dr

Ariki Reserve

Snells Beach

Snells Beach Rd

Snells Beach is renowned for its significant avifauna values, with a variety of species using the area for feeding, roosting and breeding purposes. Species include Fairy Tern, Caspian tern, Red-billed Gull, South Island Pied Oystercatcher and Bar-tailed Godwit

Sheltered shallow reef system that supports a variety of common marine fauna

Dawson Rd

Highfield Garden Reserve

Highly valued reserve supporting community uses

Donkeys at Highfield

Algies Bay

Wainamu Point

Mahurangi E Rd

Algies Bay Coastal Compartment Plan

Aspirations for improved coastal connections to the east

Williams Avenue Esplanade and Recreation Reserve

Goldsworthy Bay

Scandretts Bay

Sophia Rd

Martins Bay Rd

Local residents have observed changes and increased erosion of coastal areas, loss of sand and changes to the coastal marine area

Algies Bay Residents and Ratepayers Association, local landowners and council involved in pest management and ecological restoration within Algies Bay

Algies Bay

Coastal armouring at Algies bay north

Key coastal connection/boat ramp access

Highly valued coastal connections and access to the coast

Unit boundary

1.1 1.2 Stretch

Informal recreation park

Auckland Council owned land

0 500m 1km

N

Unit 1: Snells Beach and Algies Bay

Unit 1 includes the communities of Snells Beach and Algies Bay. It extends from the southern end of Brick Bay along the east-facing coastline of the northern Mahurangi Peninsula and ends at the edge of Scandrett Regional Park. It fronts Kawau Bay with coastal reserves along much of the coastline. Suburban-style residential development is the primary land use for the unit, with rural countryside living and grazing pasture bookending this residential area in both the north and south. This coastline is characterised by the sandy pocket beaches and shallow intertidal flats of Snells Beach, Algies Bay and Goldsworthy Bay, separated by rocky sandstone headlands.

What is happening? Coastal context and hazardscape

The coastline is relatively low-energy being in the lee of Kawau Island. However, the coastline and its beaches are periodically exposed to low, short period, depth-restricted waves, generated by strong onshore (southeast to northeast) winds from localised storm events.

These beaches are relatively closed systems, with little input of new sediment or transport of sediment between these beaches. It is not evident that there is any strong net longshore sediment transport along these beaches, with distribution of upper beach sand responsive to coastal processes. Given the limited sediment supply, and limited dry, high-tide beach areas, there is limited opportunities for any significant sand dunes to form and be maintained naturally.

Storm events, particularly when combined with elevated water levels, can result in erosion of the upper beach and reserve edge along this coastline. A storm scarp is often evident on the upper beach after storm events. This can impact assets if not designed accordingly. Sand eroded from the upper beach gradually returns over periods of weeks to months, aided by long-period waves and vegetation that captures and stabilises wind-blown sand.

Previous dune planting has occurred along Snells Beach, however this has not always survived storm events. The February 2023, Cyclone Gabrielle event resulted in failure of the timber seawall armouring the reserve edge adjacent Sunburst Avenue, Snells Beach. The seawall has since been renewed and realigned further landward in December 2023 (see figures below).

There are multiple existing coastal protection structures along this section of coastline, including a timber seawall at Tamatea Esplanade Reserve, and various rock masonry rock revetment and rock masonry seawalls along Algies Bay. There are also sections of unarmoured coastal edge with no active management. Some of the key features are as follows:

The northern end of Snells Beach has an approximately 100 m long sand dune constructed in 2019 with imported sand and planted with native dune vegetation. This has been impacted by storm events, resulting in erosion of the dune toe.

Timber retaining seawall at Sunburst Avenue, Snells Beach (Source Auckland Council).

Sloping masonry seawall and tiered timber retaining, Algies Bay Reserve (Gordon Craig Place).

Willjames Avenue Esplanade rock revetment completed 2025).

Coastal inundation flooding is predicted to have the most significant impact at the northern end of Snells Beach, with the flooding extent increasing landward in the high change scenario to impact coastal reserves, assets and existing uses.

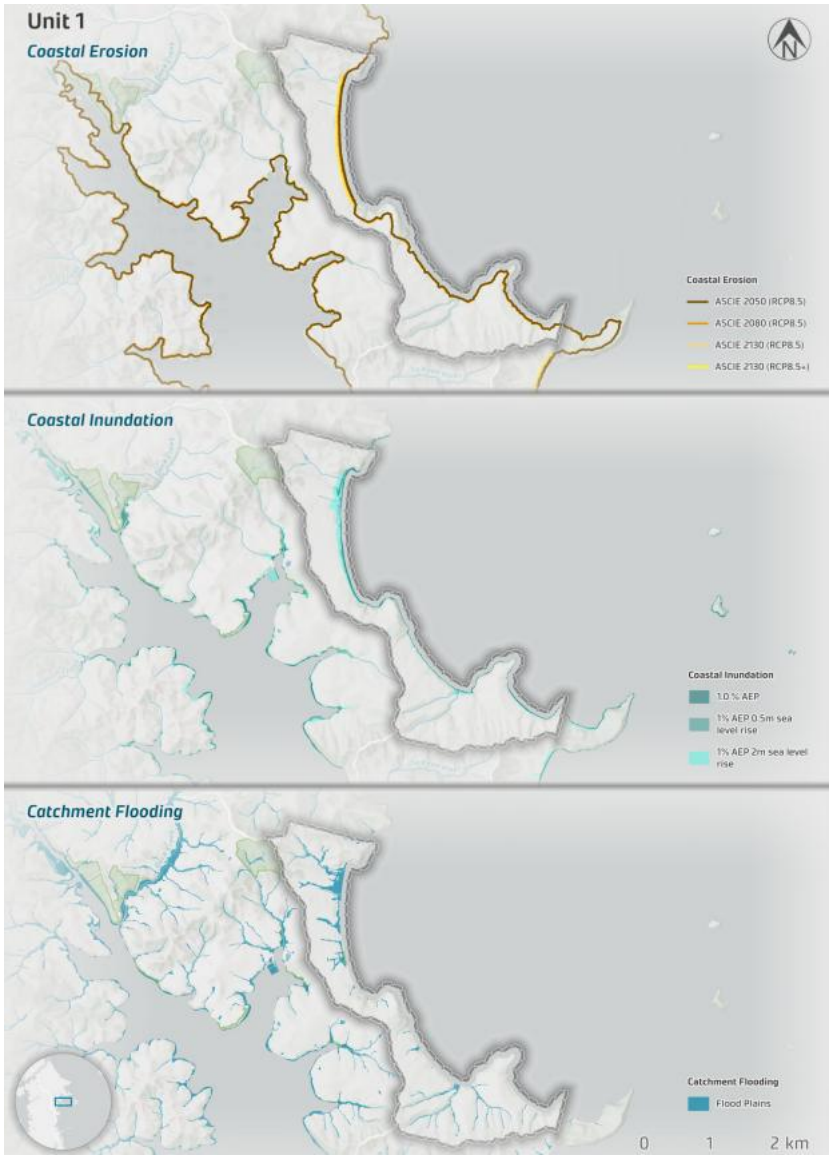


Figure 2: Coastal Hazardscape for the Snells Beach and Algies Bay Unit, reflecting coastal erosion susceptibility for 2050, 2080 and 2130 considering RCP4.5 and RCP8.5 emission scenarios, coastal inundation for 1%AEP storm surge for present day and with 0.5 m, 1 m and 2 m sea-level rise and the identification of flood plains.

Risk assessment

The table below summarises the risk levels for Auckland Council asset types in the short, medium, and long term using low, moderate and high climate scenarios.

At a unit level, Auckland Council community facilities (e.g. Algies Bay Reserve boat ramp and public toilets) and water infrastructure (e.g. stormwater pipes along the coastal edge and stormwater outfalls) are at high risk from coastal erosion susceptibility. Auckland Council community facilities are also at high risk from coastal inundation. Risk to Auckland Council-owned land (i.e. Highfield Gardens Reserve) is at moderate risk from coastal erosion susceptibility and coastal inundation in the short term. This coastal erosion risk increases to high in the long term.

Council-owned land			Council community facilities			Transport infrastructure			Water infrastructure		
Park and reserve land (31.5 ha) Buildings, wharves (19 No.)			Park amenity structures, carparks, accessways, buildings (0.9 ha)			AT roads (19.6 km) Bridges (64.8 m^2)			Water pipes (138.4 km)		
Short	Medium	Long	Short	Medium	Long	Short	Medium	Long	Short	Medium	Long
Coastal erosion and instability susceptibility											
Moderate	Moderate	High	High	High	High	Moderate	Moderate	High	High	High	High
Coastal inundation											
Moderate	Moderate	Moderate	High	High	High	Low	Moderate	Moderate	Moderate	Moderate	Moderate
Key											
Very Low		Low		Moderate		High		Very High			

What matters most

Auckland Council land and assets: This section identifies key Auckland Council-owned land and assets within this unit that may be impacted by coastal hazards (inclusive of catchment flooding) over changing climate scenarios.

- Auckland Council assets are clustered along the coast, following a near continuous strip of coastal reserve land.
- **Notable reserves** include (but not limited to) Snells Beach (Sunrise Boulevard), Algies Bay Reserve, and Sunburst Reserve and Tamatea Esplanade with playgrounds and carparks. Highfield Garden and The Glade Reserve.
- There are additional coastal access points at Mariner Grove, Alander Road, Willjames Esplanade and Albro Lane.

- **Recreational and sport facilities in proximity to the coast:** Sandspit Yacht Club (Algies Reserve).

- **Wastewater pump sheds:** Daltons pump station, Sunburst Avenue pump station, Tamatea pump station, Mariners pump station, Alexander pump station, Willjames pump station.

- **Key walking tracks:** An extensive footpath network runs along the coast and is generally well set back from the shoreline; this is located within several portions of esplanade and reserve land including Ariki Reserve.
- **Local roading:** Schooner Avenue, Sunburst Avenue, Dalton Road, Heron Lane.

- **Boat ramps**: Snells Beach (Ariki Drive, Dalton Road, Snells Beach Road, Sunburst Reserve), Algies Bay (Algies Bay Reserve Main Ramp, Mariners Grove, Algies Bay Res Pump Station, Dingy Racks -Algies Bay Alexander Road).

Social, cultural and ecological context: This section identifies key social, cultural and ecological matters, identified through the development of the SAP reports, that may be impacted by coastal hazards (inclusive of catchment flooding) over changing climate scenarios.

- Within this unit are two 'Category B' heritage features identified in the AUP:OP. Both are pā sites, located in Stretches 1.1 and 1.6.
- Note: Specific cultural values and outcomes for this unit may be developed through ongoing involvement with local iwi. Guiding objectives and outcomes which have informed the development of adaptation strategies have been identified earlier in the report.

- Snells Beach and Algies Bay are the main coastal settlements on the Mahurangi Peninsula, comprised of suburban-style residential areas.
- Located along Mahurangi E Road, just outside the boundary of the unit, is a consolidated area of shops, sports facilities, schools and civic buildings. While this area provides for many of the community's social needs, residents are likely to travel to nearby Warkworth (Unit 6). Key connector roads traversing this unit are not exposed to coastal erosion or inundation risk.
- Reserves line most of the coastline and contain several playgrounds. The beaches are popular for swimming and are key to the identity of these communities. They face the sheltered Kawau Bay which is popular for boating, evidenced by the numerous boat ramps along this stretch.
- Several coastal locations provide holiday accommodation, including for freedom campers. Also attracting visitors to the unit is the Brick Bay Sculpture Trail.
- Just outside of this unit is a new wastewater treatment plant (located in Unit 5), which will improve water quality in the Mahurangi River and cater for growth in this area (including Unit 1).

Unit 1 contains several threatened and vulnerable ecosystems and native fauna including:

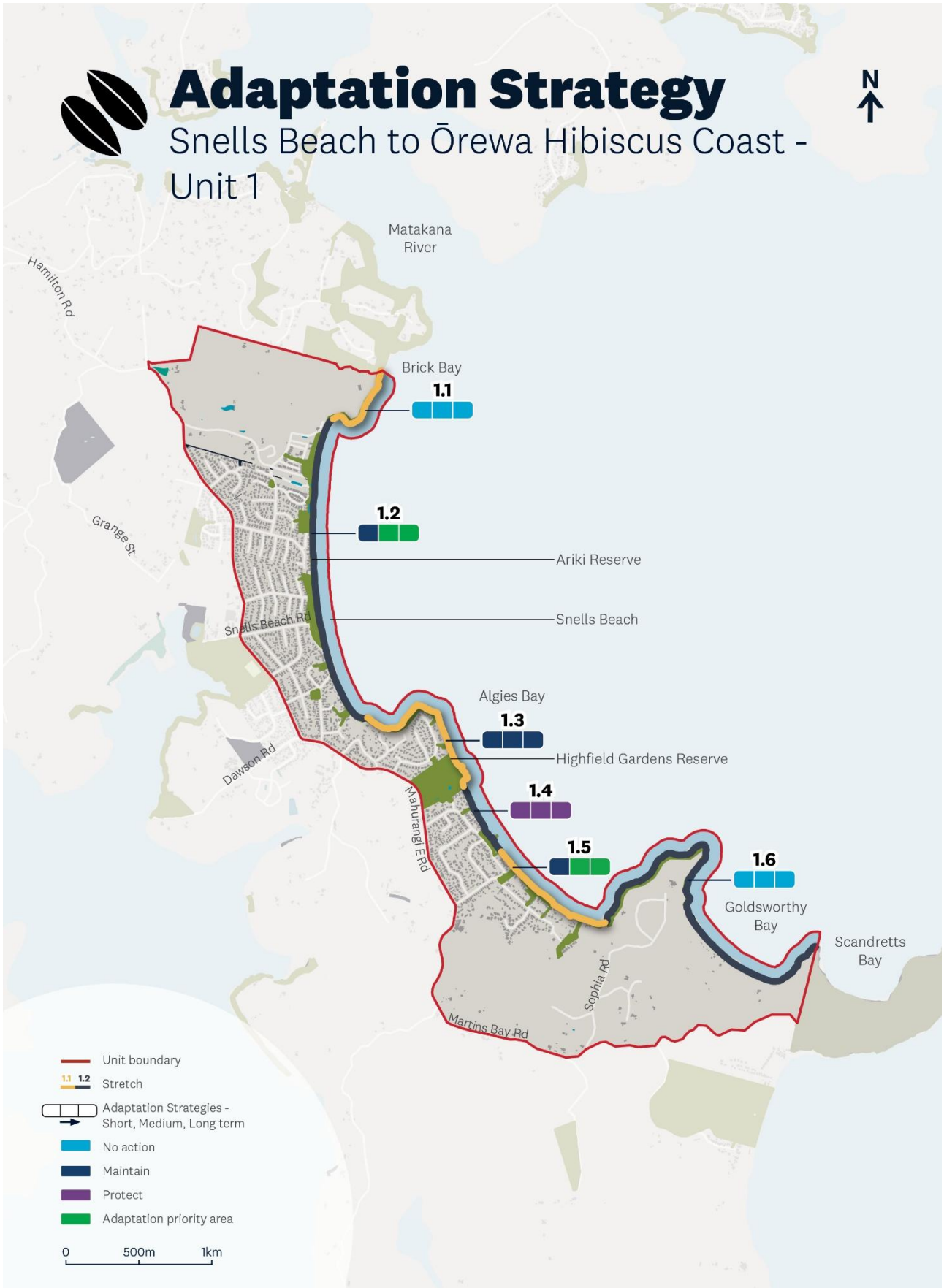
- Snells Beach, is well known for its significant avifauna values – with many species using the site for feeding, roosting, and/or breeding. Species include fairy tern, Caspian tern, red-billed gull, South Island pied oystercatcher, Northern New Zealand dotterel, and bar-tailed godwit.
- Vegetation within Brick Bay Park is classified as regenerating kānuka scrub which transitions into cliffs lined by pōhutukawa. A large area of seagrass is recorded from Brick Bay to the southern end of Snells Beach.
- The rocky points within this unit are covered in coastal forest dominated by pōhutukawa.
- The vegetation within Woodlands Avenue Reserve and Snells Beach Esplanade is also classified as pōhutukawa-dominated coastal forest. Below these reserves lies a sheltered shallow reef system that supports a variety of common marine fauna.
- There is a small area of raupō reedland recorded in Highfield Garden Reserve.

Community feedback

Who have we heard from?

- Feedback was received in relation to Unit 1 through survey responses, social pinpoint and submissions.
- Coastal erosion was frequently identified as the hazard of concern by most respondents.
- For the Unit 1 area, key uses and activities identified through feedback included walking or running on the beach/coastal area and water-based activities such as swimming/snorkelling and boating. Several people noted they enjoy bringing their dogs along for a walk.
- Community aspirations of maintained access to, and upgrade of, coastal walkways.
- Of the feedback received, most respondents noted the need for protection from landslides and coastal erosion. Following consultation, in response to this feedback, the adaptation priority strategy was bought forward to the moderate change scenario to signal the need to consider and engage with stakeholders on future options for Snells Beach and Algies Bay Central.

What can we do about it? Adaptation strategy summary for Unit 1



1.1: Brick Bay to Boatshed Bay

This stretch commences north of Snells Beach and includes the coastal cliffs between Brick Bay and Snells Beach (Boatshed Bay).

Scenarios for change		
Low	**Moderate**	**High**
No action 	**No action** 	**No action** 
Explanation		
No action reflects the limited Auckland Council land and assets located within coastal hazards areas in this stretch, and as such, no action is the identified strategy.		
Implementation notes		
• **Heritage**: Pā site R09_169, a scheduled heritage feature, is located on the coast within this stretch. Engagement with Heritage New Zealand may be required for any specific actions undertaken in this area. • **Cultural**: Engagement with mana whenua to further understand the cultural values associated with the pā site and the impact of coastal hazards over time.		

1.2: Snells Beach

This stretch commences at Boatshed Bay including the wider Snells Beach embayment south to the east of Heron Lane, culminating part way along Snells Beach esplanade.

Scenarios for change		
Low	**Moderate**	**High**
Maintain 	**Adaptation Priority** 	**Adaptation Priority** 
Explanation		
Maintain in the low change scenario provides for the management of risk to assets located within reserve areas. Maintain indicates that the coastline is not fixed and realignment may be required to maintain recreational amenity, dry high-tide beach areas, support ecological outcomes and coastal character. Maintain also provides for the maintenance of current coastal defences, both nature-based (dunes) and hard protection (timber seawall) which maintain the values of the coastal area. **Adaptation priority** in the moderate and high change scenario, assuming continued sea-level rise, is identified due to increasing coastal hazard risk. This signals the need for further discussion regarding the appropriate approach to maintain values and manage risk to uses and assets within the Snells Beach stretch.		
Implementation notes		
• **Ecology:** A variety of endangered seabirds use this stretch for feeding, roosting, and breeding purposes. Engagement with the Ecology Team to seek advice on specific implementation actions to support ecological values.		

1.3: Snells to Algies

This stretch commences at the southern end of Snells Beach and extends around the southern cliffs between Snells Beach and Algies Bay. It includes a portion of Snells Beach Esplanade Reserve, Fidelis Avenue Reserve, and Highfield Garden and The Glade Reserve.

Scenarios for change		
Low	**Moderate**	**High**
Maintain 	**Maintain** 	**Maintain** 
Explanation		
Maintain is reflective of the continued management of risk to Auckland Council assets located within esplanade reserves and Highfield Garden Reserve. No coastal protection structures are located within this primarily cliffed coast between Snells Beach and Algies Bay. Coastal access along this portion of the coast is highly valued, as is access to the coast and coastal lookouts within this stretch. Provision and maintenance of safe access through design and location of walking connections is recognised through **maintain** for this stretch. However, noting the geomorphology of the area, no provision of new Council-owned protection structures is anticipated.		
Implementation notes		
• **Social:** Community feedback identified the Highfield Donkey Sanctuary as highly valued by the local community. • Situated within Highfield Reserve, the high coastal cliffs are densely vegetated but susceptible to erosion over time. Engagement with users of Highfield Reserve is recommended to understand how coastal hazards may impact the reserve and any specific implementation actions.		

1.4: Algies Bay North

This stretch commences at the northern extent of Algies Bay and includes the coast south, culminating at the southern end of Algies Bay Reserve and Alexander Road Recreational Reserve.

Scenarios for change		
Low	**Moderate**	**High**
Protect 	**Protect** 	**Protect** 
Explanation		
At Algies Bay there are stormwater assets, roads and park facilities located within identified coastal hazard exposure areas. **Protect** signals the continued maintenance of the established coastal protection armouring the coastal edge where this enables public access along and to the coast, including a highly valued boat ramp. Increasing coastal inundation risk to reserve areas in the high change scenario may require further design consideration for uses in close proximity to the coastal edge. Management of risk to wastewater assets may also be required noting the opportunity to consider design, location and protection of such assets.		

Scenarios for change		
Low	**Moderate**	**High**
Implementation notes		

- **Management**: The coastal edge within the northern area of Algies Bay is armoured with rock revetment and rock masonry seawalls traversed by numerous boat ramp access structures; several of these accessways are located on Auckland Council land (Mariner Grove and Algies Bay Esplanade Reserve) but are privately owned. A coastal path and (underground) wastewater assets (pump stations and lines) are located landward of the coastal armouring. Owners and users of these privately-owned accessways may need to be engaged to understand how implementation of adaptation strategies may impact on their use of the area.
- **Social**: Sandspit Yacht Club has a community lease and operates a learn-to-sail programme out of the Auckland Council-owned property at 30 Gordon Craig Place. This is exposed to coastal erosion but is located behind the previously mentioned seawall. Engagement with this organisation is recommended to understand how coastal hazards and climate change may impact on the operation of this facility, and any specific implementation actions.

1.5: Algies Bay Central

This stretch commences at Willjames Esplanade Reserve and including the coast south to the southern end of the embayment

Scenarios for change		
Low	**Moderate**	**High**
Maintain 	**Adaptation Priority** 	**Adaptation Priority** 
Explanation		

There is a continuous esplanade reserve along this stretch, with several key access points including boat launching and formed walking trails, with a rock revetment seawall renewed in 2024 at Willjames Esplanade Reserve. These are highly valued by the local community.

Implementation notes

- **Maintain** in the low scenario is reflective of the continued maintenance of existing structures and landward natural hazard risk management interventions that ensure ongoing safe public access to the foreshore and along the coastal reserves, and consideration of soft engineering solutions in appropriate areas of the stretch. Wastewater assets traverse the Algies Bay shoreline located in part landward of the coastal protection structures
- In the moderate to high change scenario, low-lying areas located within this stretch may be increasingly exposed to inundation. Within the southern Albro Lane and associated reserve areas, catchment inundation alongside coastal inundation exposure coupled with identified cultural, ecological and coastal character values will require further **adaptation planning** and discussion to manage risks to Auckland Council land and assets and the values within this area.

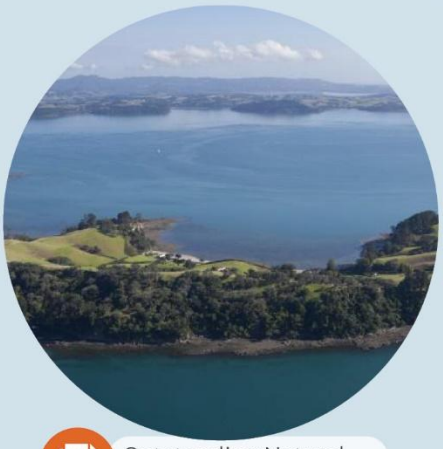
1.6: Waimana Point and Goldsworthy Bay

This stretch commences at the southern end of Algies Bay, includes the esplanade reserve east around the cliffed coast of Waimana Point and Goldsworthy Bay area, culminating at the boundary of the regional park. Goldsworthy Bay Esplanade Reserve is located around the coastal edge of the Waimana Point area which composes steep cliff coast with some regenerative planting.

Scenarios for change		
Low	**Moderate**	**High**
No action 	**No action** 	**No action** 
Explanation		
Goldsworthy Bay has no Auckland Council landholdings, reflecting the lack of public access to the coast within this area. There are limited Auckland Council land and assets located within coastal hazards areas within this stretch; as such **no action** is the identified strategy. Future development of access or assets within esplanade areas should be responsive to the natural coastal edge and manage risk through design and location of assets, avoiding the need for coastal protection structures.		
Implementation notes		
• **Management:** This area is subject to a precinct under the AUP:OP which manages setbacks from the coast and provides for public access to the coastal edge into the future and the preservation of its natural character values. Engagement with the Planning Team may be needed to determine any implications for adaptation strategies. • **Heritage**: Pā site R09_121, a scheduled heritage feature, is located on the coast (split across Stretches 1.6 and 2.1). Engagement with Heritage New Zealand may be required for any specific management of this area. • **Cultural**: Engagement with mana whenua to further understand the cultural values associated with the pā site and the impact of coastal hazards over time.		

Unit 2
Snells Beach to Ōrewa Hibiscus Coast

N



Community observe and enjoy the shorebirds on the headlands.

Outstanding Natural Landscape.

Scandretts Bay

Purahurawai Bay

Culturally significant sites

Historic homestead

Parks accommodation

Scandrett Regional Park

Mahurangi East

Community observe significant erosion of the cliffs in this location

A significant remnant of coastal forest containing pōhutukawa, kohekohe, tawāpou, māhoe and kōwhai can be found within the park. This area is also an important high tide bird roost, attracting many New Zealand dotterel (Charadrius obscurus, At Risk – Recovering) and variable oystercatcher (Haematopus unicolor, At Risk – Recovering)

Unit boundary

2.1 2.2 Stretch

0 250m 500m

Unit 2: Purahurawai Bay (Scandretts Regional Park)

Unit 2 corresponds with the extent of Scandrett Regional Park covering approximately 48 ha. It is located at the easternmost point of the larger Mahurangi Peninsula and is home to significant Māori cultural heritage and historic farmstead buildings and baches. Approximately half of the land is farmed, with the park also providing for trail hiking, swimming, kayaking and fishing. An approximately 400 m long sandy pocket beach is present along the park's northern coastline. The remainder of the peninsula's coastline is characterised by rocky intertidal platforms, backed by vegetated coastal cliffs.

What is happening? Coastal context and hazardscape

The north-facing sandy beach is in the lee of Kawau Island and receives low fetch and depth-restricted wave energies. The southeast-facing shoreline of the Regional Park is periodically exposed to higher wave-energies from the southeast to east directions where there is significantly greater fetch distance exposure.

The northern shoreline is largely natural, with no formalised armouring. As an operational response to the January 2018 extreme event that coincided with a king tide resulting in erosion of the reserve edge; 'sand push ups' were undertaken to provide a natural buffer to the remaining reserve edge to manage risk to the road access for the baches.

Scandretts Beach is at risk to coastal erosion and instability, with numerous park assets (cabins, implement sheds including heritage features and sections of the sealed accessway) exposed over all scenarios.

