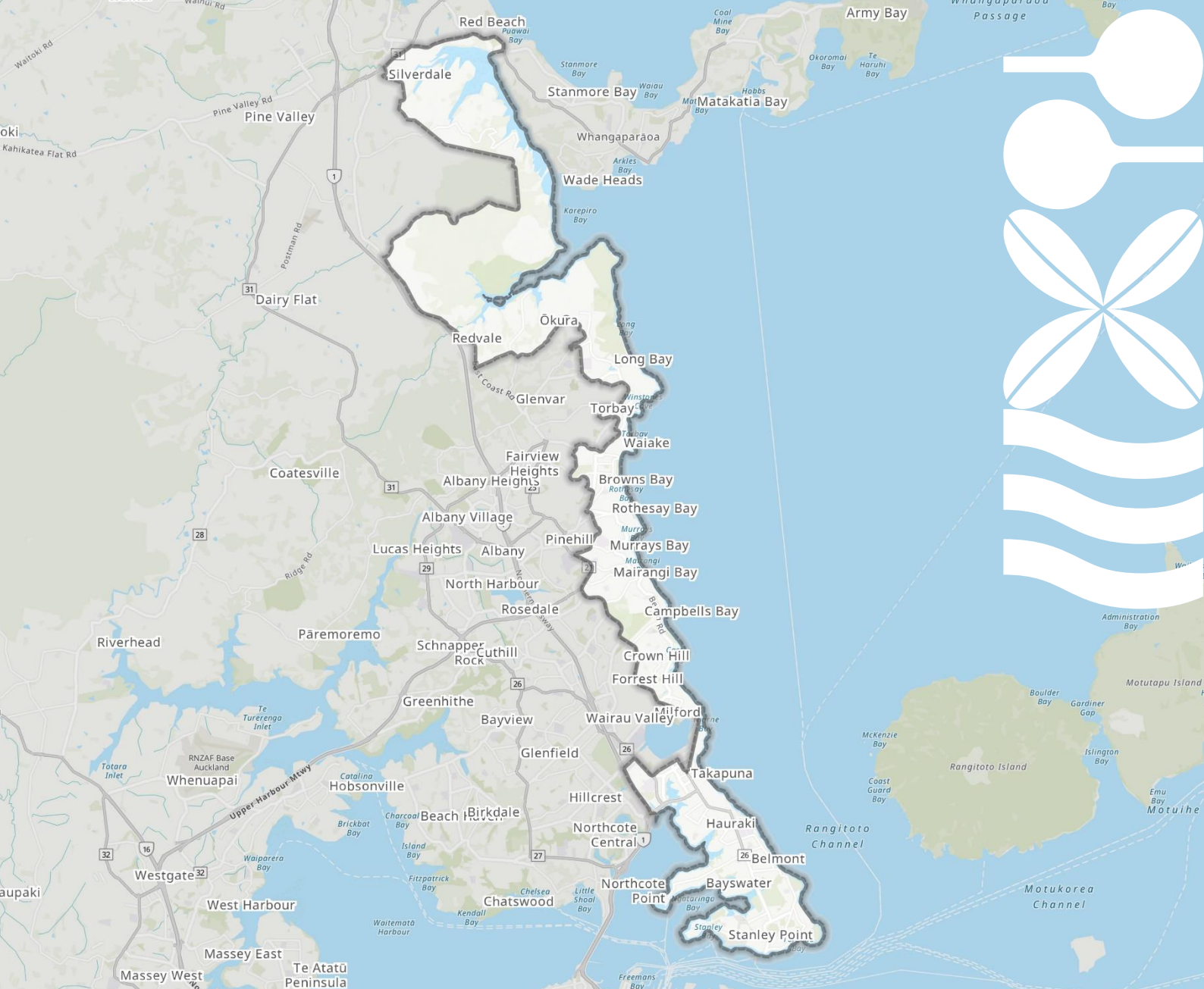




Ngā mahere whakaurutau mō te takutai

Shoreline Adaptation Plan

Weiti Estuary to Devonport Peninsula
Volume 3: Units 1 to 15

2025



Shoreline Adaptation Plan: Weiti Estuary to Devonport Peninsula Volume 3 Units 1-15

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Auckland Council

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Front Cover

Shoreline Adaptations Plan area overview map for Weiti Estuary to Devonport Peninsula. Prepared for Auckland Council by Tonkin + Taylor 2023.