Post-storm erosion, Scandrett Regional Park (January 2018)

Coastal flooding inundation risk is greatest to the low-lying land along the backshore of the northern beach embayment. This is predicted to impact park assets (baches, implement sheds and sealed accessways) in the high change scenario. The fringe of steep vegetated cliffs around the headland will be exposed with minimal impact due to the lack of assets with walking trails adequately elevated.

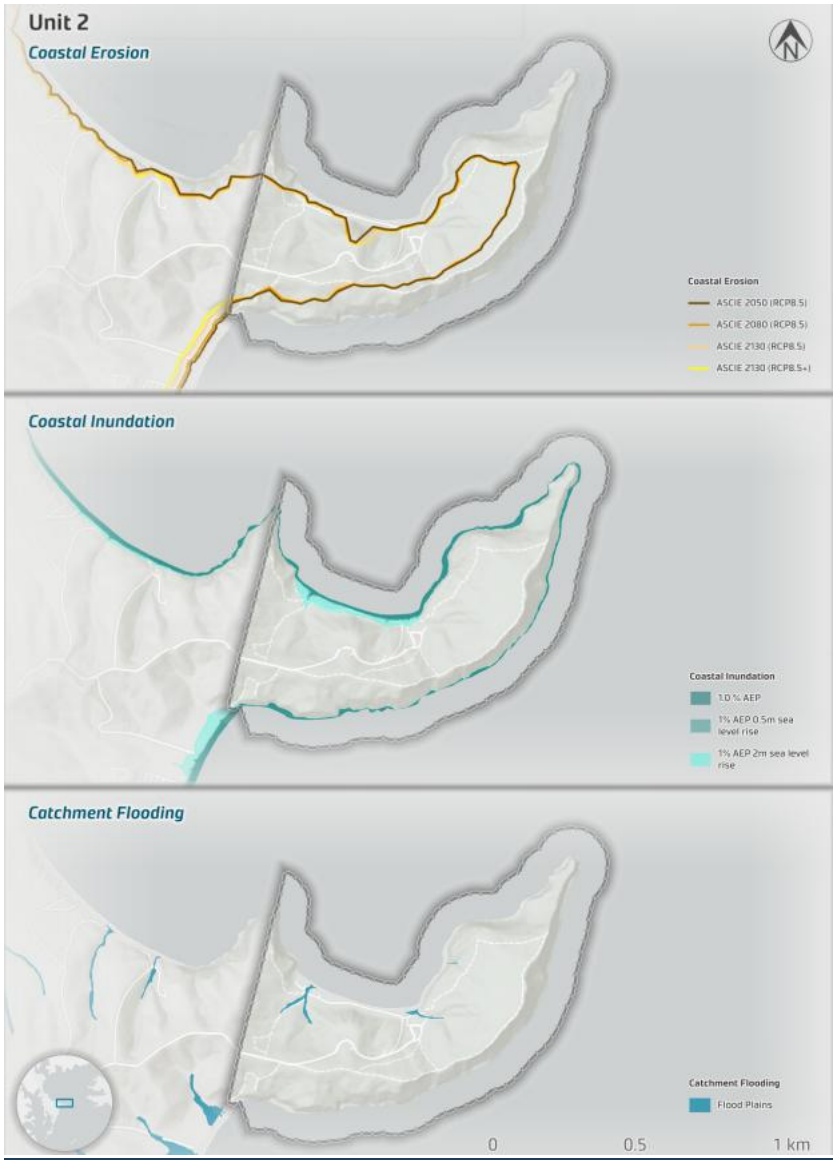


Figure 3: Coastal hazardscape for the Purahurawai Bay reflecting coastal erosion susceptibility for the years 2050, 2080 and 2130 considering RCP4.5 and RCP8.5 emission scenarios, coastal inundation for 1%AEP storm surge for present day and with 0.5 m, 1 m and 2 m sea-level rise and the identification of flood plains.

Risk assessment

The table below summarises the risk levels for Auckland Council asset types in the short, medium, and long term using low, moderate and high climate scenarios.

At a unit level, there is a high risk to Auckland Council-owned land (i.e. Scandrett Regional Park) and Auckland Council community facilities (i.e. Scandrett Historic Homestead) over all time frames from coastal erosion susceptibility. Risk from coastal inundation is lower, with low risk to Auckland Council-owned land and moderate to Auckland Council community facilities in the short term scaling to high in the long term. There is very low risk to transport infrastructure or water infrastructure over the three timeframes from either coastal erosion susceptibility or coastal inundation, due to minimal asset count.

Council-owned land			Council community facilities			Transport infrastructure			Water infrastructure		
Park and reserve land (48.2 ha) Buildings, wharves (18 No.)			Park amenity structures, carparks, accessways, buildings (0.6 ha)			AT roads (0 km) Bridges (0 m^2)			Water pipes (0 km)		
Short	Medium	Long	Short	Medium	Long	Short	Medium	Long	Short	Medium	Long
Coastal erosion and instability susceptibility											
High	High	High	High	High	High	Very low	Very low	Very low	Very low	Very low	Very low
Coastal inundation											
Low	Low	Low	Moderate	Moderate	High	Very low	Very low	Very low	Very low	Very low	Very low
Key											
Very Low		Low		Moderate		High		Very High			

What matters most

Auckland Council land and assets: This section identifies key Auckland Council-owned land and assets within this unit that may be impacted by coastal hazards (inclusive of catchment flooding) over changing climate scenarios.

- **Regional Parks:** Scandrett Regional Park.

- Historic homestead, three coastal baches, park utility buildings, such as sheds, offices, and a toilet block. The park also includes several other heritage assets.

- **Wastewater Pump Sheds:** Scandrett pump shed (new).

- **Key paths** include Scandrett Mullet Point Path, Scandrett to Martins Bay Path, Scandretts Bay Path.

Social, cultural and ecological context: This section identifies key social, cultural and ecological matters, identified through the development of the SAP reports, that may be impacted by coastal hazards (inclusive of catchment flooding) over changing climate scenarios.

- The rich cultural heritage of Scandrett Regional Park is acknowledged in the Regional Parks Management Plan (RPMP) (Auckland Council, 2022). Within the park there are several 'Category B' heritage features identified in the AUP:OP, including two pā sites and five middens/pits/terraces.
- Note: Specific cultural values and outcomes for this unit may be developed through ongoing involvement with local iwi. Guiding objectives and outcomes which have informed the development of adaptation strategies have been identified earlier in this report.

- Scandrett Regional Park is surrounded by rural land and attracts visitors from across the wider region. It features Māori cultural heritage and historic farmstead buildings, several rentable baches, and swimming, kayaking, hiking, and biking opportunities.
- Scandretts Bay Path and Scandrett Mullet Point Path walking tracks loop around the park, and the Scandrett to Martins Bay Path provides a connection to the Holiday Park in Unit 3.
- Scandrett Regional Park is also the location of the 'Category B' Scandrett Homestead.

There are several vulnerable and threatened ecosystems and fauna in this unit including:

- Remnant coastal forest containing a variety of species, including pōhutukawa, kohekohe, tawāpou, māhoe and kōwhai.
- Significant high-tide bird roost habitat that attracts Northern New Zealand dotterel and variable oystercatchers.

Community feedback

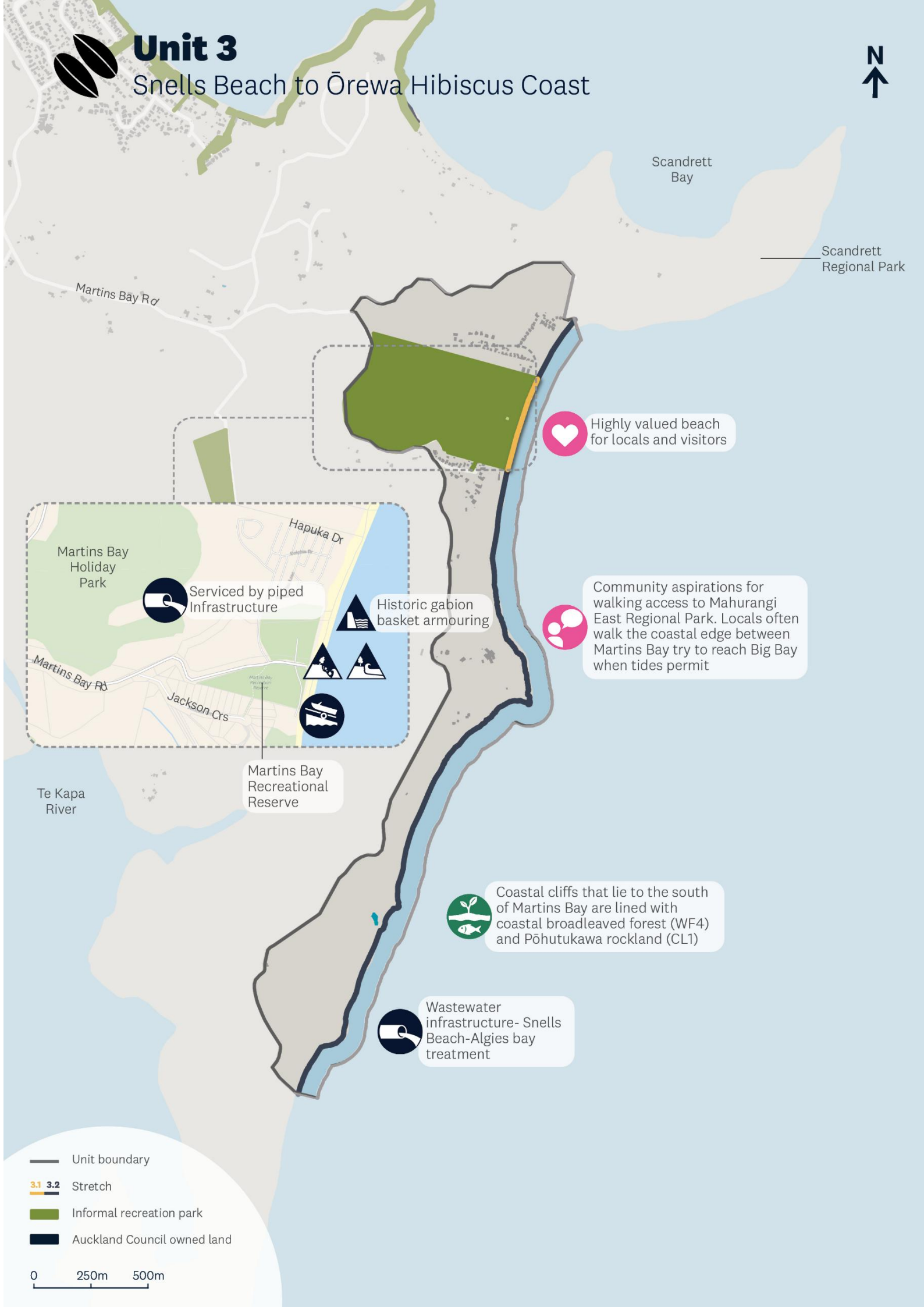
- Feedback was received in relation to Unit 2 through survey responses, social pinpoint and submissions.
- Coastal erosion and coastal storms were identified as the hazards of greatest concern by those providing feedback.
- Key uses and activities included water-based activities such as swimming and boating, walking and running for exercise and nature watching.
- No feedback was received on specific strategies.

What can we do about it? Adaptation strategy summary for Unit 2

2.1: Scandrett Regional Park

This stretch includes Auckland Council regional park landholdings.

Scenarios for change		
Low	**Moderate**	**High**
Maintain 	**Maintain** 	**Maintain** 
Explanation		
Maintain signals that the coastline is not fixed and that coastal asset management utilising resilient design is promoted including considering appropriate asset location. **Maintain** is reflective of the management of risk to the historic heritage and built structures located within the park, including the baches, access road and heritage farm buildings in close proximity to the coast. However, reflecting the natural character of Council's regional parks, no provision of new Council-owned protection structures is anticipated.		
Implementation notes		
• **Management**: Landward realignment of the access road in response to ongoing erosional risk is identified in the Regional Parks Management Plan. Management of risks to cultural and built heritage may be required as well as management of coastal planting. • **Heritage**: Several heritage features are located on or near the coast within this stretch. These are Scandrett Homestead, Pā site R09_121, (which is split across Stretches 1.6 and 2.1), Pā site R09_113, and five middens/pits/terraces. Engagement with the Heritage Team and/or Heritage New Zealand may be needed to determine management strategies for this feature. • **Cultural**: Engagement with mana whenua is required to further understand the cultural values associated with the heritage features (including the pā sites) and how this may impact adaptation strategies. • **Ecological**: Scandrett Regional Park contains remnant coastal forest and significant high-tide bird roost habitat for threatened birds. The Ecology Team will advise on any potential impact of adaptation strategies on ecological values, and how these may need to be managed.		


Unit 3
Snells Beach to Ōrewa Hibiscus Coast
N
Scandrett Bay
Scandrett Regional Park
Martins Bay Rd
Highly valued beach for locals and visitors
Hapuka Dr
Martins Bay Holiday Park
Serviced by piped Infrastructure
Historic gabion basket armouring
Community aspirations for walking access to Mahurangi East Regional Park. Locals often walk the coastal edge between Martins Bay try to reach Big Bay when tides permit
Martins Bay Rd
Jackson Crs
Martins Bay Recreational Reserve
Te Kapa River
Coastal cliffs that lie to the south of Martins Bay are lined with coastal broadleaved forest (WF4) and Pōhutukawa rockland (CL1)
Wastewater infrastructure- Snells Beach-Algies bay treatment
Unit boundary
3.1 3.2 Stretch
Informal recreation park
Auckland Council owned land
0 250m 500m

Unit 3: Martins Bay

This unit extends approximately 4 km between Scandrett Regional Park Peninsula to the north and Mahurangi Regional Park to the south. The area is mostly rural, with population clustered around a Holiday Park on Martins Bay in the north of the unit. Auckland Council land is limited. The beach is backed by reserve land (Martins Bay Recreation Reserve), a campground, and private landholdings (to the north and south of the reserve land area).

What is happening? Coastal context and hazardscape

This coastline is exposed to significant fetch distances from the southeast to east, and is sheltered from wave energies from the north to northeast angles by Kawau Island. Due to these sheltering effects, wave energies are predominantly of low period from more locally generated fetches. However, during strong localised onshore winds or less frequent large, long period swell events (from the east), significant wave energy does propagate into the coastline of this unit.

The northern extent of this unit is characterised by the approximately 700 m long sandy shoreline of Martins Bay, contained between the Scandrett Regional Park Peninsula to the north and a rocky headland to the south. The southern extent of this unit is characterised by rocky intertidal platforms, backed by steep vegetated coastal cliffs.

Martins Bay is relatively flat in profile, which results in wave shoaling and some dissipation of wave energy before waves reach the upper beach. It is typically the shorter period events generated by strong onshore winds that result in erosion at Martins Bay. For example, the January 2023 ex-tropical Cyclone Gabrielle storm event resulted in lowering of upper beach sand levels, erosion of the reserve edge, exposure of historic gabion basket armouring, and damage to the timber access stairs. The upper beach sand levels have since recovered naturally.

Martins Bay shoreline is largely natural and unmodified, with isolated coastal management including a short length of backstop armouring (historic gabion baskets), and targeted planting along the Marins Bay Reserve coastal edge is being considered to assist in stabilising the bank.

Historic backstop gabion basket armouring was exposed at Martins Bay following Cyclone Gabrielle (2023). (Source Auckland Council).

Within this unit, the northern part of Martins Bay is most at risk of coastal inundation flooding, with the greatest impact in the high change scenario and flooding extent increasing within the Holiday Park area and private landholdings to the north.

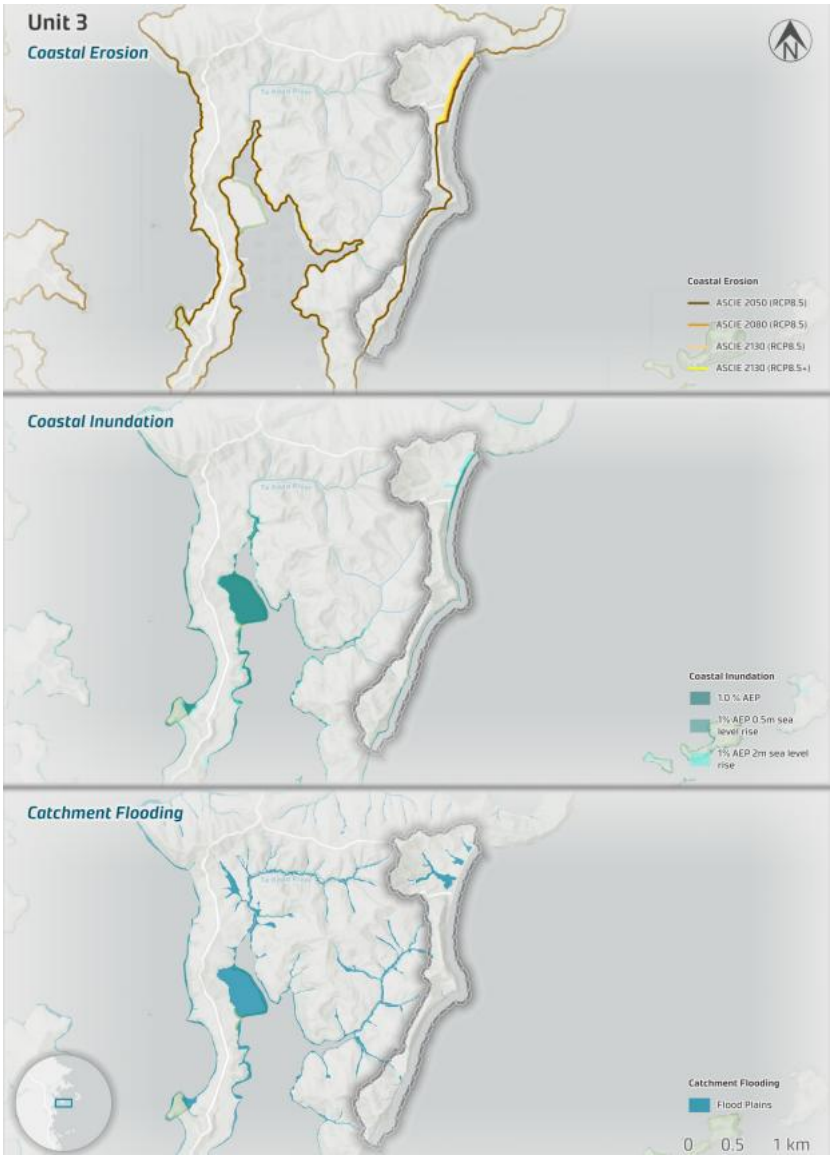


Figure 4: Coastal hazardscape for the Martins Bay Unit reflecting coastal erosion susceptibility for the years 2050, 2080 and 2130 considering RCP4.5 and RCP8.5 emission scenarios, coastal inundation for 1%AEP storm surge for present day and with 0.5 m, 1 m and 2 m sea-level rise and the identification of flood plains.

Risk assessment

The table below summarises the risk levels for Auckland Council asset types in the short, medium, and long term using low, moderate and high climate scenarios.

Risk to Auckland Council-owned land is low in the short term from both coastal inundation and coastal erosion susceptibility, increasing to moderate for coastal erosion in the long term. Risk to Auckland Council community facilities is rated as being moderate in the short term, increasing to high risk in the long term. There is low risk assessed to transport infrastructure and water infrastructure across all timeframes.

Council-owned land			Council community facilities			Transport infrastructure			Water infrastructure		
Park and reserve land (31.2 ha) Buildings, wharves (23 No.)			Park amenity structures, carparks, accessways, buildings (1.3 ha)			AT roads (2.2 km) Bridges (0 m^2)			Water pipes (4.9 km)		
Short	Medium	Long	Short	Medium	Long	Short	Medium	Long	Short	Medium	Long
Coastal erosion and instability susceptibility											
Low	Low	Moderate	Moderate	Moderate	High	Low	Low	Low	Low	Low	Moderate
Coastal inundation											
Low	Low	Low	Low	Low	Moderate	Low	Low	Low	Low	Low	Low
Key											
Very Low			Low			Moderate			High		Very High

What matters most

Auckland Council land and assets: This section identifies key Auckland Council-owned land and assets within this unit that may be impacted by coastal hazards (inclusive of catchment flooding) over changing climate scenarios.

- Auckland Council assets in this unit are all located in and around Martins Bay Recreational Reserve.
- Martins Bay Holiday Park accommodation (cabins) and administration buildings, ablution blocks and recreational facilities, carparking.
- **Water infrastructure:** Martins Bay Camp wastewater pump station.
- **Key paths:** Scandrett to Martins Bay Path, including staircase providing access to the beach.
- **Boat ramp:** Martins Bay boat ramp.

Social, cultural and ecological context: This section identifies key social, cultural and ecological matters, identified through the development of the SAP reports, that may be impacted by coastal hazards (inclusive of catchment flooding) over changing climate scenarios.

- No sites and places of significance to mana whenua or Cultural Heritage Inventory records have been recorded within this unit.
- Note: Specific cultural values and outcomes for this unit may be developed through ongoing involvement with local iwi. Guiding objectives and outcomes which have informed the development of adaptation strategies have been identified earlier in this report.

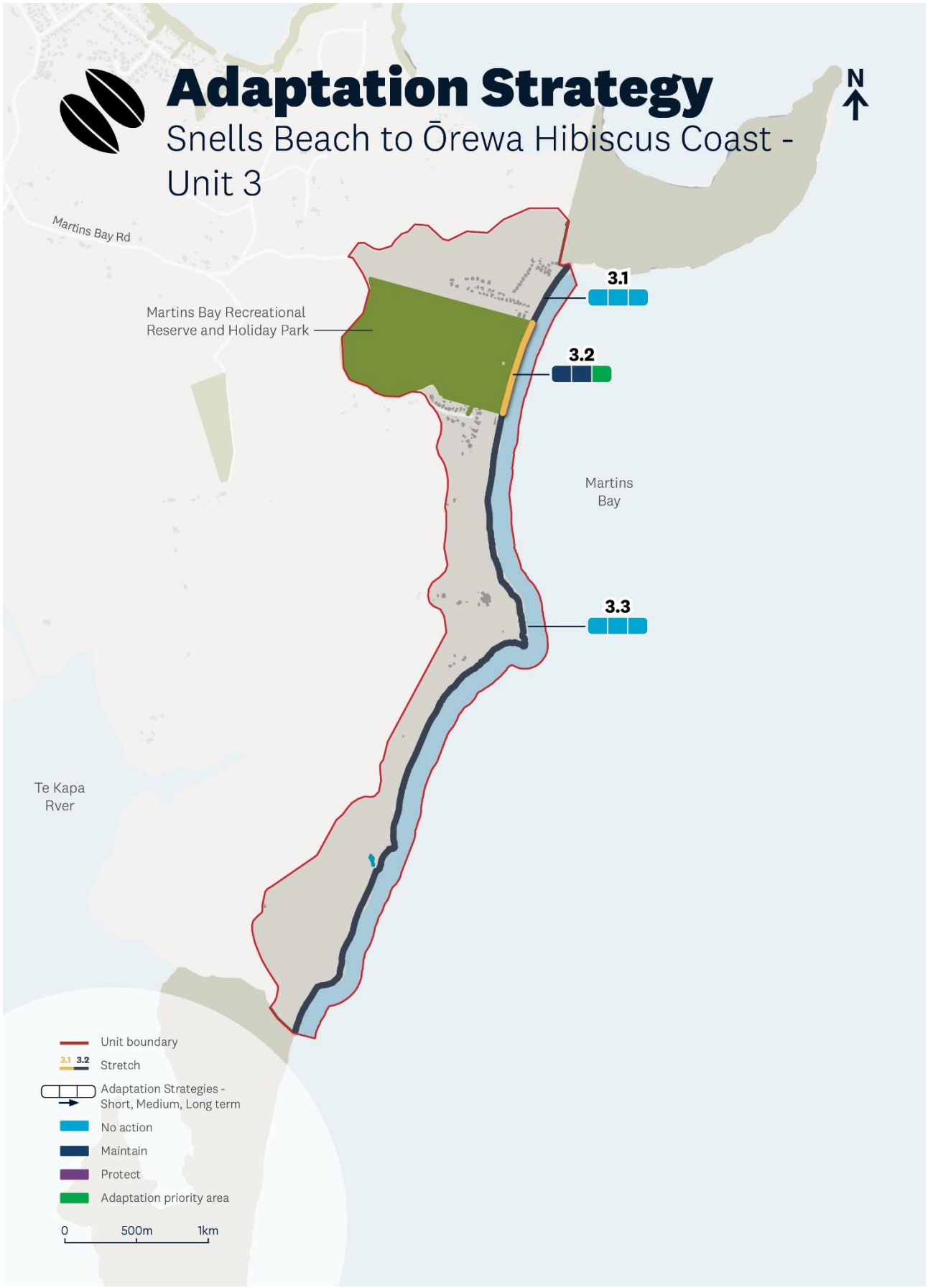
- Most social activity in this unit is concentrated in the north, along Martins Bay Beach. Located here is an Auckland Council-owned holiday park and a few dozen private houses surrounding it which, together, form a small coastal settlement area.
- The beach is popular for swimming, kayaking, and boating with large numbers of parked boats indicating a well-used boat ramp. The area is very popular over the summer holiday period, with most sites at the holiday park sold out months in advance.
- Management of the various uses within the bay and the recreational enjoyment of visitors are matters identified in the Reserve Management Plan.
- Outside of this area, the unit is primarily private property, containing several rural residential properties and areas of pasture and clifftop vegetation.

- Martins Bay Recreation Reserve contains areas of pūriri forest, which is rare within the region, as well as regenerating kānuka scrub. The coastal cliffs that lie to the south of Martins Bay are lined with coastal broadleaved forest and pōhutukawa rockland.

Community feedback

- Coastal erosion and coastal storms were identified as hazards of concern by those who provided feedback, with some respondents observing the effects of Cyclone Gabrielle on the coastline.
- Key uses and activities included walking and running along the coast, water-based activities such as swimming and nature watching. Most respondents noted their use of the Martins Bay campground as their main reason for visiting the area.
- Community aspirations for improved walkways, signage and concerns around access to the coast were raised by some respondents. In response to community feedback, the adaptation priority strategy has been identified for Martins Bay Reserves and beach recognising this is one of the most popular parks for visitors and reflecting the erosion pressure and effects of storm events on the high value of this area.

What can we do about it? Adaptation strategy summary for Unit 3



3.1: Martins Bay North

This stretch covers the northern end of Martins Bay Beach that is in private ownership.

Scenarios for change		
Low	**Moderate**	**High**
No action 	**No action** 	**No action** 
Explanation		
No action reflects the limited Auckland Council land and assets located within coastal hazards areas.		
Implementation notes		
• **Social:** community aspirations for future walking connections are recognised. The strategy can be updated in the future if further connections are achieved.		

3.2: Martins Bay Reserves and Beach

This stretch commences at the Auckland Council-owned beach reserve culminating at the southern end of the recreational reserve area.

Scenarios for change		
Low	**Moderate**	**High**
Maintain 	**Maintain** 	**Adaptation Priority** 
Explanation		
Martins Bay Beach area contains reserve land, car parking and playgrounds, catering to many visitors relative to the resident population, particularly in the summer months. Connections to Scandretts Regional Park are possible in the north of the bay and road access is provided via Martins Bay Road and Jackson Crescent which connects to park roads within the recreational reserve landholdings. A boat ramp off Martins Bay Road provides for public vessel launching. The area is serviced by wastewater connections to the west and stormwater networks are also present in this unit. **Maintain** is identified to reflect the need to manage coastal hazard risks through design and location of uses within this stretch. Maintain supports proactive planting, maintenance of vegetation and continued provision of access to the coast. **Adaptation priority** reflects that under the high change scenario, the provision of access and the recreational amenity values of the beach (noting the coastline is not fixed) may require landward relocation/alignment of assets and uses in the future. This includes leased areas such as the Holiday Park, to support a natural coastal edge and to retain the amenity and recreational values of the beach.		
Implementation notes		
• **Management:** Ongoing engagement with the Martins Bay Holiday Park (leasehold) is recommended to understand how coastal hazards may impact the area and to identify appropriate signals and triggers for longer term adaptation options.		

3.3: Martins Bay South

This stretch commences south of the recreational reserve culminating in the south at the unit boundary (with the Mahurangi Regional Park).

Scenarios for change		
Low	**Moderate**	**High**
No action 	**No action** 	**No action** 
Explanation		
No action is reflective of the limited Auckland Council land and assets located within this stretch which are at risk from identified coastal hazards.		
Implementation notes		
• **Management:** The outfall (to the coast) from Watercare's Snells Beach wastewater treatment facilities traverses this stretch and limited (local) wastewater pipes are located within this stretch. This strategy does not preclude the management of risk for assets designed to be located in the coastal marine area. Watercare will be engaged to advise on any specific considerations that may impact the implementation of adaptation strategies.		

Unit 4
Snells Beach to Ōrewa Hibiscus Coast

N

Martins Bay Rd

Mahurangi Harbour

Ridge Rd

Te Kapa Cemetery

Martins Bay

Active community groups with aspirations for restoration and development of walking connections

Mahurangi Heads Presbyterian Cemetery

Grant Street

Ridge Road Scotts Landing Esplanade

Te Kapa River

Mahurangi East

Charles Street

Burton Wells Scenic Reserve

Short Street

Scotts Point walkways

Young Street

Ngaio Bay

Duke Street

Reef Street

George Street

James Street

Ngaio Bay Boat launching access

Mahurangi Regional Park

Numerous cultural sites and landscapes and historic heritage areas

Community support for protection at Scotts Landing and the need to consider adaptation for areas of the Mahurangi Regional Park

Casnell Island Maunganui

Mahurangi Regional Park

Lagoon Bay

Highly valued by boaties

Big Bay

Highly valued local walking and coastal connections

Scotts Point

Road access to Scotts Point

Ridge Rd

Highly valued community connections to the harbour

Mahurangi Reserve

Highly valued regional park area & historic associations & sites

Dairy Bay

Mahurangi Harbour is recognised as one of the best wading bird habitats in the Rodney Ecological District supporting banded rail and bar-tailed godwits

Unit boundary

4.1 4.2 Stretch

Regional Park

Auckland Council owned land

0 500m 1km

Unit 4: Te Muri Mahurangi East and Scotts Landing

Unit 4 includes the southern half of Mahurangi Peninsula and contains much of the eastern shoreline of Mahurangi Harbour. The northern part of the unit borders Units 1, 3, and 5, and largely consists of rural pasture on rolling hills.

The southern end of Mahurangi Peninsula can be described as consisting of two smaller headlands, with the regional park occupying most of the eastern/seaward headland, and the Mahurangi East and Scotts Landing rural settlement area occupying the western headland. Between them is Te Kapa Inlet, including the shallow mangrove-lined mouth of Te Kapa River. The wider unit includes DOC land (Mahurangi Scenic Reserve, Casnell Island, Burton Wells Scenic Reserve) and other private landholdings.

What is happening? Coastal context and hazardscape

This unit ranges from easterly-facing, sandy, small pocket beaches and rocky foreshores, to more sheltered, shallow estuarine inner harbour embayments, with established mangroves, transitioning into saltmarsh habitat in places.

The eastern-facing coastline of this unit is exposed to a relatively long fetch distance across Hauraki Gulf through a gap between Motuketete and Motuora Islands. The adjacent islands shelter the larger Big Bay Beach at the southern end of this easterly-facing coastline.

Te Kapa Inlet is very low energy, with wave energies restricted to very low depth and fetch-restricted waves. Scotts Point is exposed to slightly longer fetch distances, and therefore slightly higher energy but still low, short period, depth-restricted waves generated within Mahurangi Estuary.

The estuarine coastline along this stretch is very low energy, and has overall low erosion risk along the vegetated coastal margin. The higher energy more exposed eastern coastline, characterised by steep coastal cliffs, is at a higher risk to erosion.

The coastal areas located within Auckland Council landholdings are primarily in a natural coastal state, with many areas of Te Muri Mahurangi East Regional Park accessible only from the water. Coastal management within this unit includes isolated areas of coastal protection structures.

Rock masonry seawall armours Scotts Landing carpark reclamation. The seawall retains this important accessway to the coast including access to the jetty and mussel barges.

Mahurangi Regional Park with the historic homestead in the background.

Most of this unit is elevated, with fringing areas of low-lying saltmarsh in the Te Kapa inlet exposed to increasing coastal flooding inundation with future sea-level rise scenarios. Areas where there is most risk to Council assets include the reclamation at Scotts Landing and the nearby historic homestead.

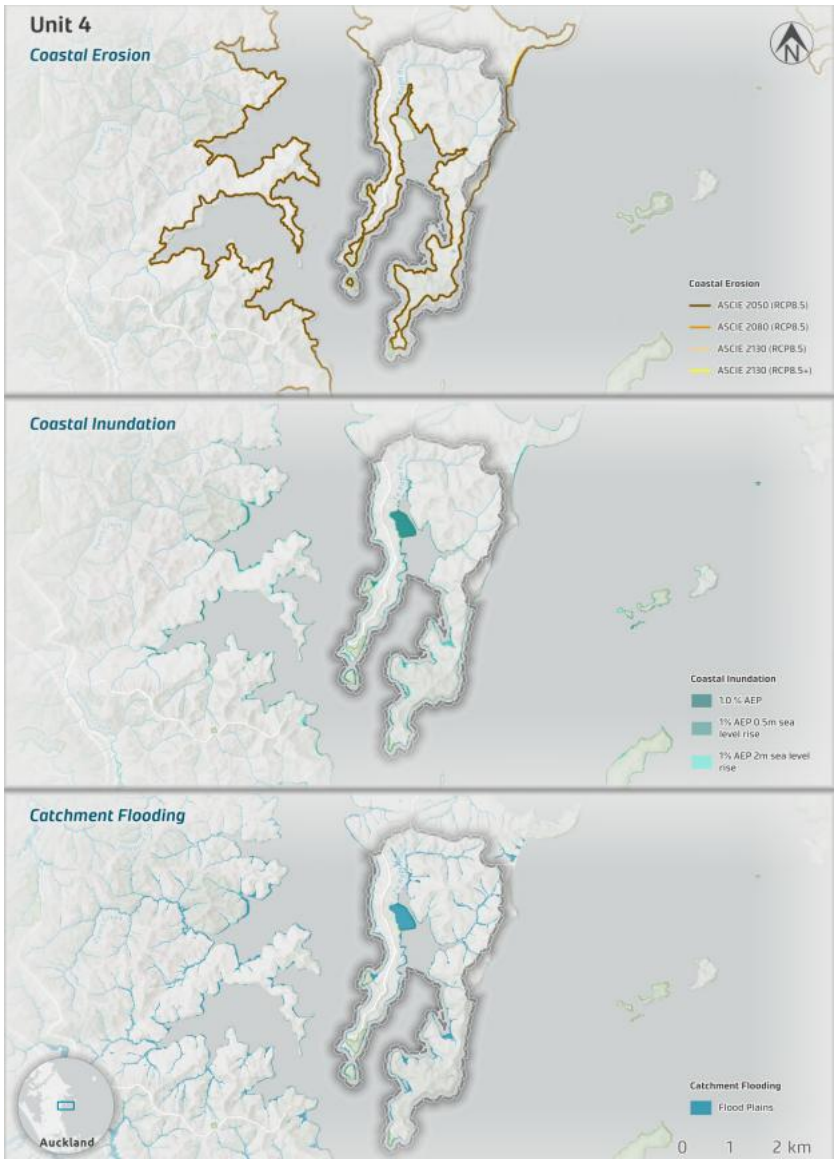


Figure 5: Coastal hazardscape for the Te Muri Mahurangi East & Scotts Landing Unit reflecting coastal erosion susceptibility for 2050, 2080 and 2130 considering RCP4.5 and RCP8.5 emission scenarios, coastal inundation for 1%AEP storm surge for present day and with 0.5 m, 1 m and 2 m sea-level rise and the identification of flood plains.

Risk assessment

The table below summarises the risk levels for Auckland Council asset types in the short, medium, and long term using low, moderate and high climate scenarios.

Auckland Council-owned land and Auckland Council community facilities (i.e. Ngaio Bay and carpark) are at high risk from coastal erosion susceptibility and moderate risk from coastal inundation. Transport infrastructure (i.e. Ridge Road) is at moderate risk from coastal erosion susceptibility and is at low risk from coastal inundation.

Council-owned land			Council community facilities			Transport infrastructure			Water infrastructure		
Park and reserve land (198.9 ha) Buildings, wharves (18 No.)			Park amenity structures, carparks, accessways, buildings (0.8 ha)			AT roads (9.9 km) Bridges (0 m^2)			Water pipes (4.2 km)		
Short	Medium	Long	Short	Medium	Long	Short	Medium	Long	Short	Medium	Long
Coastal erosion and instability susceptibility											
High	High	High	High	High	High	Moderate	Moderate	Moderate	Low	Low	Low
Coastal inundation											
Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Low	Low	Low	Low	Low	Low
Key											
Very Low			Low			Moderate			High		Very High

What matters most

Auckland Council land and assets: This section identifies key Auckland Council-owned land and assets within this unit that may be impacted by coastal hazards (inclusive of catchment flooding) over changing climate scenarios.

- Mahurangi (East) Regional Park in the south-east and Scotts Landing.

- Scotts Homestead (Mahurangi Regional Park); Scotts Landing: carparking and toilet amenities.

- **Key tracks:** Scotts Landing Walkways, Te Kapa Inlet access points (Youngs Road Reserve, Ridge Road Reserve Path).
- **Roading:** Mahurangi/Scotts Point Peninsula is served by roading with the main access, Ridge Road, culminating at Scotts Landing.

- **Harbour access:** Scotts Landing public boat ramps and wharf, important access point for marine farms within Mahurangi Harbour; ramps (dinghy ramp Ngaio Bay).
- Assets in Mahurangi Regional Park include houses, sheds, toilets, and boat ramps. As there is no public overland access to the main body of Mahurangi (East) Regional Park, the boat ramps in this area are key assets.

Social, cultural and ecological context: This section identifies key social, cultural and ecological matters, identified through the development of the SAP reports, that may be impacted by coastal hazards (inclusive of catchment flooding) over changing climate scenarios.

- At least 28 heritage features have been identified within this unit in the AUP:OP. These reflect both Māori and non-Māori history in the area and include three recorded pā sites (in Stretches 4.1, 4.4, and 4.6) and 19 middens/terraces.
- Note: Specific cultural values and outcomes for this unit may be developed through ongoing involvement with local iwi. Guiding objectives and outcomes which have informed the development of adaptation strategies have been identified earlier in this report.

- Most residents of this unit are in Mahurangi East, a coastal settlement on the south-western branch of the Mahurangi Peninsula. At the end of this peninsula is Scotts Landing, where a wharf and historic homestead are popular attractors to the area.
- The main area of Mahurangi (East) Regional Park, contains numerous historic sites and natural attractions. As this area currently has no public land access, visitor numbers are low, and the park maintains a remote, undeveloped character.
- Within this unit are 28 'Category B' heritage features identified in the AUP:OP. These include 19 middens/terraces, three pā sites, two homesteads, three (former) shipyards and landings, and a graveyard. Most of these are located within Mahurangi (East) Regional Park. There is also one 'Category A' heritage feature within the Regional Park; John Darrach's shipyard site (R09_816) (Stretch 4.1).

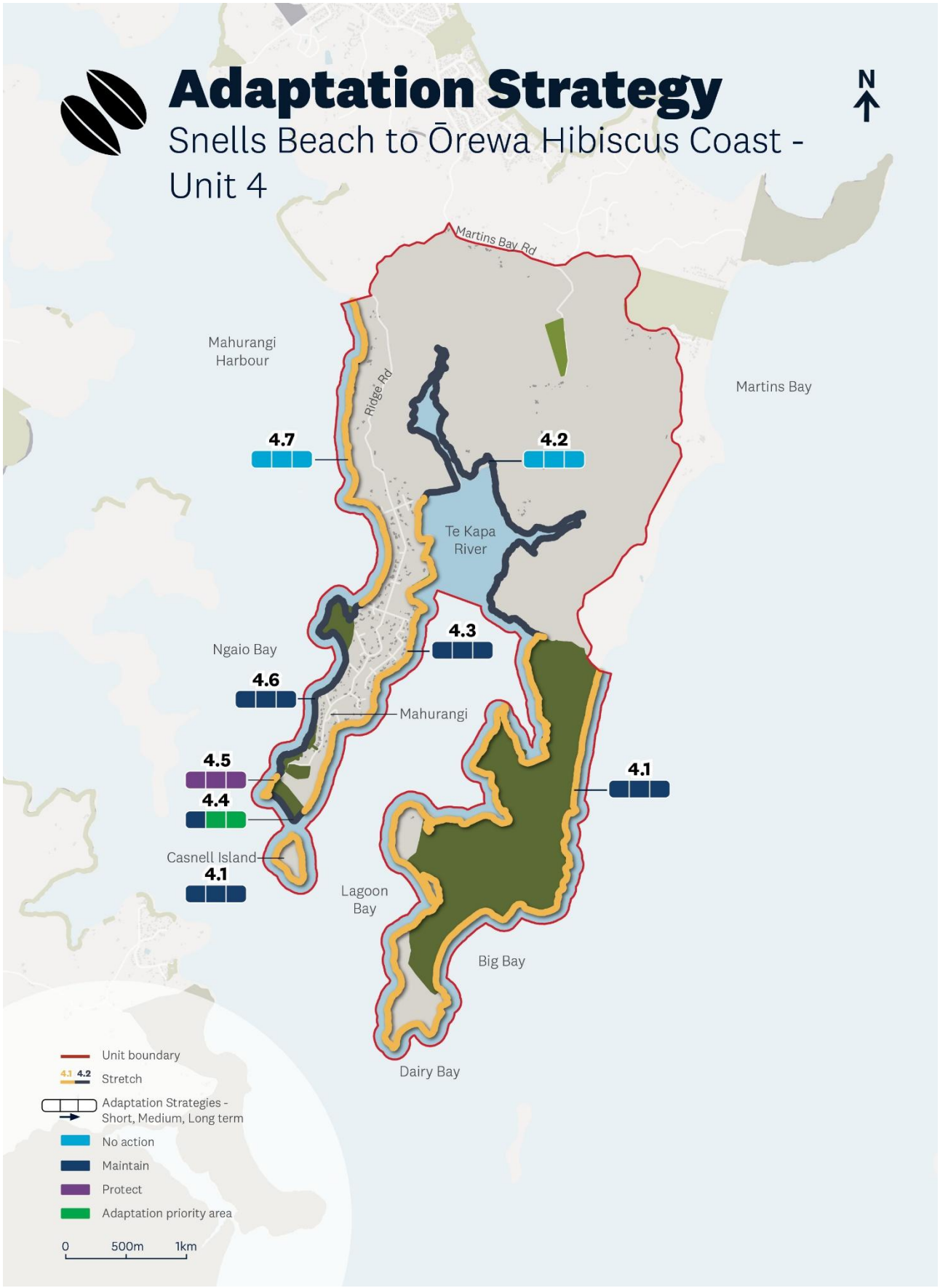
This unit covers a wide variety of indigenous ecosystems and important habitats, with large areas of native forest, intact freshwater wetlands, and significant sequences from saline vegetation to regenerating coastal scrub. Within this unit are the following ecosystems and native fauna:

- Mahurangi East Regional Park, which is located on the southernmost point of the peninsula contains coastal broadleaved forest with some regenerating kānuka scrub. To the north of the regional park are two areas of *Machaerina* sedgeland.
- A large marine SEA over the Mahurangi Harbour – which is recognised as one of the best wading bird habitats in the Rodney Ecological District supports banded rail and the bar-tailed godwit.
- Lagoon Bay, located within Mahurangi East Regional Park, comprises an ecologically significant vegetation sequence from coastal forest to patches of oioi restiad wetland to salt marsh, mangrove forest and shell barrier beach.
- Wetland areas within Lagoon Bay, which are included within the Rodney ED Wetlands BFA.
- Mahurangi Scenic Reserve, located to the south of Mahurangi East township, is classified as coastal broadleaved forest with pōhutukawa cliffs and contains shallow reef and sand systems below. These ecosystems are utilised by a range of avifauna including white-fronted tern
- Te Kapa River (Te Kapa Inlet) is located in the eastern arm of the Mahurangi Harbour. Several freshwater fish species have been recorded within the river, including giant bully. The mangrove forests within the upper reaches of the inlet provide high quality habitat for banded rail.

Community feedback

- Feedback was received in relation to Unit 4 through survey responses, social pinpoint and submissions.
- Coastal erosion and coastal storm events were identified by most respondents as hazards of concern, with some respondents noting the effects coastal storms and erosion in Ngaio Bay and on structures such as boat ramps.
- Key uses and activities included water-based activities such as swimming and boating, walking and running for exercise.
- Community aspirations for maintaining the access to the coast and coastal walkways, some respondents noted that walkways and other structures should be upgraded.
- Of the feedback received, there was support for different strategies than the ones identified in the consultation material, with one respondent noting that the Te Muri Scotts Point historic waterfront stretch should be an “Adaptation Priority Area” in the short to medium term.

What can we do about it? Adaptation strategy summary for Unit 4



4.1: Te Muri Mahurangi East Regional Park (Casnell Island)

This stretch encompasses the entire eastern headland of Te Muri Mahurangi East Regional Park area. It includes Casnell Island to the west of the Te Kapa inlet entrance.

Scenarios for change		
Low	**Moderate**	**High**
Maintain 	**Maintain** 	**Maintain** 
Explanation		
Most of this shoreline is vegetated and natural, with most assets adequately set back. **Maintain** reflects the need to continue to manage the park's assets in response to coastal hazard risks specifically related to walking tracks to maintain public safety and accessibility. This includes further investigation, and management of risk to cultural heritage assets.		
Implementation notes		
• **Social**: Within the stretch are several private landholdings in addition to the regional park. As with the remainder of the stretch adaptation strategies, these strategies are not intended to apply to private/third party landholdings. • **Heritage**: Several heritage features are located on or near the coast within this stretch. They are John Darrach's shipyard site, a settlement area with trees, Rodmersham, 14 middens/terraces, and Maunganui Pā (on Casnell Island). Engagement with the Heritage Team/Heritage New Zealand may be required for any specific actions undertaken in this area. • **Cultural**: Engagement with mana whenua is required to further understand the cultural values associated with the heritage features (including the pā site) and the impact of coastal hazards over time. • **Ecology**: Part of the Rodney ED Wetlands BFA is located on the coast within this stretch. Engagement with the Ecology Team to seek advice on specific implementation actions to support ecological values.		

4.2: Te Kapa River

Stretch 4.2 includes the innermost coastline of Te Kapa inlet. It extends from the north-western edge of Mahurangi (East) Regional Park to Grant Street in the residential settlement at Mahurangi East.

Scenarios for change		
Low	**Moderate**	**High**
No action 	**No action** 	**No action** 
Explanation		
The land use is rural in character, incorporating large areas of pasture and an area of reclaimed land at the western bank of Te Kapa River. There are no Auckland Council assets or land in this stretch.		
Implementation notes		
• **No action** is reflective of the predominantly private landholding limited assets, and largely natural coastline.		

4.3: Scotts Landing East

This stretch commences adjacent to Grant Road end (unformed road end), including the eastern side of Scott's Landing, Mahurangi Peninsula south, culminating at the northern boundary of Te Muri Scotts Landing landholding at the southern end of the peninsula.

Scenarios for change		
Low	**Moderate**	**High**
Maintain 	**Maintain** 	**Maintain** 
Explanation		
Most of this shoreline is low-density coastal settlement residential properties, with some sections of reserve land and paper roads (e.g. Youngs Road, Ridge Road) that intersect the coast providing walking access to Te Kapa inlet. Other than this land, there are no Auckland Council assets in this stretch. The coastal area just offshore from this stretch is zoned as a mooring area. **Maintain** is in relation to specific localised maintenance as required for walking access (paper roads) to the coast.		
Implementation notes		
• **Maintain** enables management of Auckland Council landholdings and assets located within coastal hazard areas. Management of risk through the management of safe access, design and location of uses is preferred. Coastal protection structures are not anticipated within this stretch.		

4.4: Te Muri Scotts Point historic waterfront

This stretch commences at the eastern side of the regional park landholding, including the bay west and culminating at the eastern side of the boat ramp water access. It includes the historic Scott Homestead at Scotts Landing, accessed from a walkway from the carpark next to the pier (in Stretch 4.5) and from a path inland off Ridge Road.

Scenarios for change		
Low	**Moderate**	**High**
Maintain 	**Adaptation priority** 	**Adaptation Priority** 
Explanation		
Maintain in the low change scenario reflects the management of park assets including the historic heritage Scott Homestead, walking access to this area of the park and management intentions including the identification of a special management zone. **Adaptation priority** in the moderate and high change scenario is reflective of the complex values identified within the park and the exposure to coastal erosional processes and inundation. There was community support during consultation for adaptation priority to be brought forward to the moderate scenario due to the coastal inundation flooding risk to protect the historic values of this area.		

Scenarios for change		
Low	**Moderate**	**High**
Implementation notes		
• **Heritage**: Scott Homestead (former), a pā site, and three middens are located on or near the coast within this stretch. Engagement with the Heritage Team and/or Heritage New Zealand will be needed to determine management options for these features. • **Cultural**: Engagement with mana whenua is required to further understand the cultural values associated with the heritage features (including the pā) and the impact of coastal hazards over time.		

4.5: Scotts Point

This stretch commences in the east at the boat ramp and includes the armoured shoreline west to adjacent to the start of the regional park landholding on the western side of the peninsula, including the seaward section of Ridge Road.

Scenarios for change		
Low	**Moderate**	**High**
Protect 	**Protect** 	**Protect** 
Explanation		
The boat ramp and pier provide direct access to Mahurangi Harbour, including the mooring zone located just offshore. The seawall around this wharf area was rebuilt in 2024 (rock masonry replacing old rock revetment) to protect this area from erosion. **Protect** strategy acknowledges the importance of maintaining the newly upgraded seawall and road access to the coast at this location. Pedestrian access to Scotts Point waterfront adjacent to this location is also important. It is noted that there will be some ongoing inundation risk that may impact use of the reserve area in the future, and these strategies may be reviewed accordingly.		
Implementation notes		
• **Protect** is reflective of the highly valued coastal access point provided within this stretch. Protect over all scenarios supports the continued armouring of this reclaimed area against coastal erosion and the roading access serving this area. • **Management**: Ridge Road is exposed to erosion/instability. This strategy does not preclude localised interventions as required for roading connections. Auckland Transport, the asset manager, will monitor how coastal hazards may impact on operation of these assets and future implementation options.		

4.6: Scotts Landing West

This stretch commences on the western side of the headland at the boundary of Mahurangi Regional Park and extends north around the rocky promontory including Ngaio Bay culminating at the northern side of Charles Street (unformed) road end.

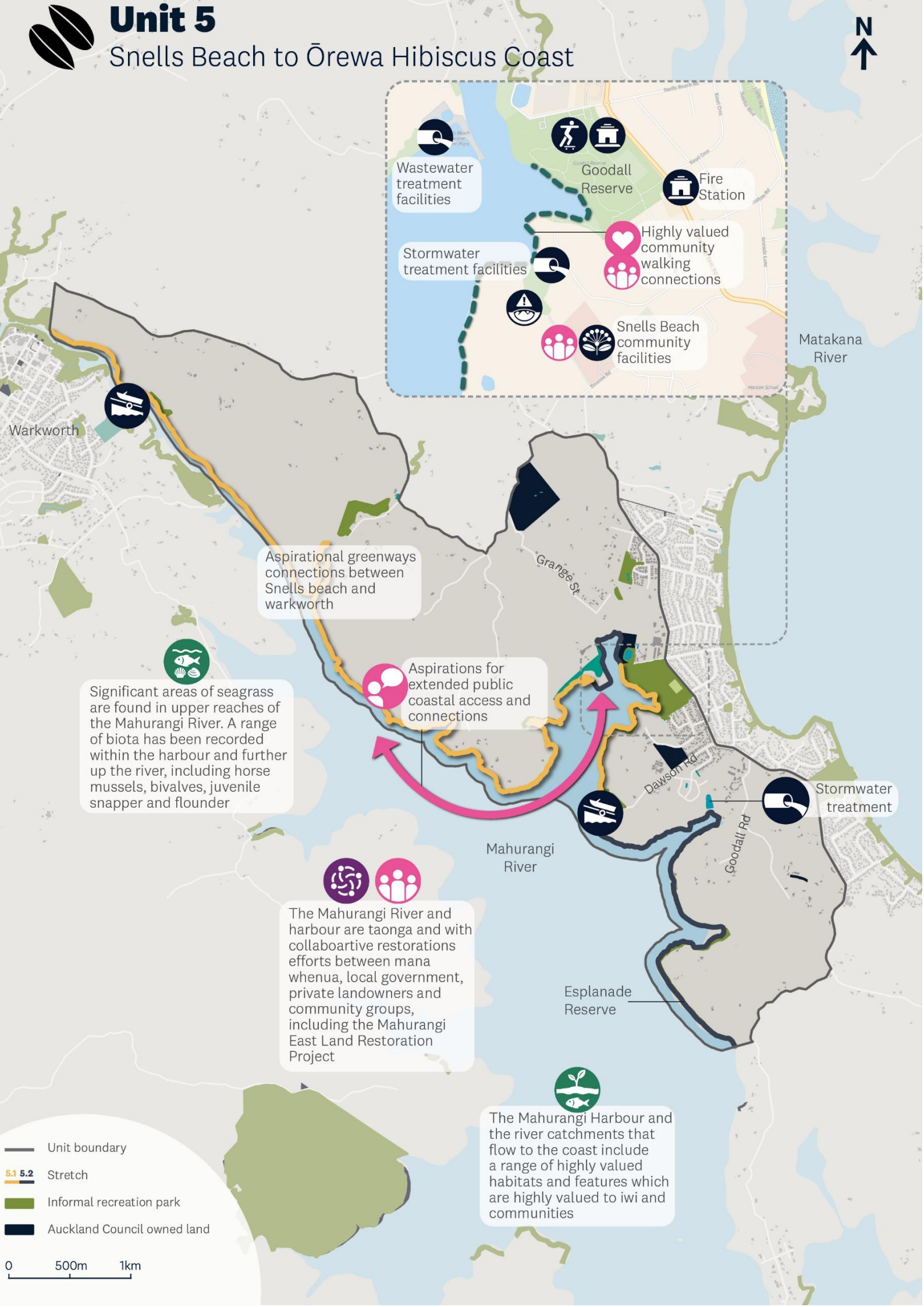
Scenarios for change		
Low	**Moderate**	**High**
Maintain 	**Maintain** 	**Maintain** 
Explanation		
Maintain responds to the need to manage risk to Auckland Council land and assets located within this stretch, including areas of regional park land and road reserve, in addition to highly valued Scotts Landing walking trails (located within the road reserve). The Ngaio Bay boat access ramp and associated facilities provide an important access point for nearby mooring area. Management of risk through design and location of assets and the management of use and access within Auckland Council landholdings is preferred and no coastal defences are anticipated.		
Implementation notes		
• **Social**: Within the unit are several private landholdings and third-party land (including DOC), in addition to the Regional Park. These strategies are not intended to apply to these landholdings. • **Heritage**: Several heritage features are located on or near the coast within this stretch. They are Ring Ditch Pā, an unnamed pā, two middens, a landing, and the Mahurangi Heads Presbyterian Cemetery. Engagement with the Heritage Team and/or Heritage New Zealand may be needed to determine management options for these features. • **Cultural**: Engagement with mana whenua is required to further understand the cultural values associated with the heritage features (including the pā sites) and the impact of coastal hazards over time.		