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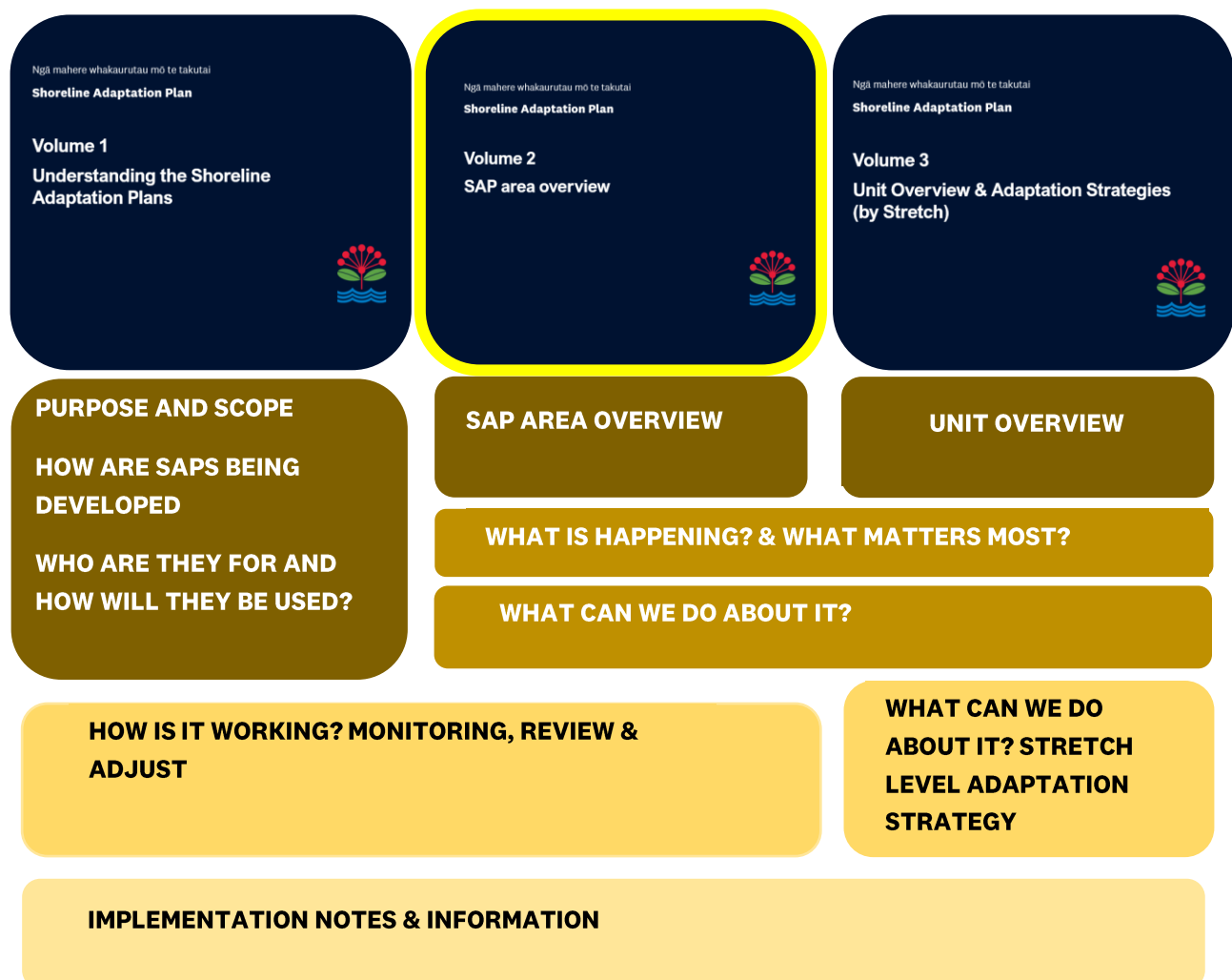
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Quick Reference

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 definitions

Key terminology and infographics commonly used within this volume and all of the SAP 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.
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.
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.
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.

Term	Definition
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, public-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 the 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
- Orakei to Tahuna Torea
- Pahurehure Inlet
- Pākiri to Matheson Bay
- Snells Beach to Orewa
- Tamaki Estuary
- Ti Point to Sandspit
- Waiheke Island
- Waimanawa Little Shoal Bay mini SAP
- Waitemata Harbour West
- Weiti Estuary to Devonport Peninsula
- Whangaparāoa
- Whatipu to South Head