4.7: Te Kapa North

This stretch commences at Charles Street and includes the coastline north to the end of the unit, ending where Ridge Road turns away from the coast (east) to the south of the Mahurangi East Road Reserve landholding.

Scenarios for change		
Low	**Moderate**	**High**
No action 	**No action** 	**No action** 
Explanation		
There is no Council land or assets along this coastal margin. The land use is predominantly rural residential with pasture or low-density residential. There is no hazard risk to the main road (Ridge Road), which is adequately set back and elevated.		
Implementation notes		
• **No action** is reflective of the predominantly private landholding limited assets, and largely natural coastline.		

Unit 5
Snells Beach to Ōrewa Hibiscus Coast



Unit 5: Snells Beach South to Warkworth

Unit 5 extends along the western coastline of the Mahurangi Peninsula, from Ridge Road in the south to the end of Puhinui Reserve in the north. The top of the unit runs along the banks of the Mahurangi River, opposite Warkworth township with the lower half of the unit including the river mouth that enters Mahurangi Harbour. This area includes the western side of Snells and Algies Bay settlements.

What is happening? Coastal context and hazardscape

This coastline falls within the sheltered upper Mahurangi Harbour, and is characterised by low energy, extensive, shallow intertidal flats, with large areas of established mangroves.

This estuarine coastline is very low energy and has overall low erosion risk along the vegetated coastal margin. There are no coastal protection structures, e.g. seawalls, for erosion management along this section of coastline.

The area most impacted by coastal inundation flooding in this unit is the side inlet that extends in a northeasterly direction towards Snells Beach village. The predicted extent of inundation around the fringe of the inlet exposes the WWTP to coastal inundation from the low change scenario, however there are existing coastal protective measures in place.

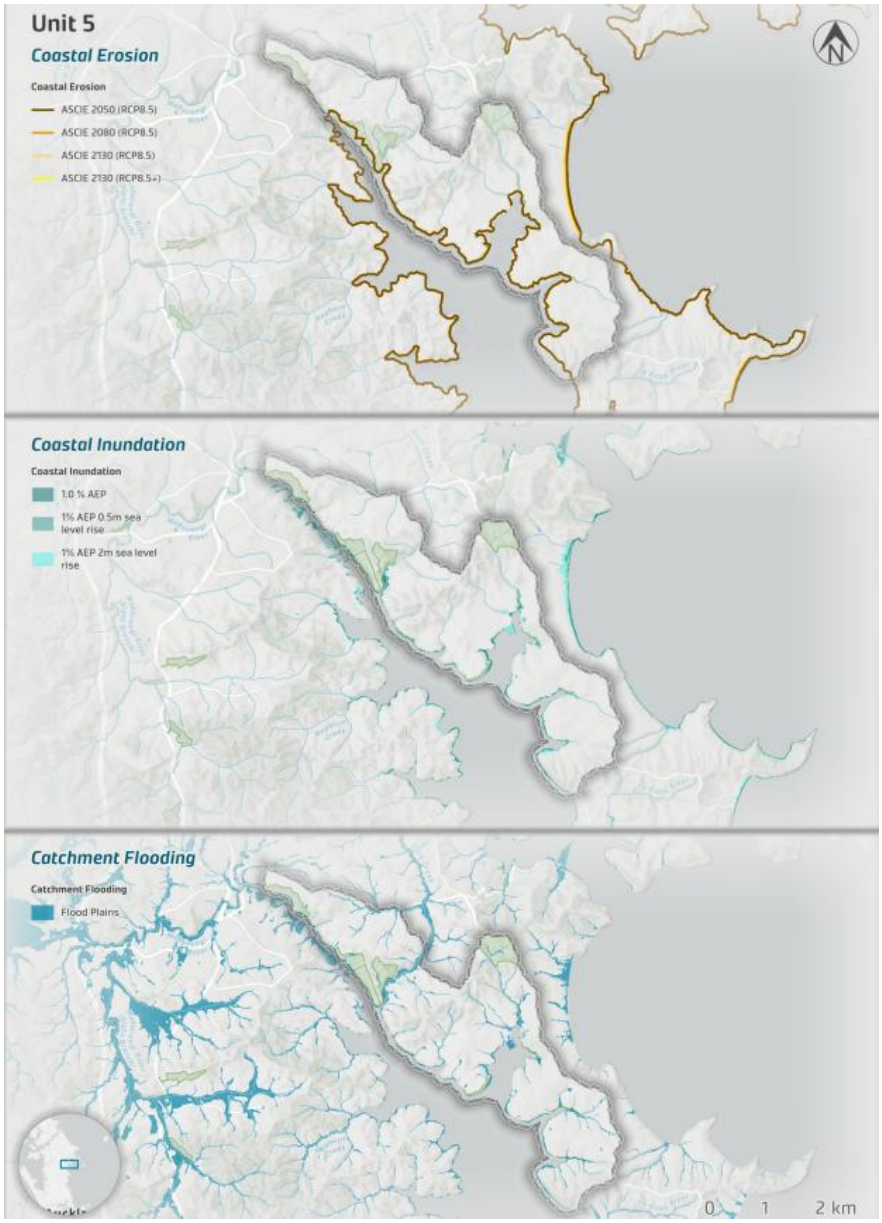


Figure 6: Coastal hazardscape for the Snells Beach South to Warkworth Unit reflecting coastal erosion susceptibility for 2050, 2080 and 2130considering RCP4.5 and RCP8.5 emission scenarios, coastal inundation for 1%AEP storm surge for present day and with 0.5 m, 1 m and 2 m sea-level rise and the identification of flood plains.

Risk assessment

The table below summarises the risk levels for Auckland Council asset types in the short, medium, and long term using low, moderate and high climate scenarios.

Auckland Council-owned land (i.e. Goodall Reserve) and water infrastructure are at moderate risk from coastal erosion susceptibility. Auckland Council community facilities (i.e. Snells Beach Skate Park) are at low risk from both coastal erosion susceptibility and coastal inundation. There is very low risk rated for transport infrastructure (i.e. Hamatana Road) in the short term, and low risk from coastal inundation in the long term.

Council-owned land			Council community facilities			Transport infrastructure			Water infrastructure		
Park and reserve land (47.8 ha) Buildings, wharves (10 No.)			Park amenity structures, carparks, accessways, buildings (0.3 ha)			AT roads (16.1 km) Bridges (131.6 m^2)			Water pipes (44.4 km)		
Short	Medium	Long	Short	Medium	Long	Short	Medium	Long	Short	Medium	Long
Coastal erosion and instability susceptibility											
Moderate	Moderate	Moderate	Low	Low	Low	Very low	Very low	Very low	Moderate	Moderate	Moderate
Coastal inundation											
Low	Low	Moderate	Low	Low	Low	Very low	Very low	Low	Low	Low	Low
Key											
Very Low			**Low**			**Moderate**			**High**		**Very High**

What matters most

Auckland Council land and assets: This section identifies key Auckland Council-owned land and assets within this unit that may be impacted by coastal hazards (inclusive of catchment flooding) over changing climate scenarios.

- Much of the coastline in this unit is in private ownership.
- Auckland Council landholdings are generally limited to unconnected areas of esplanade reserve (Mahurangi East Road Reserve, Te Whau Esplanade Reserve, Goodall Road Reserve, Hamilton Road Reserve).

- Auckland Council-owned closed landfill: Goodall Reserve/Hamatana marginal strip.

- Significant (Watercare-owned) wastewater infrastructure is located within this unit. Wastewater pump station Cornel Circle.

- Walking paths connecting through Te Whau Esplanade Reserve to Goodall Reserve at Snells Beach.

- **Harbour access:** Dawsons Road boat ramp, one of the few public access points to Mahurangi Harbour.

Social, cultural and ecological context: This section identifies key social, cultural and ecological matters, identified through the development of the SAP reports, that may be impacted by coastal hazards (inclusive of catchment flooding) over changing climate scenarios.

- Stretch 5.4 contains one cultural feature scheduled in the AUP:OP: (Heritage ID: 14383)
- Note: Specific cultural values and outcomes for this unit may be developed through ongoing involvement with local iwi. Guiding objectives and outcomes which have informed the development of adaptation strategies have been identified earlier in this report.

Much of the coastline in this unit is in private ownership.

- This unit backs onto Unit 1, with parts of the Snells Beach settlement extending into this unit. This includes a commercial strip and several community facilities clustered around Hamatana Road and Goodall Reserve (Stretches 5.2-5.3) which serve the wider Mahurangi Peninsula area.
- Hamatana Road is the only area of light industrial land in this SAP area outside of Warkworth, providing essential services to a wide area.
- There are two 'Category B' heritage features identified in the AUP:OP in this unit: The Grange (Stretch 5.4), Morisson House (former) (Stretch 5.4).

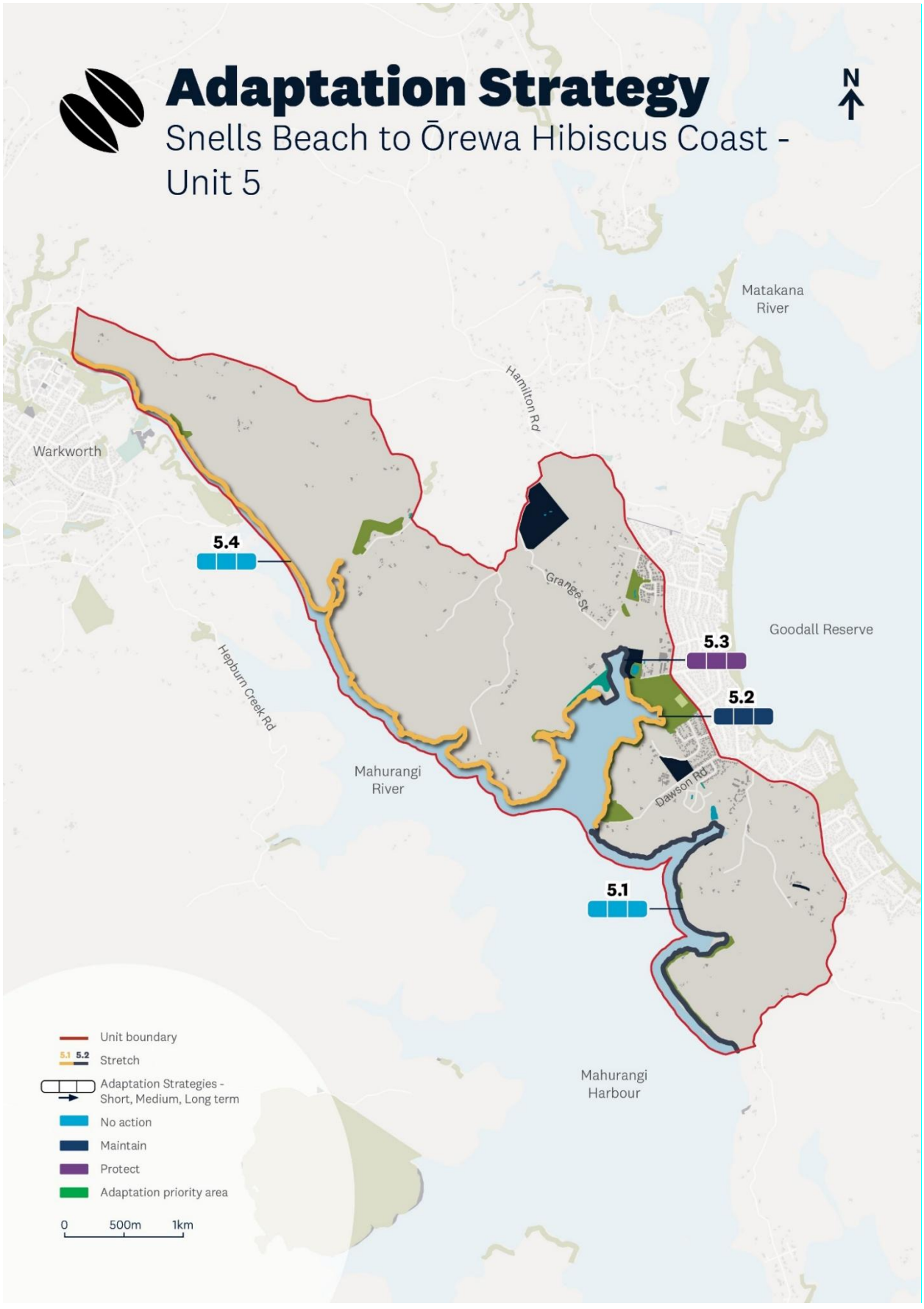
Unit 5 covers the eastern banks and upper reaches of Mahurangi River. There are several regionally important and/or vulnerable ecological features within this unit, including:

- Extensive areas of seagrass in Algies Bay south.
- An area of raupō reedland adjacent to the corner of Goodall Road and Captain Kasper Rise.
- Large fragments of kauri, podocarp, broadleaved forest on the northeastern ridge of the river which continues through the Puhinui Scenic Reserve.
- Significant migratory pathways for a range of diadromous native freshwater fish, including longfin eel, inanga, and freshwater mussel.

Community feedback

- Feedback was received in relation to Unit 5 through survey responses, social pinpoint and submissions.
- Coastal erosion and coastal storm events were identified by most respondents as hazards of concern.
- Key uses and activities included walking and running for exercise water-based activities such as swimming and boating, and passive recreation.
- Community aspirations for better access to the coast, with some respondents noting that the closure of the wastewater treatment plant provides an opportunity for a new boat ramp to be constructed.

What can we do about it? Adaptation strategy summary for Unit 5



5.1: Algies Bay South

This stretch commences at Mahurangi East Road Reserve and includes the coast north to the southern side of Dawson Creek Road end and boat access.

Scenarios for change		
Low	**Moderate**	**High**
No action 	**No action** 	**No action** 
Explanation		
Much of the coastline in this unit is in private ownership, or undeveloped esplanade reserve with no Council assets.		
Implementation notes		
• **No action** is reflective of the predominantly private landholding limited assets, and largely natural coastline and vegetated, unconnected areas of esplanade reserve.		

5.2: Snells Beach South (Dawsons to Goodall Reserve)

This stretch commences at Dawson's Road end and includes the boat ramp access, Te Whau River walkway and Goodall Reserve.

Scenarios for change		
Low	**Moderate**	**High**
Maintain 	**Maintain** 	**Maintain** 
Explanation		
Maintain is reflective of the management of risk to walking access, boat launching facilities and reserve land within this stretch.		
Implementation notes		
• **Management**: An area of Crown land (marginal strip) is identified between the coastal edge and Goodall Reserve. These strategies are not intended to apply to private/third party landholdings. • **Closed landfill**: The Goodall Reserve/Hamatana Marginal Strip Closed Landfill is located within this stretch. This is to be managed under the Closed Landfill Asset Management Plan. The Closed Landfill Team will advise on any specific considerations that may impact the implementation of adaptation strategies.		

5.3: Snells Beach Infrastructure

This stretch commences at Hamatana Road end including the area of indicated closed landfill and Watercare Snells Beach – Algies Bay wastewater treatment plant and associated infrastructure. It ends to the west of the facilities landholdings.

Scenarios for change		
Low	**Moderate**	**High**
Protect 	**Protect** 	**Protect** 
Explanation		
The Snells Beach-Algies Bay wastewater treatment plant is located on reclaimed land in the inlet and is protected from coastal hazards by a raised grassed bund. **Protect** over all timeframes signals the intention to maintain wastewater treatment facilities in this location and protect assets in place from coastal hazards and sea-level rise. Snells Beach WWTP, is being upgraded to support growth in the area and replace the ageing Mahurangi WWTP (in Unit 6).		
Implementation notes		
• **Management:** Hamatana Road is exposed to erosion/instability from the short term and inundation from the medium term. This strategy does not preclude localised interventions as required for roading connections to the WWTP. Auckland Transport, the asset manager, will monitor how coastal hazards may impact on operation of these assets and future implementation options • **Closed landfills** will be subject to management through the Closed Landfill Asset Management Plan.		

5.4: Mahurangi River North (Snells Beach to Warkworth)

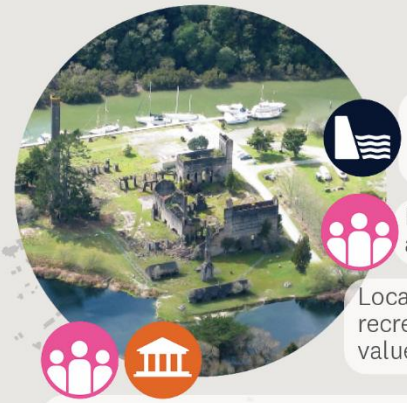
Stretch 5.4 extends along the eastern bank of Mahurangi River, commencing west of the Snells Beach WWTP to the head of the inlet opposite Warkworth, across the river from the town centre library.

Scenarios for change		
Low	**Moderate**	**High**
No action 	**No action** 	**No action** 
Explanation		
This stretch has no Auckland Council assets other than several areas of undeveloped reserve land. The area is characterised by rural residential properties with large areas of pasture interspersed with patches of dense vegetation.		
Implementation notes		
• **No action** is reflective of the predominantly private landholding limited assets, and largely natural coastline and vegetated, unconnected areas of esplanade reserve. • **Note:** The strategy does not preclude support for the management intentions associated with Duck Creek Reserve. • **Cultural**: Rodney Local Park Management Plan identifies a pā site, pits, and terraces within Duck Creek Reserve. Management intentions for the park note the need to work with mana whenua to protect the cultural values of the park. Engagement with mana whenua (including Ngāti Manuhiri who have a strong connection to the area) is required to further understand the cultural values associated with this site and the impact of coastal hazards over time. • **Heritage:** The Grange, a scheduled heritage feature, is located within this stretch. Engagement with Heritage New Zealand may be needed to determine management options for this feature.		

Unit 6
Snells Beach to Ōrewa Hibiscus Coast

N

Warkworth Wharf



Modified edge and armoring of the river inlet

Private marina associated services

Locally valued recreation and heritage value

Wilson's Hydraulic Lime and Cement Works ruins, Warkworth.

Wilson's Cement Works at Warkworth is nationally and internationally significant as the first factory, in the early 1880's to commercially producing cement

Aerial shot - 13/09/2025 - Rodney District council.
Photo credit : Sourced from Pohere Taonga Heritage NZ

Warkworth Showgrounds

Matakana Rd

Pulham Rd

Wilson Rd

Auckland Council managed closed landfill 'Cement Works'

Established mangrove forest, regenerating vegetation and areas of significant ecological area border the river inlet, including areas of vegetation through Lucy Moore Park and Kowhai view

Parry Kauri Park

Mahurangi River

Walkway network from Milstream Place

Highly valued local walking connections

Wharf

Harbour access and jetty

Lucy Moore Memorial Park Walking connections to the east

Protection structures and modification of river bank

Harbour access

Warkworth private marine

Watercare wastewater facility

Unit boundary

6.1 6.2 Stretch

Informal recreation park

Auckland Council owned land

0 250m 500m

Unit 6: Puhinui Warkworth

Unit 6 is located within the Rodney Local Board area. It includes central Warkworth and the surrounding areas at the head of the Mahurangi River. The unit boundaries extend from Mahurangi River Sandspit Road Reserve in the north to just past the cement works landfill at the end of Wilson Road.

Warkworth town basin and the Mahurangi Marina site, are armoured with rock revetment and concrete seawalls. Maintenance dredging periodically occurs in the channel adjacent and downstream of Warkworth town basin for navigation purposes, which also marginally increases flow capacity. Following significant rainfall, on occasion, flood debris is cleared from where it gets caught by the town basin structures.

What is happening? Coastal context and hazardscape

This unit forms the upper end of Mahurangi Harbour where it transitions to a river-dominated morphology, but still with tidal influence. The coastline is sheltered from any significant wave energies. Established mangroves are present downstream from the town basin area to the southern extent of this unit. During high rainfall events, water levels are elevated and significant flow rates can occur in the channel adjacent the town basin, suspending significant volumes of fine sediments.

This upper area of the harbour is generally low energy in terms of wave climate. Ongoing erosional processes can impact low-lying unprotected coastal edges with repeat wetting and drying over the tidal cycle contributing to weathering of exposed margins.

Warkworth town basin.

Coastal inundation flooding is predicted to impact the majority of the Warkworth town basin shoreline including the wharf area and adjacent carparking in the low change scenario. In the moderate to high change scenario, the extent of coastal inundation flooding will impact lower-lying sections of existing walkways and reserves along the western shoreline, including areas of private landholding utilised for marine activities.

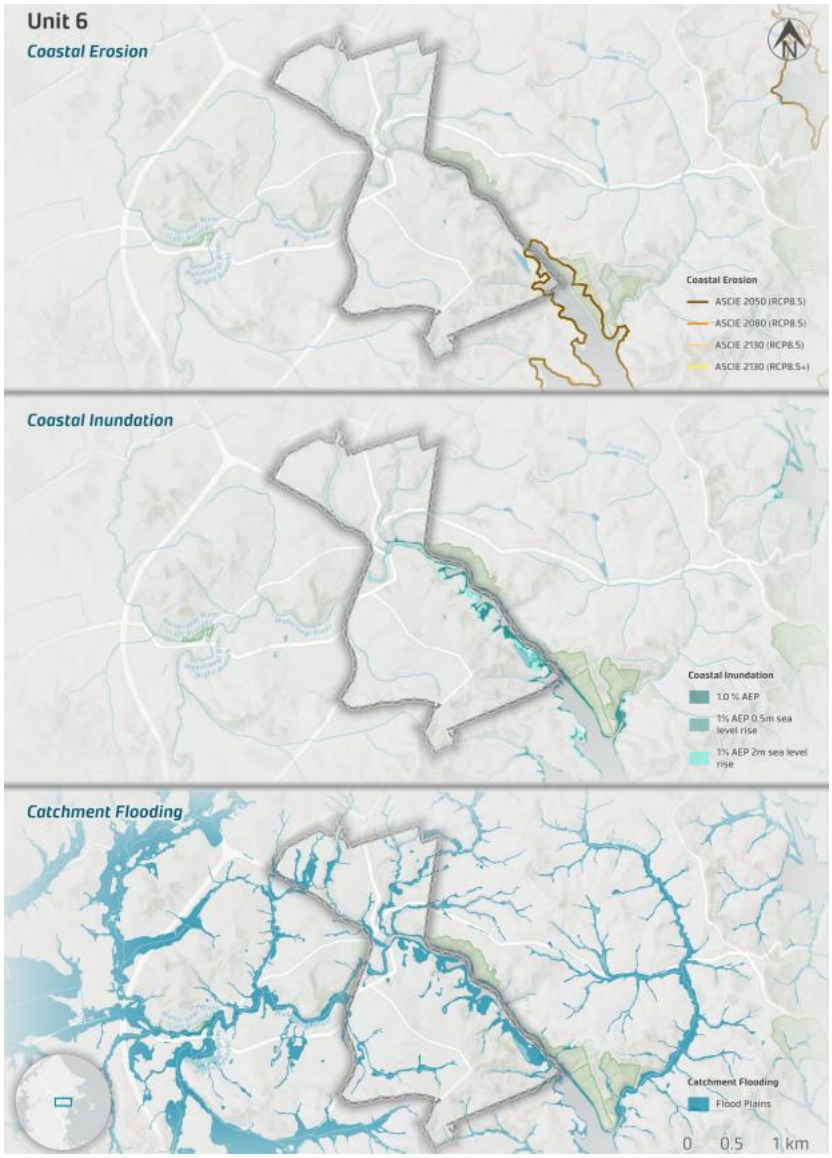


Figure 7: Coastal hazardscape for the Puhinui Warkworth Unit reflecting coastal erosion susceptibility for 2050, 2080 and 2130 considering RCP4.5 and RCP8.5 emission scenarios, coastal inundation for 1%AEP storm surge for present day and with 0.5 m, 1 m and 2 m sea-level rise and the identification of flood plains.

Risk assessment

The table below summarises the risk levels for Auckland Council asset types in the short, medium, and long term using low, moderate and high climate scenarios.

Auckland Council-owned land (i.e. Lucy Moore Memorial Park) is at low risk from coastal erosion susceptibility and moderate risk from coastal inundation in the short term. Risk to Auckland Council community facilities is rated as moderate from coastal erosion susceptibility and high risk from coastal inundation. Water infrastructure (i.e. pipes in Council-owned land, rural and residential areas) is at low risk from both climate hazards and risk to transport infrastructure from coastal inundation increases from very low risk in the short term to moderate risk in the medium term.

Council-owned land			Council community facilities			Transport infrastructure			Water infrastructure		
Park and reserve land (85.9 ha) Buildings, wharves (30 No.)			Park amenity structures, carparks, accessways, buildings (3.2 ha)			AT roads (20.0 km) Bridges (1,169.3 m^2)			Water pipes (137.4 km)		
Short	Medium	Long	Short	Medium	Long	Short	Medium	Long	Short	Medium	Long
Coastal erosion and instability susceptibility											
Low	Low	Low	Moderate	Moderate	Moderate	Very low	Very low	Very low	Low	Low	Low
Coastal inundation											
Moderate	Moderate	Moderate	High	High	High	Very low	Moderate	Moderate	Low	Low	Low
Key											
Very Low			**Low**			**Moderate**			**High**		**Very High**

What matters most

Auckland Council land and assets: This section identifies key Auckland Council-owned land and assets within this unit that may be impacted by coastal hazards (inclusive of catchment flooding) over changing climate scenarios.

- **Reserves** including Elizabeth Street Reserve, Mahurangi River Sandspit Road, Warkworth River Bank, Lucy Moore Memoria Park, Mahurangi River Alnwick Street, Kowhai View, Cement Works.

- **Auckland Council buildings**: Library/service centre, town hall, Masonic Hall, clubrooms, carpark, Cement works toilet block.
- Warkworth town basin located along the coastal edge.

- **Closed landfills:** Cement Works (Wilson Road).

Wastewater infrastructure: Warkworth wastewater treatment plant, Lilburn pump station.

- **Key tracks:** Sesquicentennial Walkway, Warkworth River Bank-Town walkway.

- **Harbour access:** Warkworth town basin (timber wharves, boardwalks, and pontoons) and kayak jetty; boat ramps (Warkworth Percy Street, Alnwick Street).
- **Private** Mahurangi Marina facilities occupy the channel downstream off Wilsons Road.

Social, cultural and ecological context: This section identifies key social, cultural and ecological matters, identified through the development of the SAP reports, that may be impacted by coastal hazards (inclusive of catchment flooding) over changing climate scenarios.

- No sites and places of significance to mana whenua, or Cultural Heritage Inventory records have been recorded within this unit.
- Note: Specific cultural values and outcomes for this unit may be developed through ongoing involvement with local iwi. Guiding objectives and outcomes which have informed the development of adaptation strategies have been identified earlier in this report.

- Warkworth is a key regional centre for north Auckland, providing a connection and service centre point for several other nearby townships in this SAP area and beyond.
- The main commercial area runs parallel to the river set back behind a carpark and boardwalk.
- The community has a strong connection to Mahurangi River. Several boat ramps, boat builders/boat yards, and marinas reflect the importance of the coastal connection.
- Three 'Category A' heritage features are recorded: Warkworth Town Hall (Stretch 6.2), Riverina (inland), Wilson's Cement Works (Australasia's first commercial Portland cement factory) R09_703, including remains of cement works, quarry, and associated wharf (Stretch 6.6)
- The cement works site is within a popular reserve and next to a swimming hole; they are key attractions to the Warkworth area.
- Planned replacement of the neighbouring wastewater treatment plant with a connection to the Snells Beach plant in coming years is anticipated to lead to improvements in water quality in the Mahurangi Harbour.

The key ecologically significant areas within Unit 6 include:

- Kowhai Park, which is classified as tawa, kohekohe, rewarewa, hīnau podocarp forest.
- To the east of Kowhai Park, there are several small patches of kahikatea forest.
- Parry Kauri Park is largely classified as kauri, podocarp, broadleaved forest and is also utilised by passerine species.

Community feedback

- Feedback was received in relation to Unit 6 through survey responses, social pinpoint and submissions.
- Flooding from rainfall events was identified as a hazard of concern by most respondents, with some noting the impact of heavy rainfall events on Kowhai Park and along the River Esplanade.
- Key uses and activities included water-based activities such as boating, walking and running for exercise.
- Community aspirations for maintaining access to walkways and the coast, with some respondents suggesting improvements to the existing boat ramp in Warkworth.

What can we do about it? Adaptation strategy summary for Unit 6

6.1: Mahurangi River Esplanade

This stretch commences at the boundary of Mahurangi River Esplanades, Sandspit Road (including this reserve) on the northern side of the Mahurangi River, culminating adjacent to the end of Mill Stream Place Road end (within Elizabeth Street Reserve) to the west of Warkworth township.

Scenarios for change		
Low	**Moderate**	**High**
Maintain 	**Maintain** 	**Maintain** 
Explanation		
There is limited exposure to Auckland Council land and assets in the low change scenario, however the importance of the road and connections to the community is recognised through the strategy of **maintain** across all scenarios.		
Implementation notes		
• **Maintain** is reflective of increasing compound flood risk to roading connections within this stretch (Sandspit Road) and the management of risks to park uses and assets within Elizabeth Street Reserve where access to these areas may be provided. • **Heritage:** The Combes/Daldy lime works site heritage feature is located within this stretch. Engagement with Heritage New Zealand may be required for any specific actions undertaken in this area.		

6.2: Puhinui Warkworth Township

This stretch commences adjacent to the Millstream Road end in Elizabeth Street Reserve, including the catchment northwest of Elizabeth Street and the town centre area, culminating in the south at the boundary between Lucy Moore Memorial Park (adjacent Baxter Road/Bertram Street road end).

Scenarios for change		
Low	**Moderate**	**High**
Protect 	**Protect** 	**Protect** 
Explanation		
Protect for the central township area is reflective of the historic, cultural and social values, the modified edge and existing protection structures, water access structures, walkways and Auckland Council assets and landholdings. The town basin area is armoured with retaining along wharf structures. Inundation risk is likely to increase over time and future consideration of the design and use of areas including wharf and carparking exposed to inundation may be required.		
Implementation notes		
• **Heritage**: Several heritage features are located within this stretch. Elizabeth Street Bridge and Bridge House are within the coastal hazard area. Engagement with Heritage New Zealand may be required for any specific actions undertaken in this area.		

6.3: Puhinui Warkworth South Reserves

This stretch commences at Lucy Moore Memorial Park and includes the shoreline east to the end of the reserve landholding where the park meets Rivendell Place.

Scenarios for change		
Low	**Moderate**	**High**
Maintain 	**Maintain** 	**Maintain** 
Explanation		
Continuous esplanade reserve borders this stretch, with coastal walkways generally set adequately landward and elevated to avoid coastal flooding inundation, however areas are exposed to localised catchment flooding. **Maintain** reflects the limited exposure of Auckland Council assets to coastal hazards. Sufficient parkland areas provide flexibility for the management of uses and location of assets. Coastal protection structures are not anticipated within this stretch.		
Implementation notes		
• **Maintain** provides for uses and assets including stormwater, wastewater, parks accessways and parks uses to be designed and located to respond to catchment hazards.		

6.4: Warkworth Private Marina

Stretch 6.4 extends along the coastline between Lucy Moore Memorial Park and Mahurangi River Alnwick Street Reserves. It includes a private boat yard with docks/piers in the river.

Scenarios for change		
Low	**Moderate**	**High**
No action 	**No action** 	**No action** 
Explanation		
No action is reflective of the private coastal landholdings within this stretch.		
Implementation notes		
• **Management**: This strategy does not preclude the management of risk to Auckland Council assets (including wastewater rising mains) and the protection in place of linear infrastructure as required. Watercare, the asset owner, will monitor how coastal hazards may impact on operation of these assets and future implementation options.		

6.5: Warkworth Wastewater Treatment Facility and reserves

Stretch 6.5 includes the Warkworth wastewater treatment plant and adjacent land.

Scenarios for change		
Low	**Moderate**	**High**
Protect 	**Protect** 	**Protect** 
Explanation		
The treatment plant and boat ramp are at risk of coastal inundation with the plant planned to be decommissioned following completion of a new pipeline connection to the new Snells Beach WWTP. This is our preferred pathway because **protect** is applicable to and includes the Alnwick Reserve and wastewater treatment facility and provides for the protection of the wastewater facility.		
Implementation notes		
• **Management:** Following completion and commissioning of the Snells Beach WWTP (Stretch 5.3), the Warkworth WWTP is planned to be decommissioned. In this eventuality, the adaptation strategy over the long term may be revised.		

6.6: River Esplanade Reserve - Kowhai View

Stretch 6.6 extends from the Warkworth WWTP to the edge of the Cement Works.

Scenarios for change		
Low	**Moderate**	**High**
No action 	**No action** 	**No action** 
Explanation		
Densely vegetated esplanade reserve, Mahurangi River Kowhai View, extends along most of this stretch. There are no Auckland Council assets present.		
Implementation notes		
• **No action** in relation to management of the coastal edge is anticipated for these areas which are vegetated and in a generally natural and unmaintained reserve areas. Noting this stretch is subject to future walkway connection aspirations.		

6.7: Cement Works

This stretch commences in the east at the Auckland Council reserve landholdings, and culminates adjacent to Wilsons Road end and Southgate Wharf (historic structure).

Scenarios for change		
Low	**Moderate**	**High**
Protect 	**Protect** 	**Adaptation priority** 

Explanation

Protect recognises existing armouring structures and importance of protecting the significant heritage assets located here. This is our preferred pathway because this stretch includes the Warkworth Cement Works. Portions of land in this stretch, predominantly the coastal edge are Crown-owned (DOC) marginal strip; this stretch includes significant cultural, social and historic values and historic reclamations which may include contaminated materials. Collaboration and advocacy will be required to support outcomes associated with these values.

Inundation risk will increase in time and further consideration of risks to the values and uses within this stretch will be required in the high change scenario. **Adaptation priority** in the high change scenario reflects the complexity of the site with private marina and associated structures and historic structures requiring proactive engagement and consideration of future options.

Implementation notes

- **Heritage**: The Warkworth Cement Works (ruins), located in this stretch, are a Category A/Category 1 Heritage Feature. Engagement with Heritage New Zealand will be needed for any specific actions undertaken in this area.
- **Management**: The wharf at Mahurangi Marina formalises much of the coastal edge around the cement works area. Engagement with marina management is recommended to understand how coastal hazards may impact on operation of this asset and how to implement adaptation strategies for the site and Auckland Council assets.
- **Management**: Inundation risk will increase over time and further consideration of risks to the values and uses within this stretch will be required in the long term. Collaboration and advocacy will be required to support outcomes associated with these values.
- **Management**: Portions of land in this stretch, predominantly the coastal edge, are Crown-owned (DOC); this stretch includes significant cultural, social and historic values and historic reclamations which may include contaminated materials. Engagement with DOC will be required to co-ordinate management and strategy implementation.
- **Closed landfill**: The Wilson Road (Cement Works) Closed Landfill is located within this stretch. This is to be managed under the Closed Landfill Asset Management Plan. The Closed Landfill Team will advise on any specific considerations that may impact the implementation of adaptation strategies.

6.8: Southern Warkworth, Mahurangi River Inlet

Stretch 6.8 is a small stretch of the mangrove-dominated Mahurangi River coastline (approximately 500 m) that lies between the edge of the Warkworth heritage Cement Works and Unit 7.

Scenarios for change		
Low	**Moderate**	**High**
No action 	**No action** 	**No action** 
Explanation		
This stretch includes several privately owned buildings but no Auckland Council assets. A moderately sized terrestrial SEA overlay is located along the margins of a tributary of the Mahurangi River.		
Implementation notes		
• **No action** is reflective of the predominantly private landholding limited assets, and largely natural coastline and vegetated, unconnected areas of esplanade reserve.		

Unit 7
Snells Beach to Ōrewa Hibiscus Coast

N

Low-lying embayment are subject to inundation and coastal cliffs susceptible to erosion

Jamieson Bay Esplanade Reserve

Jamieson Bay boat ramp, car parking and sea wall structures

Locally valued coastal access and boat launching

Culturally significant sites

Support for natural dune buffer

Opahi Bay Beach Reserve

Boat ramp parking and dinghy storage

Private coastal defences

Low-lying areas of Pukapuka Road

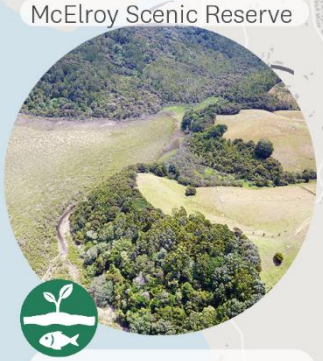
Pukapuka Cemetery

Gemini Golf Course - private

Mahurangi West Hall

Hepburn Creek Road Esplanades

McElroy Scenic Reserve



The kauri and coastal forestand the estuarine environment support a good diversity of native animals. This includes nationally at risk wetland bird species including: Mioweka (banded rail) and Mātātā (fernbird).

Esplanade Reserves

Browns Bay

Pukapuka Inlet

Esplanade Reserve

Jamieson Bay

Hepburn Creek

Cowan Bay

Dyers Creek

Pūhoi

Hepburn Creek Rd

Edwards Rd

Jamieson Rd

Barr Rd

Opahi Bay Rd

Rangi Rd

Mahurangi West Rd

Pukapuka Rd

The Bullock Trk

Unit boundary

7.1 7.2 Stretch

Informal recreation park

Auckland Council owned land

0 500m 1km

Unit 7: Mahurangi West

Unit 7 is located within the Rodney Local Board area. This unit commences south-east of Warkworth township and includes a substantive area of the coastal areas of the western Mahurangi inlet south to Opahi Bay.

What is happening? Coastal context and hazardscape

This unit comprises the western Mahurangi Harbour coastline and includes large areas of established mangroves, saltmarsh habitat, extensive intertidal flats, various embayments (Cowan Bay, Dyers Creek and Pukapuka Inlet), and coastal cliffs. The inner harbour shoreline is only exposed to low, short period, depth-restricted waves generated across the short inner harbour fetch distances.

This upper area of the harbour is generally low energy in terms of wave climate. Ongoing erosional processes can impact low-lying unprotected coastal edges with repeat wetting and drying over the tidal cycle contributing to weathering of exposed margins. Most of this coastline is naturalised and vegetated, with (identified) seawalls only present at Jamiesons Bay and Opahi Bay.

The area most at risk to coastal inundation flooding within this unit is Opahi Bay in the moderate change scenario, with the inland extent of flooding increasing in the high change scenario. Other areas within this unit potentially impacting by coastal inundation flooding are the low-lying sections of rural roads that fringe the inlet.

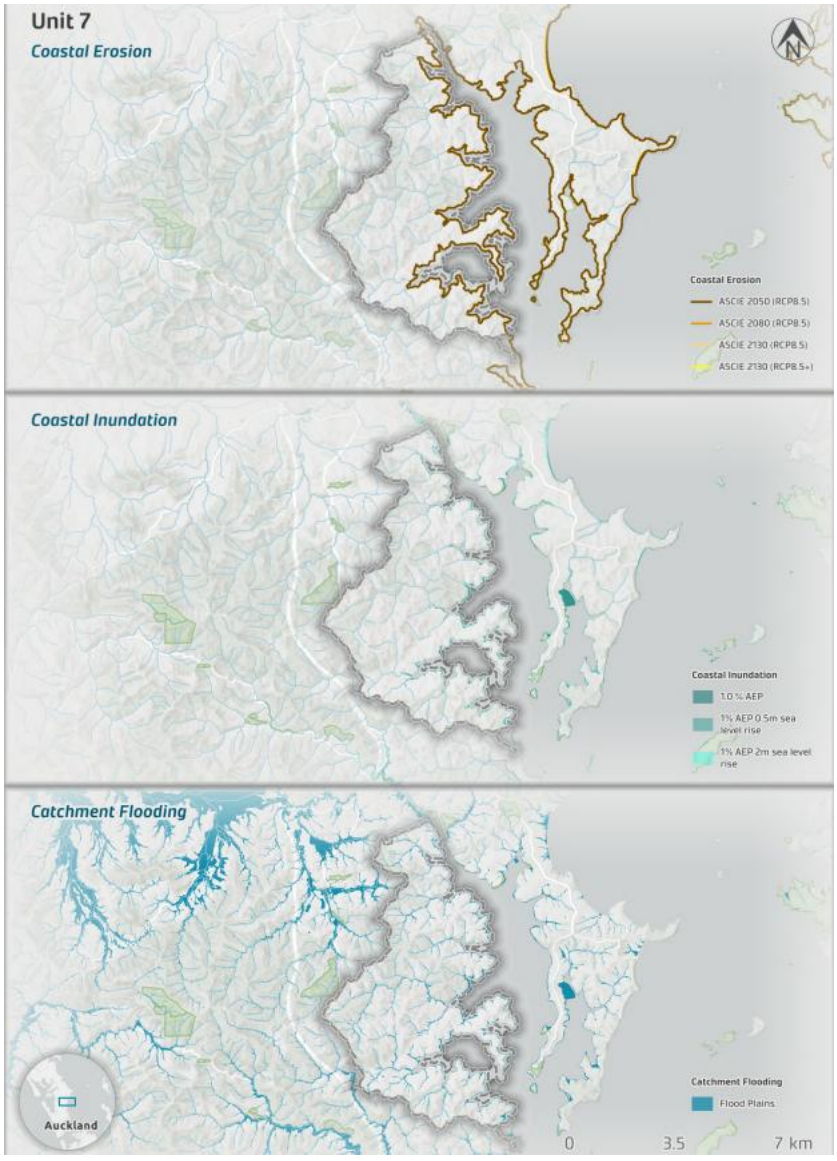


Figure 8: Coastal hazardscape for the Mahurangi West Unit reflecting coastal erosion susceptibility for 2050, 2080 and 2130 considering RCP4.5 and RCP8.5 emission scenarios, coastal inundation for 1%AEP storm surge for present day and with 0.5 m, 1 m and 2 m sea-level rise and the identification of flood plains.

Risk assessment

The table below summarises the risk levels for Auckland Council asset types in the short, medium, and long term using low, moderate and high climate scenarios.

At a unit level, risk from coastal erosion susceptibility is high to Auckland Council-owned land (i.e. McElroy Reserve) and moderate to Auckland Council community facilities and transport infrastructure. Risk from coastal inundation is moderate across all time frames to Auckland Council-owned land, Auckland Council community facilities and transport infrastructure (i.e. Cowan Bay Road). Water infrastructure is at low risk from both climate hazards across the three timeframes.

Council-owned land			Council community facilities			Transport infrastructure			Water infrastructure		
Park and reserve land (168.2 ha) Buildings, wharves (5 No.)			Park amenity structures, carparks, accessways, buildings (0.1 ha)			AT roads (20.9 km) Bridges (360.0 m^2)			Water pipes (3.7 km)		
Short	Medium	Long	Short	Medium	Long	Short	Medium	Long	Short	Medium	Long
Coastal erosion and instability susceptibility											
High	High	High	Moderate	Moderate	Moderate	Moderate	Moderate	High	Low	Low	Low
Coastal inundation											
Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Low	Low	Low
Key											
Very Low			**Low**			**Moderate**			**High**		**Very High**

What matters most

Auckland Council land and assets: This section identifies key Auckland Council-owned land and assets within this unit that may be impacted by coastal hazards (inclusive of catchment flooding) over changing climate scenarios.

- Areas of esplanade reserve are generally unmaintained and unconnected. The main reserves in this unit include: McElroy Scenic Reserve, Jamieson Bay Esplanade Reserve, Opahi Bay Beach Reserve.

- Jamiesons Bay Road end and carpark; Opahi Bay carpark and toilet amenities.

- Several minor rural roads are located within proximity to the coast and in low-lying areas within this unit (Hepburn Creek Road, Pukapuka Road).

- **Boat ramps:** Jamieson Bay Esplanade Reserve, Opahi Bay Beach Reserve.

Social, cultural and ecological context: This section identifies key social, cultural and ecological matters, identified through the development of the SAP reports, that may be impacted by coastal hazards (inclusive of catchment flooding) over changing climate scenarios.

- Four cultural features have been identified within this unit: Pā (Heritage ID 14382), Pā (Heritage ID 14388), Pā / ditch (Heritage ID 14379), Pā (Heritage ID 14381). These heritage features have also been recorded, alongside Māori and non-Māori heritage features, in the AUP:OP, as noted below in the 'Social context'.
- Note: Specific cultural values and outcomes for this unit will be developed through ongoing involvement with local iwi. Guiding objectives and outcomes which have informed the development of adaptation strategies have been identified earlier in this report.

- Unit 7 is large and has a dispersed population. The primary land use is farming, with dwellings generally spread out and located on larger lots.
- There are also large areas of native bush within this stretch, the most notable being the 151 ha McElroy Scenic Reserve. These are not accessible to the public with McElroy Scenic Reserve closed to protect against the spread of Kauri Dieback.
- A small settlement is located at the end of Mahurangi West Road, overlooking Opahi Bay and Jamieson Bay. Along Mahurangi W Road is the Geminigolf Private Golf Course, a key visitor attraction.
- One 'Category A' heritage feature identified in the AUP:OP: Browne's spar station site R09_43, R09_433, including associated settlements, accessway and burials (Stretch 7.1).
- Additionally, 10 'Category B' heritage features have been identified, including: Pā site R09_46, Pā site R09_40, Wech House (former), Pā site R09_76, Midden/pits/drains (cultivation) R09_928, Oaua Point Pā R09_34, Undefended settlement site R09_45, Mahurangi West Hall (former school), Pā site R09_49, Pukapuka brickworks R09_922, including landing site.
- All heritage and cultural features identified near the coast in the AUP:OP are located in Stretch 7.1, many of them clustered around the Pukapuka Inlet.

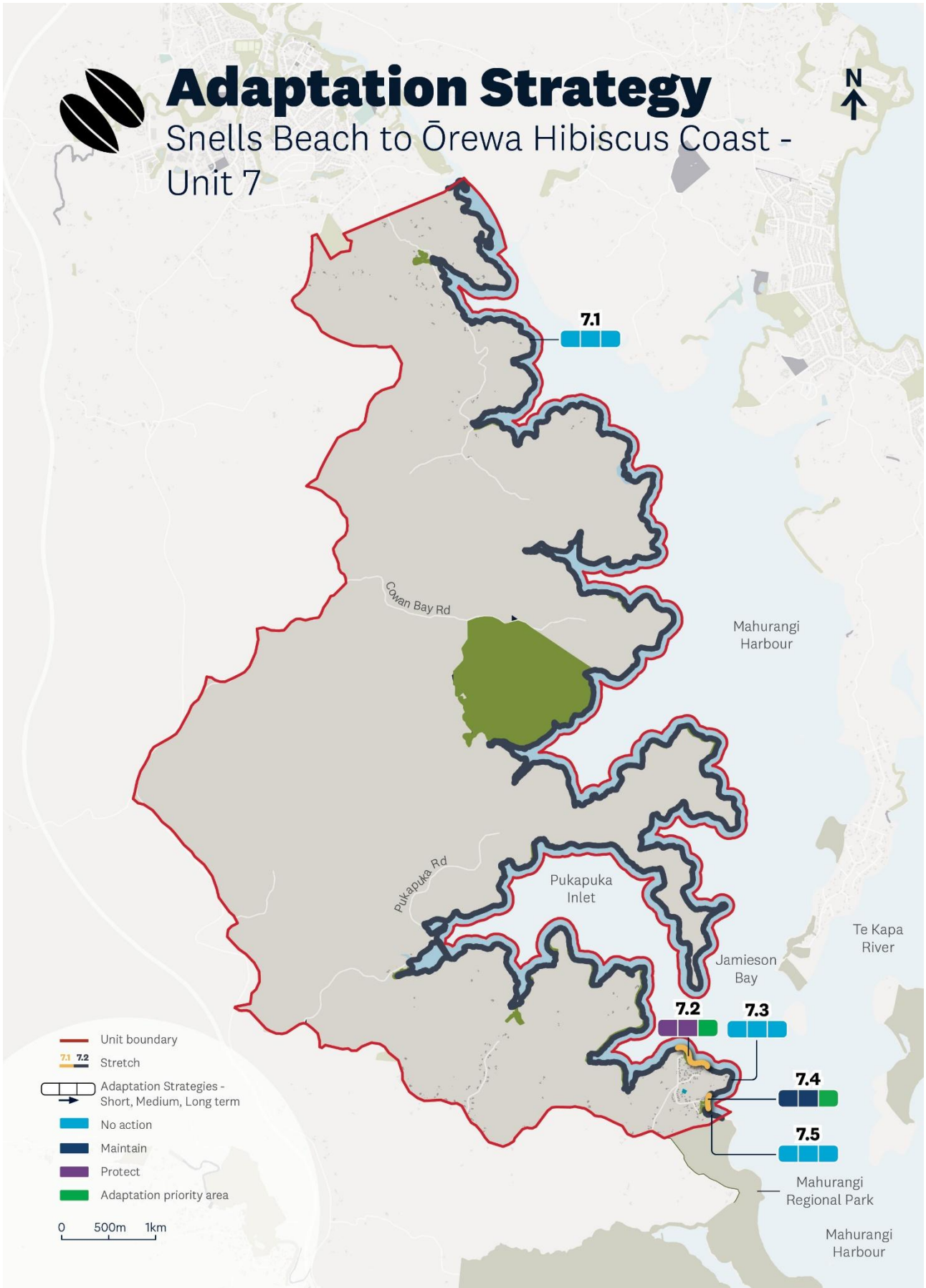
Unit 7 contains many regionally important and/or vulnerable ecosystems and species. These include:

- Large areas of contiguous coastal forest, including kauri, podocarp, broadleaved forest, which makes up the entirety of McElroy Scenic Reserve. Other forest ecosystems include coastal broadleaved forest which lines some of the coastal cliffs, kauri forest and inland areas of taraire, tawa, podocarp forest.
- Records of cryptic wetland birds, including banded rail and fernbird concentrated around the McElroy Scenic Reserve.
- Several tidal streams and inlets which support native freshwater fish populations.
- Two areas of seagrass: one within Pukapuka Inlet and one in Huawai Bay.

Community feedback

- Feedback was received in relation to Unit 7 through survey responses, social pinpoint and submissions.
- Key uses and activities included boating, walking and running for exercise.
- Coastal erosion and coastal storm events were identified by most respondents as hazards of concern. Some respondents have observed some erosion of the coastline over time. Most respondents also noted an increase in sediment within the harbour.
- Feedback identified concerns with conflicting uses of the coast, with some respondents noting that “Boaties seem to ‘rule the roost at Mahurangi’”.
- Of the feedback received, some respondents suggested that existing retaining structures could be maintained.

What can we do about it? Adaptation strategy summary for Unit 7



7.1: Mahurangi Estuary West; Warkworth South

Stretch 7.1 is a large (over 36 km long) rural stretch, extending from just below the Warkworth Cement Works around the western shoreline to the edge of Jamieson Bay in the south.

Scenarios for change		
Low	**Moderate**	**High**
No action 	**No action** 	**No action** 
Explanation		
This stretch includes limited Auckland Council land. **No action** does not preclude the management of risk to low-lying minor rural road connections that were required to maintain access.		
Implementation notes		
• **Roading management**: Hepburn Creek Road and Pukapuka Road are exposed to coastal inundation and instability/erosion. This strategy does not preclude localised interventions as required for roading connections, particularly as Hepburn Creek Road is the sole access to the northern half of this stretch. Auckland Transport, the asset manager, will monitor how coastal hazards may impact on operation of these assets. • **Heritage**: Multiple heritage features are located on or near the coast within this stretch. Engagement with the Heritage Team and/or Heritage New Zealand may be needed to determine appropriate management strategies. • **Cultural**: Engagement with mana whenua is required to further understand the cultural values associated with the heritage features (including pā sites), noting that several of these features are also identified in the Cultural Heritage Inventory. • **Ecology**: The McElroy Scenic Reserve BFA is located on the coast within this stretch. Engagement with the Ecology Team to seek advice on specific implementation actions to support ecological values.		

7.2: Jamieson Bay

Stretch 7.2 is a short stretch covering the coastal land at Jamieson Bay. It coincides with the extent of Jamieson Bay Esplanade Reserve.

Scenarios for change		
Low	**Moderate**	**High**
Protect 	**Protect** 	**Adaptation Priority** 
Explanation		
Inland of Jamieson Bay Reserve is a small settlement located primarily between Jamieson Road and Barr Road. A boat ramp serves this community, and a Mooring Zone is located in Mahurangi Harbour offshore from this bay. **Protect** in the low to moderate change scenario reflects the maintenance of the modified coastal edge in the current location providing for boat launching and harbour access within this reserve area. **Adaptation priority** in the high change scenario signals the need to consider ongoing risk management to the uses within the reserve areas such as dingy lockers. This strategy reflects the importance of this key harbour access point.		
Implementation notes		
• **Management:** Jamieson Road is exposed to erosion/instability. Auckland Transport, the asset manager, will monitor how coastal hazards may impact on operation of these assets and future implementation options.		

7.3: Jamieson Bay to Opahi Bay

This stretch includes the coastal cliff area between Jamiesons Bay and Opahi Bay.

Scenarios for change		
Low	**Moderate**	**High**
No action 	**No action** 	**No action** 
Explanation		
There are no Auckland Council assets identified in this stretch.		
Implementation notes		
• **No action** reflects limited Auckland Council land and assets located within this stretch. • **Cultural**: This stretch includes Opaheke Pā; this strategy does not preclude advocacy for management of risks to cultural values. Engagement with mana whenua is required to further understand the cultural values associated with this site and the impact of coastal hazards over time.		

7.4: Opahi Bay

This stretch commences at the northern extent of the bay culminating at the south of the Auckland Council reserve landholdings on the coastal frontage of the beach.

Scenarios for change		
Low	**Moderate**	**High**
Maintain 	**Maintain** 	**Adaptation Priority** 
Explanation		
This area includes a boat ramp, dingy storage, a picnic table, and a public toilet. A Mooring Zone is located in Mahurangi Harbour offshore. Landward of the beach is a cluster of houses following the road down into the bay. **Maintain** in the low to moderate change scenario is reflective of the management of risk to Auckland Council reserve and road access including harbour access through design and location of structures. **Maintain** provides for the support of natural dune systems to manage increasing inundation risk, engineered defences are not anticipated. **Adaptation priority** is identified in the high change scenario to signal the need for further planning and discussion.		
Implementation notes		
• **Management**: A privately-owned 'back stop' seawall is identified within this coastal stretch; this is not maintained by Auckland Council. • Low-lying reserve areas to the south are likely to be subject to increasing inundation risk. Uses (and assets) within this area will need to be designed to respond to this risk as a result.		

7.5: Opahi South

This stretch commences south of the Auckland Council reserve landholdings including the coast south to the regional park.

Scenarios for change		
Low	**Moderate**	**High**
No action 	**No action** 	**No action** 
Explanation		
No action reflects limited Auckland Council land and assets. This strategy does not preclude advocacy for management of risks to cultural values, in collaboration with landowners and mana whenua.		
Implementation notes		
• **Cultural:** This stretch of the coast is in private ownership and includes identified cultural values (urupā). Engagement with mana whenua and landowners is required to further understand the cultural values associated with this site and the impact of coastal hazards over time.		

Unit 8
Snells Beach to Ōrewa Hibiscus Coast

Statutory acknowledgments and sites of significance are located in and around the park, including wahi tapu and urupā which may be exposed to coastal hazards and located within dynamic coastal environments

Remote naturalness valued by park visitors who enjoy the unique coast within this unit

The vegetation within these regional parks has also been identified as a BFA called 'Wenderholm and Te Muri Coastal Forest'

Numerous sites, landscapes and features of cultural significance

Numerous historic heritage features located within the Wenderholm and Te Muri Regional parks

Jamieson Bay

Opahi Point

Mahurangi Regional Park

Otarawao Bay

Te Muri Estuary

Te Muri Beach

Low lying areas of Te Muri Regional Parks are exposed to coastal hazards and sea level rise

Te Ake Ake

Schischka Campground

Puhoi river

Wenderholm Regional Park

Maunga tauhoro Te Hikoi Track

Highly valued walking connections

The estuary that runs to the north of Te Muri Beach contains large areas of seagrass and saltmarsh recorded within the lower reaches of the river.

Ongoing dune planting occurs at Te Muri and Wenderholm

Waiwera River

Highly valued beach for locals and visitors to the area

Environments enjoyed by park visitors

Historical rock groyne structures remain at the northern end of Wenderholm Beach, originally placed with the intention of stabilising the head of the sand spit

A significant feature is the intact ecological sequence extending from the beach up Te Muri Estuary to the freshwater wetlands in Te Muri Stream. There are few remaining ecological sequences of this quality in the region. Over 300 plant species have been recorded in the park, of which a handful are nationally or regionally threatened

Te Muri Regional Park has numerous historic heritage sites, many are located in proximity to the coast and the impacts of coastal hazards will need to be considered for the long term management of these sites.

N

Unit boundary

8.1 8.2 Stretch

Regional Park

Auckland Council owned land

0 500m 1km

Unit 8: Te Muri Mahurangi Regional Park (west) and Wenderholm

Unit 8 is located within the Rodney Local Board area. It includes Te Muri Mahurangi Regional Park (West) and Wenderholm Regional Park land, bordering Te Muri Inlet and Pūhoi River.

What is happening? Coastal context and hazardscape

The coastline includes a range of coastal environments including low energy sandy pocket beaches, coastal cliffs, and estuarine environments. The northern section, within Mahurangi Harbour, is sheltered from higher wave energies by adjacent offshore islands and is only exposed to low short period fetch restricted waves. This covers the coastline from Opahi Point to Cudlip Point, including Otuawaea Bay (Mita Bay) and Otarawao Bay (Sullivans Bay).

Te Muri Beach and Wenderholm Beach are periodically exposed to significantly higher wave energies from more open fetch distances from the southeast to east angles. During significant events, this can result in moderately high wave energies from more localised, shorter period storm waves generated by strong onshore winds to more infrequent, longer period large swell events.

The shoreline within Te Muri Inlet and Pūhoi River, in the lee of the Wenderholm barrier spit, is generally a sheltered low energy environment with the estuarine area infilled with established mangroves and saltmarsh habitat.

The Wenderholm barrier spit feature has a higher energy easterly-facing beach exposed to coastal erosion and instability across all scenarios. Te Muri Beach and Wenderholm Beach have dynamic vegetated dune systems that respond naturally to storm cut and natural beach rebuilding processes.

Coastal management in the form of ongoing dune planting occurs at Te Muri and Wenderholm, along with management of defined pedestrian accessways through the dunes. Further dune restoration works are indicated for Wenderholm, including removal of historical fill and realignment and reshaping of the dune face. Historical rock groyne structures remain at the northern end of Wenderholm Beach, originally placed with the intention of stabilising the head of the sand spit.

Tipped rock armouring the inlet shoreline of Wenderholm barrier spit (Source Auckland Council).

Wenderholm Spit and the low-lying land fringing the southern shoreline of Pūhoi River are predicted to be significantly impacted by coastal flooding inundation. Te Muri Beach will also be impacted, along with the lower-lying parts of Otuawaea Bay (Mita Bay) and Otarawao Bay (Sullivans Bay).

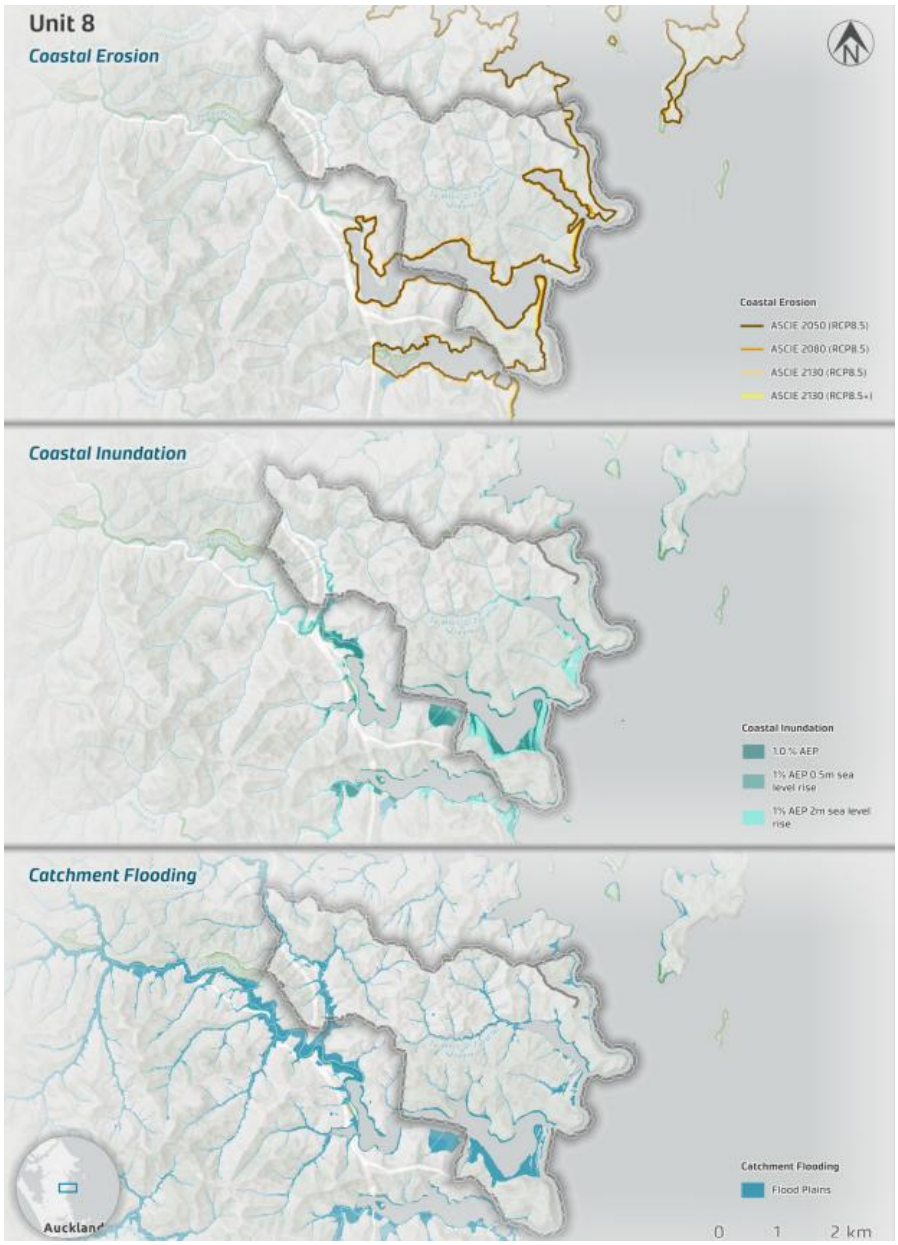


Figure 9: Coastal hazardscape for the Te Muri Mahurangi Regional Park (west) and Wenderholm Unit reflecting coastal erosion susceptibility for 2050, 2080 and 2130 considering RCP4.5 and RCP8.5 emission scenarios, coastal inundation for 1%AEP storm surge for present day and with 0.5 m, 1 m and 2 m sea-level rise and the identification of flood plains.

Risk assessment

The table below summarises the risk levels for Auckland Council asset types in the short, medium, and long term using low, moderate and high climate scenarios.

At a unit level, risk from coastal erosion susceptibility to Auckland Council-owned land (e.g. Mahurangi Regional Park, Te Muri Beach Park and campgrounds) is at very high risk, and risk to Auckland Council community facilities (i.e. Wenderholm Perimeter Path) is high. Risk from coastal inundation to Auckland Council-owned land and Auckland Council community facilities is high in the short term, increasing to very high in the medium term for community facilities. Transport infrastructure is at low risk from both climate hazards and water infrastructure is at very low risk.

Council-owned land			Council community facilities			Transport infrastructure			Water infrastructure		
Park and reserve land (671.9 ha) Buildings, wharves (53 No.)			Park amenity structures, carparks, accessways, buildings (4.6 ha)			AT roads (5.0 km) Bridges (5.9 m^2)			Water pipes (0.1 km)		
Short	Medium	Long	Short	Medium	Long	Short	Medium	Long	Short	Medium	Long
Coastal erosion and instability susceptibility											
Very high	Very high	Very high	High	High	High	Low	Low	Low	Very low	Very low	Very low
Coastal inundation											
High	High	High	High	Very high	Very high	Low	Moderate	Moderate	Very low	Very low	Very low
Key											
Very Low		Low		Moderate		High		Very High			

What matters most

Auckland Council land and assets: This section identifies key Auckland Council-owned land and assets within this unit that may be impacted by coastal hazards (inclusive of catchment flooding) over changing climate scenarios.

- Mahurangi (West) Regional Park, Te Muri Regional Park, and Wenderholm Regional Park.

- **Park facilities:** Mita Bay (Otuawaea Bay) campground, toilets; Sullivans Bay (Otarawao Bay) campground, access roads; Te Muri campground, toilets, access tracks; Wenderholm - Pūhoi Cottage, Couldrey House; Schischka campground, toilets, cottage.

- **Key paths or tracks:** Cudlip Point Path, Wenderholm Perimeter Track, Wenderholm Te Akeake Path, Te Araroa Trail access.
- **Key regional roading:** SH1 (NZTA).

- **Harbour access:** Sullivans Bay boat ramp, Wenderholm boat ramp.

Social, cultural and ecological context: This section identifies key social, cultural and ecological matters, identified through the development of the SAP reports, that may be impacted by coastal hazards (inclusive of catchment flooding) over changing climate scenarios.

- There are two cultural features identified within this unit both are located within Te Muri Regional Park (Stretch 8.3): Te Hemara's kainga - Te Muri - Te Muri o Tarariki - Noke noke, Midden/Oven – Te Muri.
- Note: Specific cultural values and outcomes for this unit may be developed through ongoing involvement with local iwi. Guiding objectives and outcomes which have informed the development of adaptation strategies have been identified earlier in this report.

- Both Mahurangi (West) and Wenderholm Regional Parks are popular attractions, with each park receiving over 100,000 annual visitors (Auckland Council, 2022). They provide extensive natural recreation options, alongside historic buildings, event spaces, and rentable accommodation and campgrounds. In contrast, Te Muri has no formal access and retains a remote character.
- Inland from these regional parks, farms and rural residential properties are the primary land uses, with no central settlement within this unit.
- This unit has 69 ‘Category B’ heritage features identified in the AUP:OP, mostly located within the regional parks, and close to the coast. This list includes 50 middens in addition to the following heritage features: Pā site R10_91, European settlement site (historic) R10_210, Stonework (pavement) R10_772, Te Muri Cemetery, Noke Noke and Te Muri o Tarariki R10_323 (including trees and chimney), Sullivan Homestead (former), Terrace/drains/cultivation R10_245, Couldrey House, Otarawao Pā/Sullivan's Pā R10_413 (including fruit trees), Opahi Point Pā site R09_31, Pā site R10_335, Te Ake Ake wahi tapu R10_207, Pā site R10_164, Terrace R10_768, Kakaha/Mihirau Pā R10_135, Otungutu Settlement site R09_810, House sites/tracks R10_208, Terraces/Trees - Indigenous R10_202, Karaka trees R10_204.

Unit 8 comprises three large regional parks, each of which is considered to contain significant ecological features, and these are detailed below. The regional parks belong to the Wenderholm and Te Muri Coastal Forest BFA.

- Mahurangi West Regional Park contains a mosaic of coastal forest fragments, including kauri, podocarp, broadleaved forest; pōhutukawa-dominated forest; and regenerating mānuka / kānuka scrub. There are also several small wetland areas classified as raupō reedland.
- Wenderholm Regional Park is predominately coastal broadleaved forest, with pōhutukawa lining the eastern cliffs. There is an important wetland area in the northern section of the park that is classified as mānuka, tangle fern, scrub, fernland and flaxland.
- Endangered native species have been recorded across the regional parks within this unit including: New Zealand dotterel and variable oystercatcher; New Zealand fur seal have been spotted resting on the rocky shoreline areas found on either side of the sheltered bays within this unit; vascular plants, including tawāpou; lizards, including forest gecko.
- The estuary that runs to the north of Te Muri Beach contains large areas of seagrass and saltmarsh recorded within the lower reaches of the river.
- Pūhoi River runs directly to the south of the Regional Park. The sandflats within the estuary are used as feeding grounds for a variety of fish and bird species, and wide mangrove forest lines much of the middle and upper reaches.

Community feedback

- Feedback was received in relation to Unit 8 through survey responses, social pinpoint and submissions.
- Key uses and activities included water-based activities such as swimming and boating, walking and running for exercise and nature watching. Some respondents valued the area for scenic beach walkways.
- Coastal erosion and coastal storm events were identified by most respondents as hazards of concern.
- No feedback was received on specific strategies.

What can we do about it? Adaptation strategy summary for Unit 8

8.1: Te Muri North

This stretch commences in the north at the park boundary culminating in the south at the headland (Tungutu Point) to the north of Otarawao Bay (Sullivans Bay). It includes the northern areas of the park including Otuawaea Bay (Mita Bay).

Scenarios for change		
Low	**Moderate**	**High**
Maintain 	**Maintain** 	**Maintain** 
Explanation		
Maintain reflects the management of park tracks and facilities (such as campground and toilets) in low-lying areas to ensure these are designed and located to manage risk from coastal hazards and catchment flooding. No coastal defences are anticipated.		
Implementation notes		
• **Heritage**: Multiple heritage features are located on or near the coast within this stretch. They are Opahi Point Pā, Otungutu Settlement site, and five pits/middens/terraces. Engagement with the Heritage Team and/or Heritage New Zealand may be needed to determine management strategies for these features. • **Cultural**: Engagement with mana whenua is required to further understand the cultural values associated with the heritage features (including the pā sites) and the impact of coastal hazards over time.		

8.2: Otarawao Bay

Stretch 8.2 includes the northern half of the beach at Otarawao (Sullivans Bay).

Scenarios for change		
Low	**Moderate**	**High**
Maintain 	**Adaptation priority** 	**Adaptation priority** 
Explanation		
Most of the Auckland Council assets located within Mahurangi (West) Regional Park are clustered in this stretch and are adequately set back from the beach apart from the boat ramp and beach pathway. Catchment flooding is a risk to open space areas to the north of the park's depot area. **Maintain** reflects the management of ramp and beach access roads, particularly within low-lying areas. Maintain also supports the current management intentions associated with supporting natural dune systems within this stretch. **Adaptation priority** in the moderate to high change scenario signals the need to consider the management of historic heritage values and the park assets, access and facilities.		
Implementation notes		
• **Heritage**: Several heritage features are located within this stretch. Within the coastal hazard area is a midden. Engagement with the Heritage Team and/or Heritage New Zealand may be needed to determine management options for this feature. • **Cultural**: Engagement with mana whenua is required to further understand the cultural values associated with the heritage features (including the midden) and the impact of coastal hazards over time.		

8.3: Te Muri South

This is a long stretch extending over 12 km along the shoreline from the south of Sullivans Bay to include all of Te Muri Inlet, Te Muri Beach and the northern shoreline of Pūhoi River until the regional park boundary.

Scenarios for change		
Low	**Moderate**	**High**
Maintain 	**Maintain** 	**Maintain** 

Explanation

The majority of the shoreline in this stretch is unmodified and natural with diverse ecological features. There are very few buildings and no sealed roads in this stretch. The Regional Parks Management Plan notes Te Muri Regional Park is intended to remain remote and undeveloped. Te Muri campground is exposed to coastal erosion and inundation hazard across all scenarios, as is Pūhoi Cottage on the northern shoreline of Pūhoi River.

Maintain reflects the management intentions for the park and the management of risk to the site's assets, access and values, including the Te Muri Beach area, campground and walking tracks and Pūhoi Cottage. Management approaches would favour the location and design of assets to manage risk, minimising interventions in natural coastal processes and use of hard engineering structures.

Implementation notes

- **Heritage**: Many heritage features are located within this stretch. Within the coastal hazard area are Te Muri Cemetery, Noke Noke and Te Muri o Tarariki, stonework (pavement), three unnamed pā sites, and 14 middens. Engagement with the Heritage Team and/or Heritage New Zealand may be needed to determine management options for these features.
- **Cultural**: Engagement with mana whenua is required to further understand the cultural values associated with the heritage features (including but not limited to the pā sites and Noke Nole and Te Muri o Taranaki) and the impact of coastal hazards over time.
- **Ecology**: The Wenderholm and Te Muri Coastal Forest BFA is located on the coast within this stretch. Engagement with the Ecology Team to seek advice on specific implementation actions to support ecological values.

8.4: Wenderholm Schischka

Stretch 8.4 extends around the northern coastline of Wenderholm Regional Park, along Pūhoi River tidal estuary including the southern half of Wenderholm spit, ending east of the boat launching facilities.

Scenarios for change		
Low	**Moderate**	**High**
Maintain 	**Adaptation priority** 	**Adaptation priority** 

Explanation

Most of the Auckland Council assets within Wenderholm Regional Park are clustered in this stretch including the campground, Schischka Cottage, accessways, parking areas and the boat ramp adjacent to the historic jetty. Wenderholm Regional Park is an extremely popular, mature coastal park with well-established recreation patterns. It receives 200,000-300,000 visitors per year, with several areas often congested in busy holiday periods. Hikers

Scenarios for change		
Low	**Moderate**	**High**
travelling Te Araroa National Walking Trail traverse through this park. There is no walkway connection between Pūhoi and Wenderholm, instead people kayak down the Pūhoi River, landing at the jetty at Wenderholm. **Maintain** progressing to **adaptation priority** in the moderate to high change scenario signals the exposure of numerous park assets and facilities, alongside cultural and historic heritage sites and values to coastal hazards and sea-level rise. Reflective of the Regional Parks Plans' management intentions, this signals the need to consider realignment and/or relocation of uses within the park's area.		
Implementation notes		
• **Management:** The Regional Parks Management Plan's management intentions signal the need to consider realignment and/or relocation of uses within the park's area. Removal of relic structures and any exposed contaminated fill may also be required and will require collaboration with multiple parties to maintain identified parks, cultural, ecological and historic values. • **Heritage**: Several heritage features are located within this stretch. Within the coastal hazard area are Couldrey House, House sites/tracks, and two middens. Engagement with the Heritage Team and/or Heritage New Zealand may be needed to determine management strategies for these features. • **Cultural**: Engagement with mana whenua is required to further understand the cultural values associated with the heritage features (including the middens) and how this may impact adaptation strategies. • **Ecology**: Part of the Rodney ED Wetlands BFA is located on the coast within this stretch. The Ecology Team will advise on any potential impact of adaptation strategies on ecological values, and how these may need to be managed.		

8.5: Wenderholm Te Akeake

Stretch 8.5 includes most of the western shoreline of the narrow spit which faces the Pūhoi River (north of the boat launching area) and includes Wenderholm Beach on the east coast, ending at the southern cliffs.

Scenarios for change		
Low	**Moderate**	**High**
Maintain 	**Adaptation priority** 	**Adaptation priority** 
Explanation		
Climate change and sea-level rise present challenges for the management of uses within Wenderholm Regional Park area including car parks, beach and campground areas and Couldrey House. The need to consider the managed retreat of buildings and infrastructure will be necessary in the high change scenario. A significant amount of cultural heritage, including archaeological sites and built heritage structures is located near the coast at Wenderholm and is particularly vulnerable to the effects of climate change. **Maintain** progressing to **adaptation priority** in the moderate to high change scenario signals the exposure of numerous park assets and facilities, alongside cultural and historic heritage sites and values to coastal hazards and sea-level rise. Reflective of the Regional Parks Plans' management intentions, this signals the need to consider realignment and/or relocation of uses within the park's area.		

Scenarios for change		
Low	**Moderate**	**High**
Implementation notes		

- These strategies reflect the Regional Park's Management intentions to assess and manage historic coastal structures and interventions associated with the sandspit including removal of historical fill and realignment and reshaping of the dune face. Historical rock groyne structures remain at the northern end of Wenderholm Beach, originally placed with the intention of stabilising the head of the sand spit. There are opportunities to naturalise this shoreline noting the presence of, and need to support, ecological, social and cultural values and respond to the impact of sea-level rise over time.
- **Management:** The Regional Park's Management Plan signals the need to consider realignment and/or relocation of uses within the park's area. Removal of relic structures and any exposed contaminated fill may also be required and will require collaboration with multiple parties to maintain identified parks, cultural, ecological and historic values.
- **Heritage**: Several heritage features are located on or near the coast within this stretch. Within the coastal hazard area are Couldrey House, House sites/tracks, Te Ake Ake wahi tapu and several middens. Engagement with the Heritage Team and/or Heritage New Zealand may be needed to determine management options for these features.
- **Cultural**: Engagement with mana whenua is required to further understand the cultural values associated with the heritage features (including Te Ake Ake wahi tapu and the middens) and the impact of coastal hazards over time.

8.6: Wenderholm Maungatauhoro and Kokoru Bay

This stretch commences south of the beach area culminating at the southwestern extent of the park area.

Scenarios for change		
Low	**Moderate**	**High**
No action 	**Maintain** 	**Maintain** 
Explanation		
Maintain relates to the management of risk to walking tracks. No coastal defences are anticipated within this stretch.		
Implementation notes		

- **Heritage**: Several heritage features are located on or near the coast within this stretch. These are Kakaha/Mihirau Pā, a European settlement site, and six middens/terraces. Engagement with the Heritage Team and/or Heritage New Zealand may be required for any specific actions undertaken in this area.
- **Cultural**: Engagement with mana whenua is required to further understand the cultural values associated with the heritage features (including Kakaha/Mihirau Pā and the middens) and the impact of coastal hazards over time.
- **Ecology**: Wenderholm and Te Muri Coastal Forest BFA are located on the coast within this stretch. Engagement with the Ecology Team to seek advice on specific implementation actions to support ecological values.

Unit 9
Snells Beach to Ōrewa Hibiscus Coast

Te Araroa trails passes through Pūhoi (with a water based addition using the Pūhoi River)

Impacts of 2023 storms and prior events: catchment flooding and landslides affecting land and access

Pūhoi - Township, domain, fire station, and cemetery

Pūhoi Esplanade

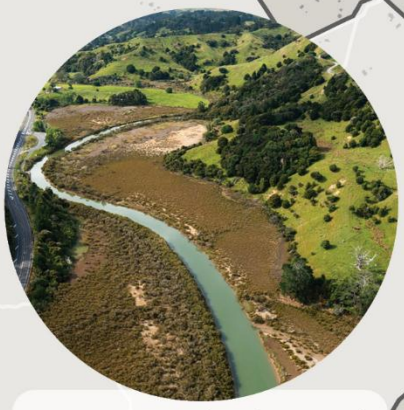
Pūhoi Hall

Pūhoi and the upper reaches of the Pūhoi River. The intertidal flats within the Pūhoi River are used as feeding and roosting grounds by a variety of threatened bird species, including the banded rail. A range of native freshwater fish has been recorded in the wider Pūhoi catchment

Pūhoi River, a statutory acknowledgement area of Ngāti Manuhiri

Claytons Landing water access

Water access for kayaking and exploring waterways



Communities value the natural landscapes and sense of place: "I value the natural landscape of this valley and river. It is my home and the place I feel I belong."

Pūhoi River Wenderholm Esplanade

Waiwera River

Waiwera River, a statutory acknowledgement area of Ngāti Manuhiri

Regional park

Ahuroa Rd

Krippner Rd

Pūhoi Rd

Pōhuehue Rd

State Highway 1

Hibiscus Coast Hwy

Weranui Rd

Hibiscus Coast Hwy

Pūhoi River

Unit boundary

9.1 9.2 Stretch

Informal recreation park

Auckland Council owned land

0 500m 1km

Unit 9: Pūhoi and Waiwera West

Unit 9 is located within the Rodney Local Board area and covers the upper Pūhoi River and Waiwera estuary environments to the west of Wenderholm Regional Park. Pūhoi village is in this unit.

What is happening? Coastal context and hazardscape

The upper Pūhoi River and Waiwera estuary environments are characterised by intertidal flats with established mangroves and main all-tide channels. These environments are sheltered from any significant wave energies, however they are exposed to fluvial processes/events. Vegetated coastal cliffs are present along these coastlines.

There is low erosion risk in the upper estuarine area, reflective of the sheltered environment. There are no existing coastal protection structures, e.g. seawalls, for erosion management along this section of coastline.

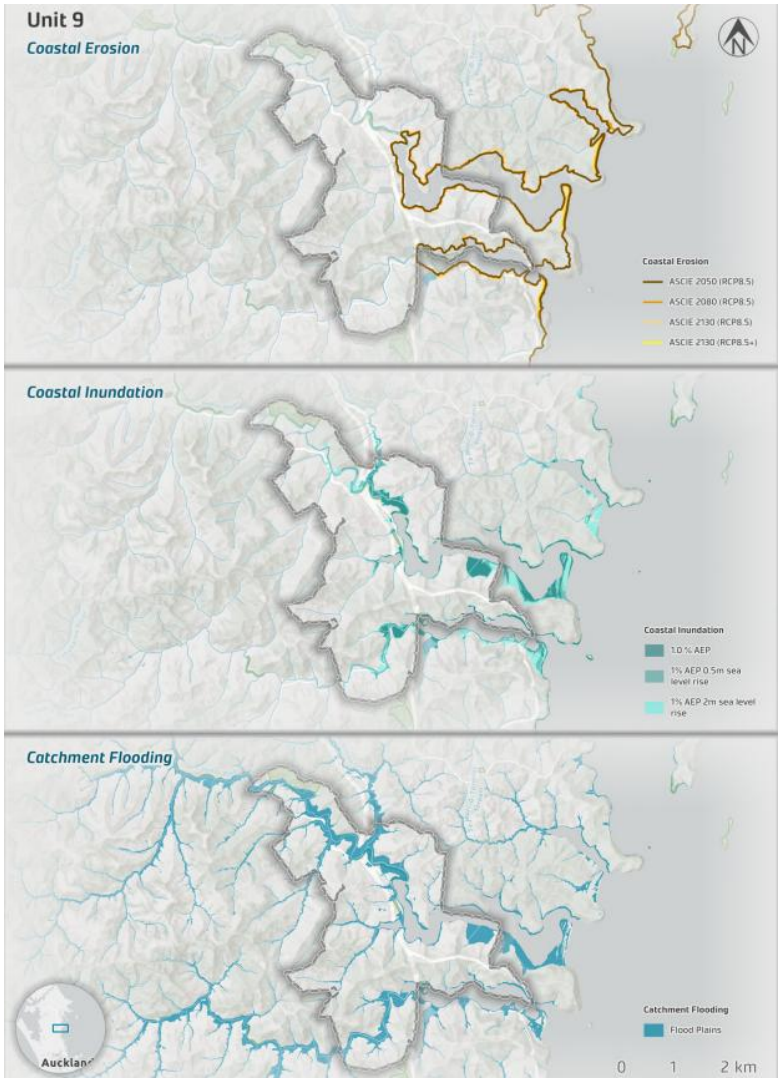


Figure 10: Coastal hazardscape for the Pūhoi & Waiwera West Unit reflecting coastal erosion susceptibility for 2050, 2080 and 2130 considering RCP4.5 and RCP8.5 emission scenarios, coastal inundation for 1%AEP storm surge for present day and with 0.5 m, 1 m and 2 m sea-level rise and the identification of flood plains.

Water levels in these estuarine environments can be elevated during storm surge and extreme events. This can result in coastal inundation of immediately adjacent low-lying land.

Flood impacts have recently been experienced with the 2023 storm events affecting property and access for the Pūhoi area. Flooding hazards are focused in lower-lying areas where streams and overland flow paths within the catchment drain to the coast. Flood hazards can compound with coastal inundation to exacerbate flood impacts and duration in low-lying areas.

Decisions on the future use and management of this land impacted during the 2023 storm events is being dealt with separately under the Council's storm-affected land use policy. SAPs, as living documents, will be updated as decisions are made on the land.

Risk assessment

The table below summarises the risk levels for Auckland Council asset types in the short, medium, and long term using low, moderate and high climate scenarios.

At a unit level, risk from coastal erosion susceptibility is moderate to Auckland Council Community facilities and low to Auckland Council-owned land. Risk from coastal inundation is moderate for both Auckland Council-owned land and community facilities. Risk from coastal erosion susceptibility is moderate to transport infrastructure and very low risk to water infrastructure. Whereas risk from coastal inundation is high to transport infrastructure in the short term, increasing to very high in the medium term and low across all timeframes for water infrastructure.

Council-owned land			**Council community facilities**			**Transport infrastructure**			**Water infrastructure**		
Park and reserve land (53.4 ha) Buildings, wharves (10 No.)			Park amenity structures, carparks, accessways, buildings (0.3 ha)			AT roads (12.4 km) Bridges (1,672.7 m^2)			Water pipes (1.7 km)		
Short	Medium	Long	Short	Medium	Long	Short	Medium	Long	Short	Medium	Long
Coastal erosion and instability susceptibility											
Low	Low	Low	Moderate	Moderate	Moderate	Moderate	Moderate	High	Very low	Very low	Very low
Coastal inundation											
Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	High	Very high	Very high	Low	Low	Low
Key											
Very Low			**Low**			**Moderate**			**High**		**Very High**

What matters most

Auckland Council land and assets: This section identifies key Auckland Council-owned land and assets within this unit that may be impacted by coastal hazards (inclusive of catchment flooding) over changing climate scenarios.

- There are limited Auckland Council-owned assets in this unit, mostly located in Pūhoi village.
- **Key reserves:** Pūhoi Esplanade, Pūhoi Pioneer's Memorial Park Domain, Pūhoi Band Rotunda.

- **Reserve and park amenities in Pūhoi Village**: Pūhoi Town Library; Pūhoi Domain sports field, playground, carpark, toilet, community ground lease (Pūhoi Sports Club); Pūhoi Band Rotunda and Pergola (historical dray); Pūhoi Volunteer Rural Fire Force (community ground lease).

- Underground and aboveground stormwater network infrastructure servicing settlements within this unit: Bruce MacGregor Lane Stormwater detention pond.

- **Key regional roading**: SH1 (NZTA), Pohuehue Road, Hibiscus Coast Highway.
- **Local roading connections**: Pūhoi Village area, Weranui Road.
- **Walking tracks:** Pūhoi Domain bridge, Pūhoi Pioneers memorial park walking tracks; The Te Araroa trail intersects with the Mahurangi Coastal Trail near Pūhoi.

- **Harbour access and kayak landings:** Claytons Landing Wharf (Pohuehue Road), Pūhoi town wharf/jetties.

Social, cultural and ecological context: This section identifies key social, cultural and ecological matters, identified through the development of the SAP reports, that may be impacted by coastal hazards (inclusive of catchment flooding) over changing climate scenarios.

- No sites and places of significance to mana whenua, nor Cultural Heritage Inventory records have been recorded within this unit.
- Ngāti Manuhiri hold a Statutory Acknowledgement Area over the Pūhoi and Waiwera/ Waiwerawera Rivers located in this unit.
- Note: Specific cultural values and outcomes for this unit may be developed through ongoing involvement with local iwi. Guiding objectives and outcomes which have informed the development of adaptation strategies have been identified earlier in this report.

- This unit is largely comprised of vegetated hills or pasture, with most residents and social infrastructure located in Pūhoi, more than 200 m from the coast.
- This unit contains sections of two key roads, SH1 and the Twin Coast Discovery Highway, as well as a section of Te Araroa. Residents are likely to travel to Ōrewa (Unit 10) for most social infrastructure.
- Within this unit are six 'Category B' heritage features identified in the AUP:OP. These are all located within Pūhoi township, and none are located within 200 m of the coast. These include: School house (former), Pūhoi Hall, Church of St Peter and St Paul complex, including church, convent, and presbytery, Wayside Shrine, Pūhoi Library, Pūhoi Hotel complex, including stables and residence.

Unit 9 includes the following regionally important and/or vulnerable ecological features and species:

- The intertidal flats of the Pūhoi River which are used as a feeding and roosting ground by a variety of threatened bird species, including banded rail.
- A range of native freshwater fish have been recorded in the wider Pūhoi catchment.
- A mosaic of coastal forest ecosystems, including pōhutukawa treeland, coastal broadleaved forest, kauri, podocarp, broadleaved forest, and taraire, tawa, podocarp forest on the northern ridge of the river.
- Records of native lizards within the indigenous vegetation of this unit, including copper skink and Pacific gecko.

Community feedback

- Feedback was received in relation to Unit 9 through survey responses, social pinpoint and submissions.
- Coastal erosion and coastal storm events were identified by most respondents as hazards of concern.
- For the Unit 9 area, key uses and activities included active water based activities such as kitesurfing and walking and running for exercise. Some respondents also visited the area to gather kai moana.
- No feedback was received on specific strategies.

What can we do about it? Adaptation strategy summary for Unit 9[1]

[1] Stretch 9.2 extends beyond the MHWS boundary to Puhoi Village, not indicated on graphic

9.1: Pūhoi Inlet North

This stretch commences in the east at the unit boundary culminating in the west to the north of the 'pull off' bay on Pohuehue Road.

Scenarios for change		
Low	**Moderate**	**High**
No action 	**No action** 	**No action** 
Explanation		
No action reflects there are no Auckland Council land and assets at risk in this stretch. This strategy does not preclude advocacy for management of risks to cultural values, in collaboration with landowners and mana whenua.		
Implementation notes		
• **Roading:** This strategy does not preclude localised interventions as required for roading connections. Auckland Transport, the asset manager, will monitor how coastal hazards may impact on operation of these assets and future implementation options.		

9.2: Pōhuehue Road and Pūhoi Village

This stretch commences adjacent to the 'pull off' bay alongside the Pohuehue Road corridor and follows the west bank of the Pūhoi River from Clayton's Landing to Johnstones Hill culminating where the shoreline of the estuary turns to the east. It also includes the upper Pūhoi River to Pūhoi Village.

The stretch includes large areas of terrestrial SEAs which are characterised as endangered coastal forest remnants, some of which are connect into Wenderholm Regional Park.

Scenarios for change		
Low	**Moderate**	**High**
Maintain 	**Maintain** 	**Maintain** 
Explanation		
Maintain is focused on the management of risk to roading connections, and ongoing safe public access to the kayak landing (Claytons Landing) recognising this is one of only a few points of public access points to the river downstream of Pūhoi. Maintain also applies to Pūhoi Village and is also reflective of the historic, cultural and social values, the modified edge and existing protection structures, water access structures, walkways and Auckland Council assets and landholdings.		
Implementation notes		
• **Maintain** supports key roading connections (Pohuehue Road) and public access to the coast within this area. • **Management:** Pōhuehue Road is exposed to erosion/instability from the low change scenario, and is within the predicted inundation extent from the moderate change scenario. This strategy does not preclude localised interventions as required for roading connections. Auckland Transport, the asset manager, will monitor how coastal hazards may impact on operation of these assets and future implementation options.		

9.3: Pūhoi River/Wenderholm Esplanade

This stretch commences on the southern shoreline of Pūhoi Estuary culminating at the eastern extent of the narrow esplanade reserve at the boundary with Wenderholm Regional Park.

Scenarios for change		
Low	**Moderate**	**High**
No action 	**No action** 	**No action** 
Explanation		
This stretch is rural with land use comprised primarily of pasture with just a few private dwellings. Wenderholm Pūhoi Esplanade Reserve is a very narrow unmaintained reserve with no developed Auckland Council assets.		
Implementation notes		
• **No action** reflects there are no Auckland Council assets located within this coastal stretch and anticipates no requirement for coastal defences in response to coastal hazards.		

9.4: Waiwera Inlet North

Stretch 9.4 follows the northern shoreline of the Waiwera River inlet. The eastern boundary is the Hibiscus Coast Highway bridge adjacent to Wenderholm Regional Park. The western boundary includes SH1 and includes Waiwera River Fowler Access Road Esplanade Reserve (unmaintained) and Weranui Road.

Scenarios for change		
Low	**Moderate**	**High**
No action 	**No action** 	**Maintain** 
Explanation		
This stretch is characterised by steep, bush-clad hills and few isolated private dwellings in the bush. There is no formal public access to the coastline identified in this stretch, though the Te Araroa National Walking Trail joins the Hibiscus Coast Highway to cross the Waiwera River. **No action** is identified in relation to coastal management reflecting there is limited Auckland Council-owned land and assets located in hazard-risk areas. **Maintain** in the high change scenario signals the need to manage inundation risk to Weranui Road in the future with sea-level rise.		
Implementation notes		
• **Roading**: This strategy does not preclude localised interventions as required for Weranui Road and Hibiscus Coast Highway. Auckland Transport, the asset manager, will monitor how coastal hazards may impact on operation of these assets and future implementation options. • **Management context:** NZTA manages SH1 (Northern Gateway).		

Unit 10
Snells Beach to Ōrewa Hibiscus Coast

N

Wenderholm Regional Park

Critical transport connection north/ south

Waiwera Rd

Wastewater treatment facility

Community identification of geothermal and visitor opportunities

Feeding and high-tide roost spot for birds including NZ dotterel & white-fronted tern

Waiwera geothermal resources

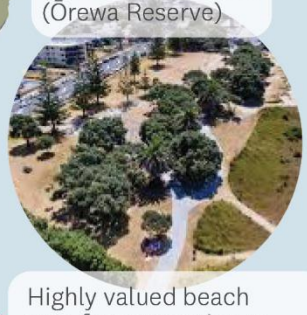
Cultural sites and landscapes, statutory acknowlagement area

The mouth of the Waiwera estuary is dynamic, with an ebb tide delta feature that is ever changing. Natural dune systems are present within northern areas of the spit which may be lost during storm events and rebuild. Waiwera Beach & The Strand road are armoured with a rock revetment seawall

Waiwera

Strong community support for protection & future engagement & community leadership regarding adaptation & the future of Waiwera

Ōrewa Beach South (Ōrewa Reserve)



Highly valued beach area for connection to the coast,recreation & enjoyment for a range of users

Diverse community views on the future management of the Ōrewa reserve. (Ōrewa Reserve Future Management project currently underway in 2025)

Popular beach and coastal access at Hatfields Beach

Hillcrest Rd

Ōtānerua / Hatfields Beach

Cliff coast susceptible to erosion & instability

Community uses within the Arundel Reserve

Urban expansion in the wider area is placing increased importance on coastal spaces and access to the coast in this area and the need to manage catchments and stormwater

Coastal protection structures armour the northern shoreline of Ōrewa Beach

Victor Eaves Park

Support for natural systems and protection structures associated with beach access

Centreway Reserve

Ōrewa Surf Lifesaving Club

Ōrewa Beach Holiday Park

Western Reserve

Numerous community uses

Key roading connection

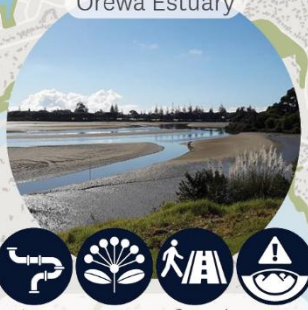
Maygrove Esplanade Reserve

Metro Park

Crocodile Island

Silverdale

Ōrewa Estuary



Significant marine ecological areas are located within the estuary

Residents and users of the Te Ara Tahuna / Ōrewa Estuary Path have observed inundation of the pathway in several areas with king tides and storm events (rainfall flooding)

Diverse range of park areas and assets, including closed landfills

Highly utilised pathway connections

Support for continuing to maintain assets using design, location and acknowledgement of the need to consider sea level rise in the future

Unit boundary

10.1 10.2 Stretch

Informal recreation park

Auckland Council owned land

0 500m 1km

Unit 10: Waiwera to Ōrewa

Unit 10 is located within the Hibiscus and Bays Local Board area. The unit includes the southern shoreline of Waiwera River (in the north) and extends to Ōrewa Estuary (in the south). It includes the beachside suburb of Ōrewa which forms the most populated part of this unit. Ōrewa and Hatfields Beach to the immediate north form part of the larger Whangaparāoa urban area. The northern half of this unit is predominantly rural, except for the smaller settlement of Waiwera, which sits at the southern head of the Waiwera River outlet.

What is happening? Coastal context and hazardscape

The coastline ranges from the estuarine environment of the southern shoreline of Waiwera Estuary dominated by established mangroves, intertidal flats and all-tide channels, vegetated coastal cliffs, to the more dynamic environments of Waiwera, Hatfields and Ōrewa beaches.

In the northern section of this unit is the estuarine environment of the Waiwera Estuary, dominated by established mangroves, intertidal flats and an all-tide channel.

In the middle of this unit is the dynamic coastal environments of Waiwera Beach, Hatfields Beach and Ōrewa Beach. Small vulnerable vegetated dune systems are present at these beaches. Ōrewa Beach is exposed to significant fetch distances from the northeast to east angles, but is sheltered from the full exposure to open coast wave energies. Waiwera Beach and Hatfields Beach receive slightly less wave energy due to their orientation and sheltering by adjacent headlands with the greatest angle of exposure from the southeast to east.

At the southern end of this unit is the Ōrewa Estuary, characterised by extensive intertidal flats ranging from sandy to fine grain sediments, all-tide channels, and areas of established mangroves in the upper reaches. In 1959, the Ōrewa Estuary mouth was diverted to the south, and a new channel excavated through the seabed rock shelf. These modifications are understood to have had some impact on the dynamic equilibrium between the ebb tide delta and supply of sand to the southern end of the beach.

While Ōrewa Beach is typically a low energy beach, during significant events it receives moderate and on occasion, high wave energies, with maximum wave heights in the order of 2-3 m. There is no strong net longshore sediment transport along the complete length of Ōrewa Beach, but there is longshore drift from the central area of the beach to the south, and sand builds up on the northern side of the groyne at the estuary mouth. Areas of sand dune along Ōrewa are dynamic and at times they are significantly eroded during storm events, and then relatively slow to rebuild naturally. Due to the limited width of dry beach at high tide, access along the Ōrewa beachfront at these times is only possible via esplanade reserves.

Management of Ōrewa and protection of reserve and assets has been a topic of importance to the community for many years. Management approaches were identified in the Ōrewa Beach Esplanade Enhancement Programme (OBEEP) and further work to explore management options is being progressed for areas north of Kohu Street and for the southern Ōrewa reserve areas. The Ōrewa Reserve Future Management Report was endorsed by the Local Board in March 2024 and open to public consultation in April to May 2025. Feedback and next steps are currently being workshopped with the Hibiscus and Bays Local Board.

There are multiple existing coastal protection structures throughout this unit. Much of the Ōrewa beachfront is armoured by seawalls, in the form of rock revetments. These are both private and Auckland Council-owned and are of varying age and quality. Other management responses include sand transfer as an operational response at Ōrewa Beach following significant erosion of upper beach sand levels and when trigger levels are met.

Sediment supply for the Ōrewa beach cell has been the subject to prior investigations because of the modifications of the estuary and beachfront over decades. More detailed studies may have supported these past modifications. This information may be relevant to understand the coastal systems and sediment dynamics, and support future adaptation planning. Some of the key features are depicted below:

Waiwera Beach is armoured with a rock revetment seawall that was recently renewed (2024).

The stream mouth at the northern end of Hatfields Beach is controlled by a rock groyne that armours the southern channel stream bank.

Dune fencing is installed around the dunes at Waiwera Beach, with defined accessways through the dunes. Dune fencing and accessways are periodically adjusted in response to dune erosion or accretion.

Installation of a new rock masonry seawall is currently underway (2025) to protect the esplanade reserve and provide beach access between Kohu Street in the north and Marine View in the south.

Operational sand transfer involves taking sand from the intertidal area at the southern end of Ōrewa Beach (where it builds up north of the estuary mouth groyne) and placed along the upper beach adjacent the unarmoured section of Ōrewa Reserve, and towards the centre of the beach adjacent Kinloch Reserve.

Coastal inundation flooding is predicted to have the most significant impact at Ōrewa Beach, with the flooding extent increasing landward in the high change scenario to impact coastal reserves, assets and existing uses.

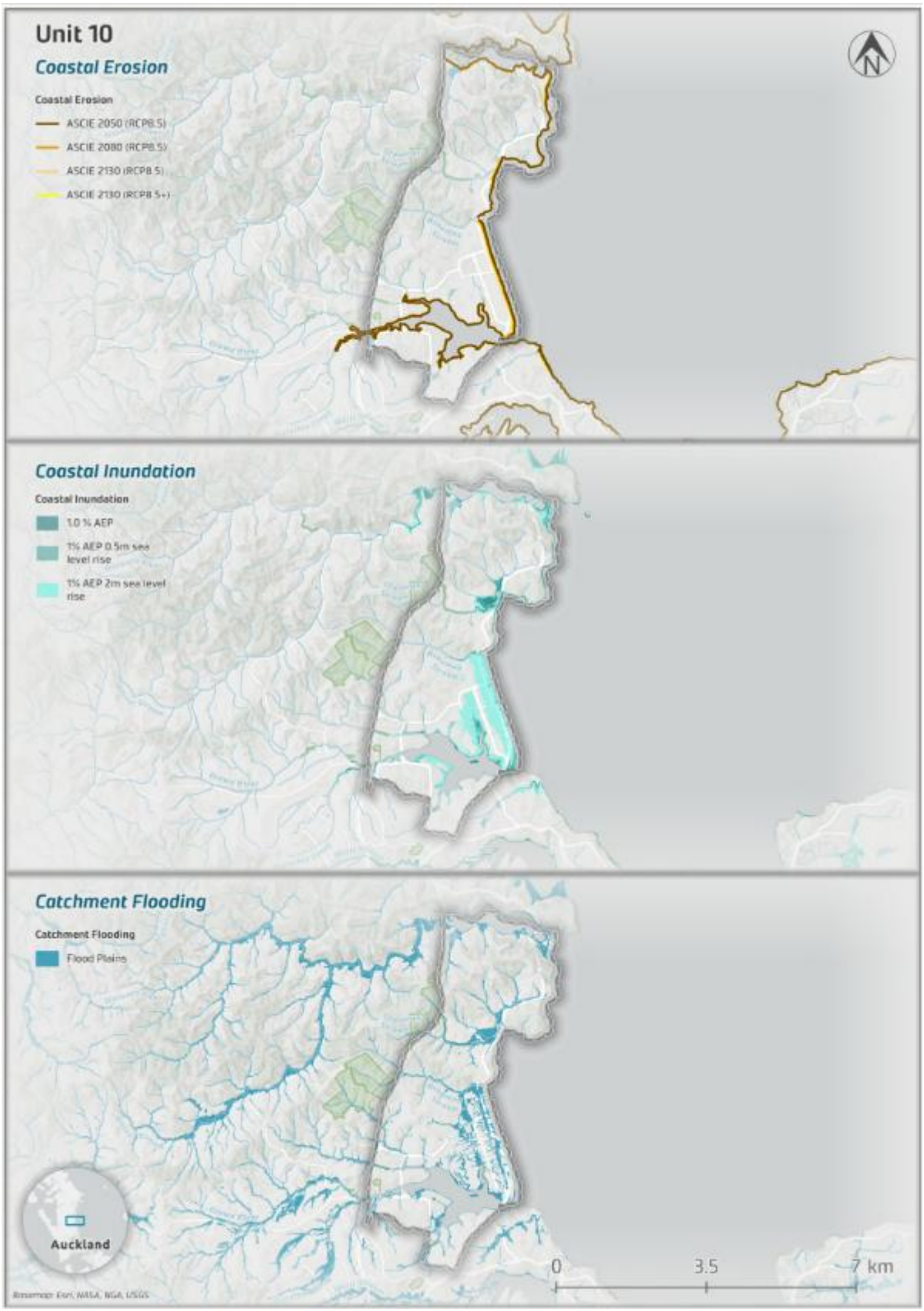


Figure 11: Coastal Hazardscape for the Waiwera to Ōrewa Unit, reflecting coastal erosion susceptibility for 2050, 2080 and 2130 considering RCP4.5 and RCP8.5 emission scenarios, coastal inundation for 1%AEP storm surge for present day and with 0.5 m, 1 m and 2 m sea-level rise and the identification of flood plains.

Risk assessment

The table below summarises the risk levels for Auckland Council asset types in the short, medium, and long term using the low, moderate and high climate scenarios.

At a unit level, risk to Auckland Council-owned land is high from both coastal erosion susceptibility and coastal inundation. Risk to Auckland Council community facilities is high from coastal erosion susceptibility in the short term, increasing to very high risk in the long term. Community facilities are at high risk from coastal inundation in the short term increasing to very high risk in the medium term. Transport infrastructure is at very high risk from both climate hazards, and water infrastructure is high risk.

Council-owned land			Council community facilities			Transport infrastructure			Water infrastructure		
Park and reserve land (213.2 ha) Buildings, wharves (74 No.)			Park amenity structures, carparks, accessways, buildings (5.9 ha)			AT roads (78.4 km) Bridges (3,977.7 m^2)			Water pipes (540.6 km)		
Short	Medium	Long	Short	Medium	Long	Short	Medium	Long	Short	Medium	Long
Coastal erosion and instability susceptibility											
High	High	High	High	High	Very high	Very high	Very high	Very high	High	High	High
Coastal inundation											
High	High	High	High	Very high	Very high	Very high	Very high	Very high	High	High	Very high
Key											
Very Low			**Low**			**Moderate**			**High**		**Very High**

What matters most

Auckland Council land and assets: This section identifies key Auckland Council-owned land and assets within this unit that may be impacted by coastal hazards (inclusive of catchment flooding) over changing climate scenarios.

- This unit contains an extensive amount of Auckland Council land and assets. Larger reserves are the Waiwera Hill Scenic Reserve, Hatfields Beach Recreation Reserve, Alice Eaves Scenic Reserve, Victor Eaves Recreation Reserve, Ōrewa Beach Reserve, and Western Reserve and Metro Park (both being closed landfills). In addition, there are dozens of smaller reserves which link together to provide coastal access to most of Ōrewa Beach and Ōrewa River Estuary.

- **Reserve and park amenities** such as community buildings, playgrounds and carpark.
- Recreational and sport facilities in proximity to the coast.
- Auckland Council owns several key buildings in Ōrewa, including the Surf Club, library, Centreway Theatre, Community House, Estuary Arts Centre, Hibiscus Coast Youth Council, several other sports clubs, and the numerous buildings which form Ōrewa Holiday Park.

- **Closed landfills:** Hatfields Beach, Western Reserve, Millwater Parkway.

- **Water infrastructure** within the unit includes a wastewater treatment plant near Waiwera, several freshwater reservoirs located across the unit, and a number of pump stations.
- Underground and aboveground stormwater network infrastructure servicing settlements and facilities are within this unit.

- **Key regional roading**: The Hibiscus Coast Highway runs through this unit and is the key arterial roading connection.
- Key walkways include the Ōrewa Beach Path and the Ōrewa Estuary Path, which link together and form part of Te Araroa.

- **Harbour access:** Waiwera Bridge boat ramp, Waiwera Beach-Waiwera Road boat ramp, Hatfields Beach boat ramp, Marine View Ōrewa Marine boat ramp, Puriri Ave Ōrewa Marine boat ramp, Ōrewa Estuary boat ramp, Ōrewa Reserve Campground boat ramp.
- **Coastal infrastructure:** Ōrewa Bridge Wharf, Waiwera Bridge jetty.

Social, cultural and ecological context: This section identifies key social, cultural and ecological matters, identified through the development of the SAP reports, that may be impacted by coastal hazards (inclusive of catchment flooding) over changing climate scenarios.

- One cultural feature has been recorded within this unit: Redeposited midden (Heritage ID 23357)
- Also within this unit is Te Whau Pā (R10_2 including karaka trees) in Stretch 10.5, a 'Category B' heritage feature under the AUP:OP.

- This stretch contains Waiwera, Hatfields Beach and Ōrewa.
- Waiwera is a small settlement, once a tourist destination due to the thermal resort (now closed).
- Hatfields Beach is located just north of Ōrewa and includes a popular beach and all-tide boat ramp.
- Ōrewa is the most populated part of this SAP area and, correspondingly, has the largest number of facilities. The town centre area lies close to Ōrewa Beach and contains a high concentration of retail and hospitality venues, as well as a library.
- Ōrewa Beach is arguably the key defining feature of Ōrewa and this unit, with reserves, walkways, and seawalls present for much of its length. There are many access points, including boat ramps, and the town centre area connects directly to it through several reserves, paths, and short roads/carparks. It is a key social amenity and very important to the local community, with the management and protection of the coast a matter of high interest. At the southern end of the beach is a holiday park – this area is a popular destination, particularly in the summer months.
- To the south of Ōrewa, along the Ōrewa River Estuary, are several more sports facilities, a youth centre, arts centre, theatre, and Ōrewa College, a State co-educational intermediate and high school with a roll of approximately 2000. Along the southern coast of the Ōrewa River, around Millwater, are several more sports fields, schools (KingsWay Junior and Senior Campuses and Silverdale Primary School), and a small block of shops.

- Key social groups/community organisations include Destination Ōrewa Beach, a local business association for Ōrewa, and the Ōrewa Surf Life Saving Club, which provides services to Ōrewa and the surrounding areas. This surf club is based out of the building of the same name, located in Ōrewa Reserve, right on the beach.
- In addition to the previously mentioned heritage Te Whau Pā, the following 'Category B' heritage features have been identified in this unit under the AUP:OP. Waiwera Bathhouse site (Stretch 10.4), Cooke House (former) (Stretch 10.5), Ōrewa House and watchhouse (Stretch 10.8), Pillbox x2 (Stretch 10.9), Stoney Homestead (Stretch 10.12).

Unit 10 forms a large stretch of coastline that is characterised by populated townships, sandy beaches and tidal rivers. There is proportionately less coastal vegetation existing within this area compared to other units. Key ecological features of importance within this unit include:

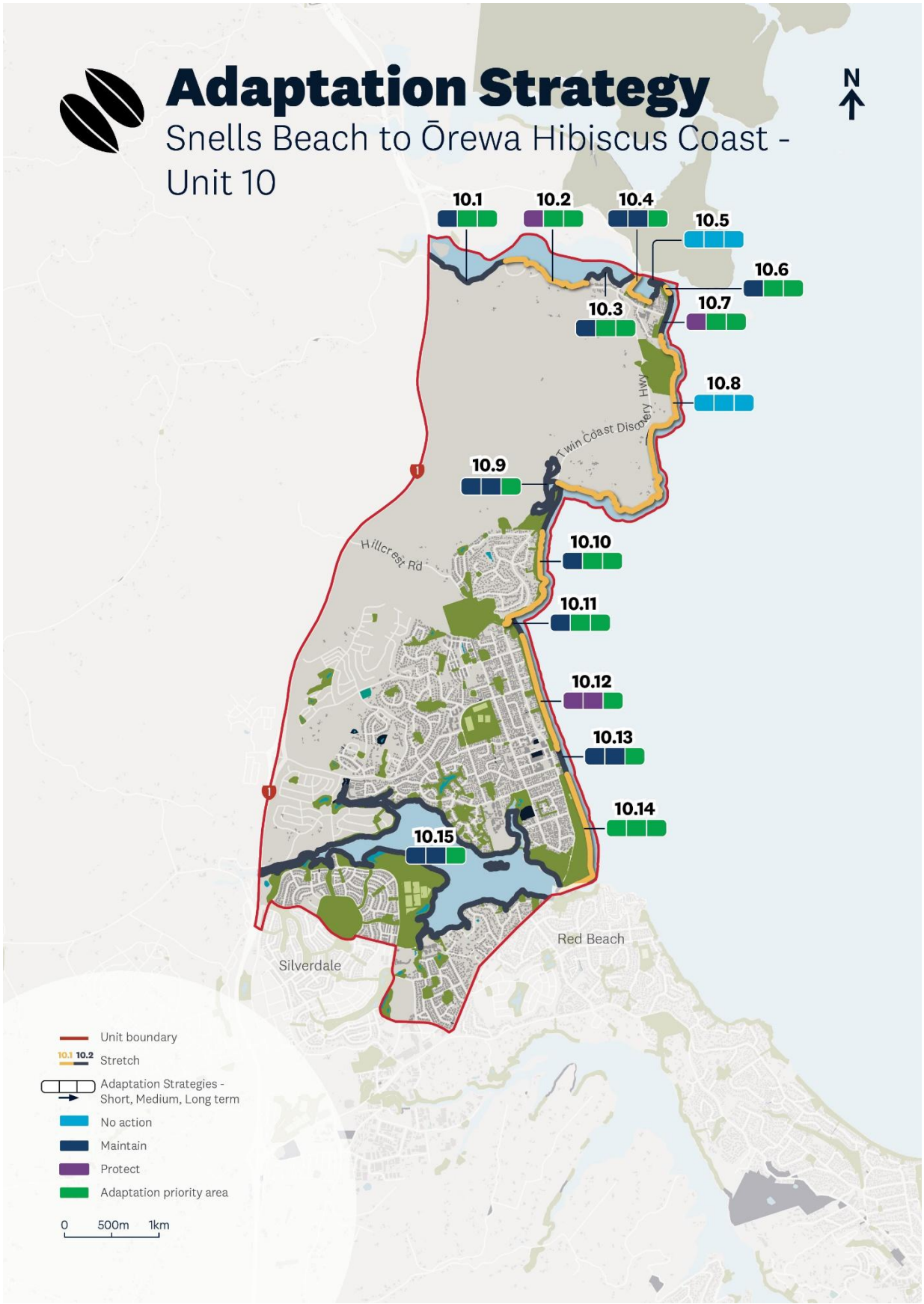
- Large area of raupō reedland on the southern bank of the Waiwera River which is bordered by kauri, podocarp, broadleaved forest and taraire, tawa, podocarp forest.
- Waiwera Reserve – classified as coastal broadleaved forest and is utilised by a variety of threatened avifauna.
- Important high-tide roosts for shorebirds and seabirds, located within Waiwera Reserve and James Titford Reserve.
- Two gumland wetland areas to the north of Hatfields Beach Reserve. This represents one of the very few remaining areas of this ecosystem within the region.
- Pōhutukawa-dominated coastal forest covers the southern half of this unit and wrap around from Hartfields Beach to Arundel Reserve. This contiguous vegetation patch transitions into a large remnant of kauri, podocarp, broadleaved forest within the Alice Eaves Scenic Reserve.
- The mangrove-lined Ōrewa Estuary provides habitat for a variety of plant and animal communities in the marine area, particularly migratory waders, coastal birds and banded rail. A remnant of kahikatea, pukatea forest is located on the northern edge of the estuary in Maygrove Esplanade Reserve.

Community feedback

Who have we heard from?

- For the Unit 10 area, key uses and activities included walking and running for exercise, water-based activities including swimming and passive recreation.
- Some respondents have observed some erosion of sand dunes at Hatfields Beach.
- Coastal erosion was identified by most as a hazard of concern, with many observing erosion along Ōrewa Beach. Some noted changes in water quality and sedimentation over time.
- Community aspirations for maintaining the cleanliness of and access to the coastal area.
- There was mixed support for different strategies other than the ones identified in the consultation material. Some respondents supported a more active "hold the line" (Protect) approach, while some prefer a "limited intervention" (Maintain) approach and recognise the need to plan for a changing future.
- Unit 10 of the Snells Beach to Ōrewa Hibiscus Coast SAP was endorsed by the Board in their July 2025 Business meeting (resolution (HB/2025/93). Their resolution confirms this plan is a living document and the Hibiscus and Bays Local Board reserve the right to initiate a review to the plan at any time. Further discussion is included in relation to Stretch 10.14 below.

What can we do about it? Adaptation strategy summary for Unit 10



10.1: Waiwera Inlet Southwest

This stretch commences to the west of Waiwera including the southern side of the estuary.

Scenarios for change		
Low	**Moderate**	**High**
Maintain 	**Adaptation priority** 	**Adaptation priority** 
Explanation		
Maintain in the low change scenario supports the management of risks to the road, while supporting ecological outcomes and coastal character. **Adaptation priority** in the moderate to high change scenario, assuming continued sea-level rise, is identified due to increasing coastal hazard risk. This signals the need for further discussion regarding the appropriate approach to manage risk to roading infrastructure.		
Implementation Notes		
• **Management:** Auckland Transport, the asset manager, will monitor how coastal hazards may impact on operation of these assets and future implementation options.		

10.2: Waiwera Wastewater and Road

This stretch commences at Weranui Road by the Waiwera pump station and wastewater treatment plant and extends approximately 1 km east along the road.

Scenarios for change		
Low	**Moderate**	**High**
Protect 	**Adaptation priority** 	**Adaptation priority** 
Explanation		
Protect in the low change scenario supports the management of risks to the road and Waiwera wastewater treatment plant. **Adaptation priority** in the moderate and high change scenario, assuming continued sea-level rise, is identified due to increasing coastal hazard risks. This signals the need for further discussion regarding the appropriate approach to manage risks to the treatment plant.		
Implementation Notes		
• **Management:** Watercare and Auckland Transport, as respective asset owners, will monitor how coastal hazards may impact on operation of these assets and future implementation options.		

10.3: Weranui Road East

This stretch covers the eastern side of Weranui Road and terminates at the Hibiscus Coast Road bridge.

Scenarios for change		
Low	**Moderate**	**High**
Maintain 	**Adaptation priority** 	**Adaptation priority** 
Explanation		
Maintain in the low change scenario supports the management of risks to the road, while supporting ecological outcomes and coastal character. **Adaptation priority** in the moderate to high change scenario, assuming continued sea-level rise, is identified due to increasing coastal hazard risk. This signals the need for further discussion regarding the appropriate approach to manage risk to roading infrastructure.		
Implementation Notes		
• **Management:** Auckland Transport, the asset manager, will monitor how coastal hazards may impact on operation of these assets and future implementation options. • **Private land and assets:** These strategies do not apply to non-Council-owned land and assets within this stretch.		

10.4: Waiwera Inlet South

This stretch commences at the road bridge (including this link) and culminating at the eastern side of James Titford Reserve.

Scenarios for change		
Low	**Moderate**	**High**
Maintain 	**Maintain** 	**Adaptation Priority** 
Explanation		
Maintain in the short to mid-term reflects the maintenance of facilities and existing protection structures within park areas and access to the estuary access points. **Adaptation priority** in the long term is reflective of the increased inundation risk from coastal inundation, requiring further action to manage risk to assets, parks areas and uses. Note: Management of risk to the Hibiscus Highway over all timeframes may require further asset-specific measures.		
Implementation Notes		
• **Management:** Hibiscus Coast Highway is exposed to erosion/instability and inundation over the long term. This strategy does not preclude localised interventions as required for roading connections. Auckland Transport, who manages this asset, will be engaged to understand how adaptation strategies may impact on operation of this asset.		

10.5: Waiwera East Inlet

This stretch commences to the east of James Titford Reserve including the coastline north, culminating at the northern end of the Strand Reserve.

Scenarios for change		
Low	**Moderate**	**High**
No action 	**No action** 	**No action** 
Explanation		
No action reflects the limited land and assets and represents a dynamic spit environment.		
Implementation Notes		
• **Management:** This strategy does not preclude management of risk to underground services nor advocacy for management of impacts of sea-level rise on ecological areas.		

10.6: Waiwera Beach (North)

This stretch covers the Strand Reserve on the north of Waiwera Beach.

Scenarios for change		
Low	**Moderate**	**High**
Maintain 	**Adaptation priority** 	**Adaptation priority** 
Explanation		
Maintain in the low change scenario provides for the management of risk to assets located within reserve areas. Maintain indicates that the coastline is not fixed and realignment may be required to maintain recreational amenity, dry high-tide beach areas, support ecological outcomes and coastal character. **Adaptation priority** in the moderate and high change scenario, assuming continued sea-level rise, is identified due to increasing coastal hazard risks. This signals the need to consider the relocation of uses and actions to support the ecological, character and cultural values of the beachfront area.		
Implementation Notes		
• **Ecological and social:** The northern Waiwera Beach area is home to breeding populations of New Zealand dotterels, with an active community volunteering group (Dotterel Minders Group) advocating for the protection of this species. Engagement with the Ecology Team to seek advice on specific implementation actions to support ecological values.		

10.7: Waiwera Beach (The Strand & South)

This stretch covers the southern stretch of The Strand and extends south to Waiwera Place Reserve.

Scenarios for change		
Low	**Moderate**	**High**
Protect 	**Adaptation priority** 	**Adaptation priority** 
Explanation		
Protect in the low change scenario is reflective of the current armouring of this section of coastline and recent renewal of the rock revetment (2024). In the moderate to high change scenario, increasing inundation risk results in the identification of **adaptation priority**, requiring consideration of the relocation of uses and actions to support the ecological, character and cultural values of the beachfront area.		
Implementation Notes		
• **Social:** Consideration will be required regarding retention and location of the boat ramp off Waiwera Road as a valuable launching facility, recognising the functional need for this asset to be located at the coast.		

10.8: Waiwera to Hatfields

This stretch commences in the south at Waiwera Hill Scenic Reserve including the coast south to the northern side of Hatfields Beach.

Scenarios for change		
Low	**Moderate**	**High**
No action 	**No action** 	**No action** 
Explanation		
No action is chosen as this stretch includes limited land and assets at risk from coastal hazards. No action does not preclude the management of risk to roading assets (Hibiscus Coast Highway) and advocacy for supporting coastal values, noting the presence of an esplanade strip in areas of this stretch.		
Implementation Notes		
• **Management**: This strategy does not preclude advocacy for supporting coastal values, noting the presence of an esplanade strip in areas of this stretch. • **Management**: A short section of Hibiscus Coast Highway is exposed to instability from the short term. This strategy does not preclude localised interventions as required for managing risk to roading connections. Auckland Transport, the asset manager, will be engaged to understand how adaptation strategies may impact on their operation. • **Heritage**: The Waiwera Bathhouse and the Cooke House (former) heritage sites are located by the coast within this stretch. Engagement with the Heritage Team and/or Heritage New Zealand may be needed to determine management strategies for these features.		

10.9: Hatfields Beach

This stretch commences at the northern mouth of Hatfields Estuary, extending south to Hatfields Bay Domain carpark.

Rock revetment groynes control the estuary mouth at the northern end of Hatfields Beach, with an area of vegetated dunes to the immediate south. A backstop wall provides protection to the Hibiscus Coast Highway from storm events when the adjacent dune buffer is eroded. Rock armouring provides protection to the reserve to the south. An all-tide boat ramp provides for vessel launching at the southern end of this stretch.

Scenarios for change		
Low	**Moderate**	**High**
Maintain 	**Maintain** 	**Adaptation priority** 
Explanation		
Maintain provides for continued management of the Hatfields Bay Domain and recreational reserve, while noting the dynamic nature of this beach and the need to support the remaining natural character and ecological values. Maintain provides for coastal values while acknowledging the need to manage risk to existing assets and associated protection structures. This includes the maintenance of the rock armouring, the boat ramp, and maintenance of the Hibiscus Coast roading connection north/south. **Adaptation priority** in the high change scenario acknowledges the need for further consideration of options to manage risk and support the values of the coast in this area with increasing inundation impacts and erosional processes impacting this stretch.		
Implementation Notes		
• **Management**: Existing management structures include a groyne training structure for the northern stream mouth, and seawalls. • **Management:** Hibiscus Coast Highway is an arterial roading connection and is exposed to inundation and erosion/instability hazards over all timeframes. This strategy does not preclude localised interventions as required for roading connections. Auckland Transport, the asset manager, will monitor how coastal hazards may impact on their operation. • **Closed landfill:** Hatfields Beach Closed Landfill is located within this stretch. This is to be managed under the Closed Landfill Asset Management Plan. The Closed Landfill Team will advise on any specific considerations that may impact the implementation of adaptation strategies.		

10.10: Hatfields Beach to Ōrewa

This stretch commences to the to the south of the Hatfields Beach boat ramp, culminating at the bridge over the Nukumea Stream at the northern end of Ōrewa Beach. A short length of rock armouring is present to the immediate south of the boat ramp, before the unarmoured cliff.

Scenarios for change		
Low	**Moderate**	**High**
Maintain 	**Adaptation priority** 	**Adaptation priority** 
Explanation		
Maintain supports the management of risk to land and assets, predominantly exposed to risk in the southern areas of this stretch. Much of the predominantly cliff coast is in private ownership with no Auckland Council management structures associated with the narrow strip esplanade reserve. **Adaptation priority** in the future is reflective of the risk (erosion) to Ōrewa lookout and car park, and roading connection behind, requiring further discussion and detailed assessment to determine adaptive options and the triggers for further actions.		
Implementation Notes		
• **Heritage**: The Ōrewa House and Watchhouse heritage feature is located on Nukumea Stream and is subject to coastal inundation. Engagement with the Heritage Team and/or Heritage New Zealand may be needed to determine management strategies for this feature. • **Ecological**: The Alice Eaves-Nukumea BFA is located within the coastal hazard area. The Ecology Team will advise on any potential impacts of adaptation strategies on ecological values, and how these may need to be managed. • **Management**: Hibiscus Coast Highway is exposed to erosion/instability. This strategy does not preclude localised interventions as required for roading connections. Auckland Transport, the asset manager, will monitor how coastal hazards may impact on operation of these assets and future implementation options.		

10.11: Ōrewa Beach North

This stretch commences at the mouth of the Nukumea Stream extending to the southern end of Arundel Reserve.

Scenarios for change		
Low	**Moderate**	**High**
Maintain 	**Adaptation priority** 	**Adaptation priority** 
Explanation		
Maintain provides for management of existing risk from coastal hazards (and interface with the catchment) through design and maintenance of existing assets and protection structures. **Adaptation priority** in the mid to long term reflects the need to consider how risk is managed for the various uses located within the reserve, their location and scale and how the values natural coastal environment are supported.		
Implementation Notes		
• **Management**: Existing management structures include a recently renewed rock revetement (2025).		

10.12: Ōrewa Beach Central

This stretch commences at the northern end of Ōrewa Marine Parade Reserve extending south and including the coastline south to Moana Reserve.

Scenarios for change		
Low	**Moderate**	**High**
Protect 	**Protect** 	**Adaptation priority** 
Explanation		
Protect in the short to mid-term is reflective of the current and planned armouring of this connection along Ōrewa beachfront and the fixed nature of this coastal edge in response to erosional processes. **Adaptation priority** in the long term is reflective of an increased inundation risk and the need for further consideration of how risk from multiple hazards can be managed with sea-level rise.		
Implementation Notes		
• **Management**: This stretch is armoured with rock revetment seawalls, with a new rock masonry seawall currently being constructed between the Kohu Street beach access point and the Marine View boat ramp (2025). • **Heritage**: Two Pillbox heritage features are located along the coast within this stretch. Engagement with the Heritage Team and/or Heritage New Zealand may be needed to determine management strategies for this feature. • **Social**: Ōrewa Beach has several active social groups and community organisations. Engagement with these organisations is recommended to understand how implementation of adaptation strategies may impact on their use of facilities, and how impacts could be managed.		

10.13: Central Beach (Private and Reserve)

This stretch commences at the southern extent of Moana Reserve and terminates north of Ōrewa Reserve. The stretch includes Moenui Avenue Reserve.

Scenarios for change		
Low	**Moderate**	**High**
Maintain 	**Maintain** 	**Adaptation priority** 
Explanation		
Maintain is identified in response to the management of areas of Auckland Council-owned land and assets only (noting areas of this stretch are in private ownership) including supporting continued access to, and use of the coast, acknowledging the coastal edge is not fixed. In the long term, **adaptation priority** is identified due to increasing inundation risks and the management of uses and amenities within the reserve space.		
Implementation Notes		
• **Management:** This stretch is armoured by a combination of Council-owned and private rock revetments. Management strategies do not apply to private structures.		

10.14: Ōrewa Beach South

This stretch commences at the northern end of Ōrewa Reserve and extends south to the Hibiscus Coast Highway road bridge at the entrance to the Ōrewa Estuary.

Ōrewa Reserve is unarmoured. Operational sand transfers are undertaken as required to provide protection to this section of Ōrewa Reserve. A section of rock revetment armouring is present to the immediate south, with low vegetated dunes.

Scenarios for change		
Low	**Moderate**	**High**
Adaptation priority 	**Adaptation priority** 	**Adaptation priority** 

Explanation

Adaptation priority over all change scenarios is identified to support proactive management of uses and activities within the reserve, which impact on the coastal areas (beach) to the east. Adaptive planning to support the safe use of areas, and maintain coastal values, including recreational experience of the reserve/ beach (including coastal access and a dry, hightide beach) will include the need for the realignment (setting back) of activities and assets within the reserve area. In the long term, some uses within the reserve may require relocation beyond the reserve and there is a risk to roading assets and wastewater assets which may require further management. Management of land and assets may involve the use of structures to enable access to the beach and provide protection to specific uses functionally required to locate near the coastal edge.

Implementation Notes

- **Management:** Ōrewa Reserve is subject to a current, specific project to consider future management options for which public consultation was undertaken in April-May 2025. The strategy of adaptation priority over all change scenarios reflects this ongoing work and strategies may be subject to change pending the results of the consultation and feedback from the Local Board.
- **Management**: There is also risk to roading and wastewater assets which may require further management. Auckland Transport and Watercare, the asset managers, will be engaged to understand how adaptation strategies may impact on operation of these assets. This may involve the use of structures to enable access to the beach and to provide protection to the specific uses which are functionally required to be located by the coastal edge.
- **Social**: The leased reserve land for Ōrewa Surf Life Saving Club and Ōrewa Holiday Park are well-used community facilities and are exposed from the short term. Engagement with these organisations is recommended to understand how implementation of adaptation strategies may impact on the operation of these facilities, and how impacts could be managed.
- **Local Board Note:** The Ōrewa reserve is currently subject to a specific project to consider future management options. Adaptation strategies therefore may be subject to change pending the results of the public consultation in April-May 2025 and feedback from the local board. As identified in the Hibiscus and Bays Local Board business meeting resolution (HB/2025/93) the identification of adaptation priority does not restrict the local board from investigating multiple management options for Ōrewa Beach South coastal edge.

10.15: Ōrewa Estuary

This stretch commences at the Hibiscus Coast Highway road bridge and includes the estuary south to the southern abutment of the road bridge and connection to the Whangaparāoa SAP area.

A wharf and boat ramp extend from the southern end of Western Reserve. Rock armouring is present along the edge of Western Reserve, with the remainder of this stretch unarmoured but predominantly buffered by established mangroves.

Scenarios for change		
Low	**Moderate**	**High**
Maintain 	**Maintain** 	**Adaptation priority** 
Explanation		
Maintain in the low to moderate change scenario signals the management of risk to existing assets and land, including key walkway connections (Te Ara Tahuna Pathway). **Adaptation priority** in the high change scenario is reflective of the increasing inundation risk to land and the activities within these areas. Areas of transport network, underground services, closed landfills and areas with cultural and ecological values are exposed to inundation. The management of uses and values will require further consideration to ensure risks are managed and the uses, activities and function of assets maintained.		
Implementation Notes		
• **Two closed landfills**, at Western Reserve and Millwater Parkway are located within this stretch. These are to be managed under the Closed Landfill Asset Management Plan. The Closed Landfill Team will advise on any specific considerations that may impact the implementation of adaptation strategies. • **Cultural**: A CHI site, a Māori redeposited midden may be exposed to erosion over the long term. Engagement with mana whenua is required to further understand the cultural values associated with this, and how this may impact adaptation strategies. • **Social**: Several well-used community facilities are within Western Reserve, including Hibiscus Coast Youth Council, Estuary Art Centre, Hibiscus Coast Dog Training Club and Ōrewa Croquet and Badminton Clubs are exposed over the medium to long term. Engagement is recommended to understand how implementation of adaptation strategies may impact on their operation, and how impacts could be managed. • **Ecology**: Mangrove-lined Ōrewa Estuary provides habitat for a variety of plant and animal communities in the marine area, particularly migratory waders, coastal birds and banded rail. The Ecology Team will advise on any potential impacts of adaptation strategies on ecological values, and how these may need to be managed. • **Management**: Riverside Road, Doment Crescent, and Florence Avenue are exposed to inundation from the medium term. Auckland Transport, the asset manager, will be engaged to understand how adaptation strategies may impact on operation of these assets.		

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