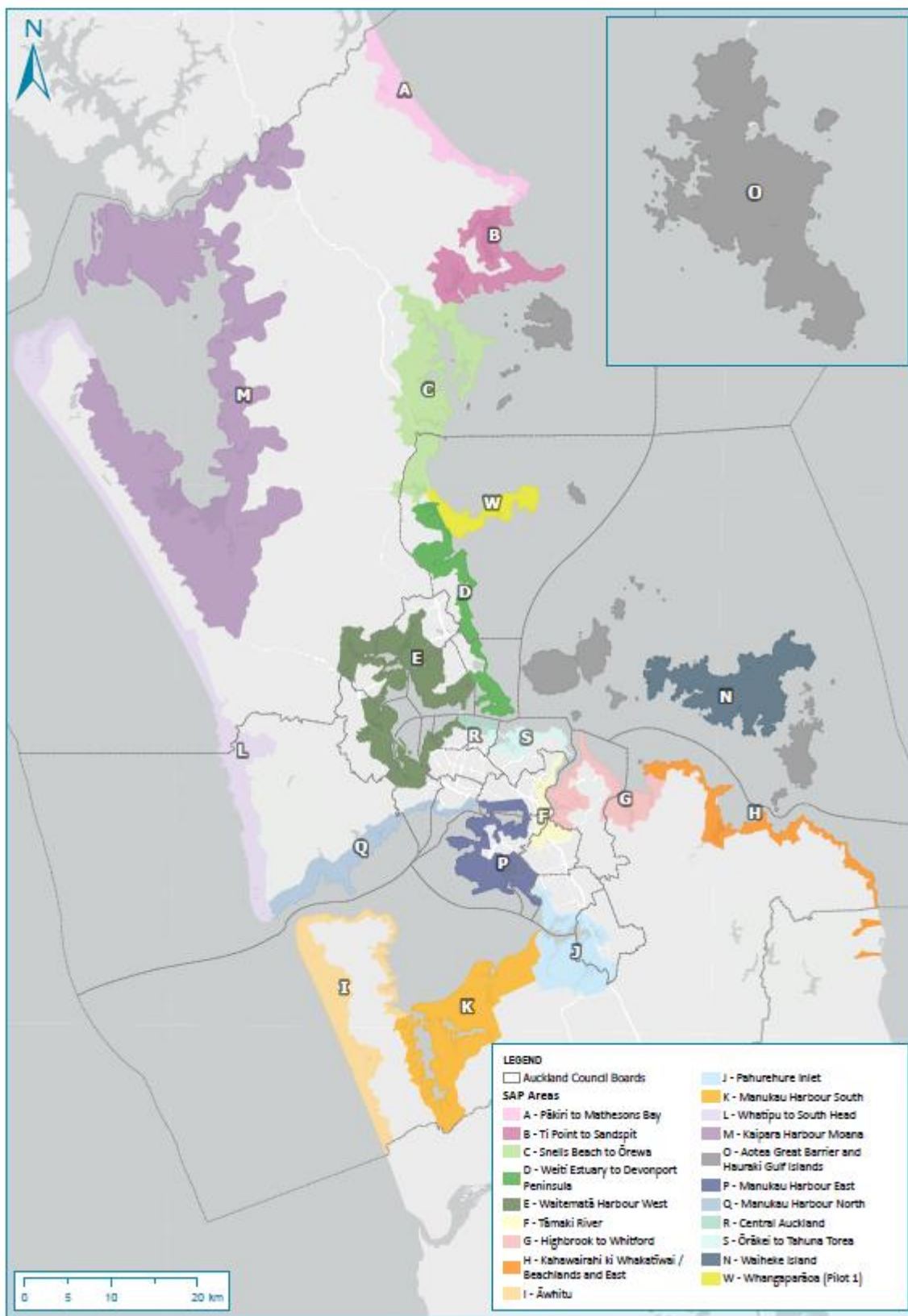
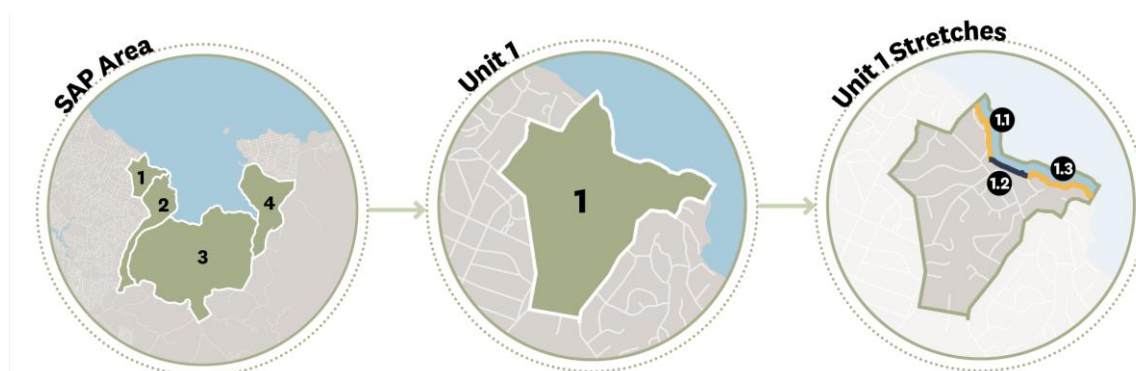


Figure 1: Shoreline Adaptation Plans (regional)

SAP areas, units & 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 & 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 & 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

Weiti Estuary to Devonport



Highly valued coastal ecosystems supported by community feedback



Puawai Bay

Silverdale

Twin Coast Discovery Hwy

Titan Rd

Foundry Rd

Sour Rd

Lemon Access Rd

Weiti River

Messenger Rd

Duck Creek Rd

Pinehead Reach

Flaxman Place Landing Reserve

Titan Place Reserve

Wade Landing Reserve

Weiti River Walkway

Te Herenga Waka-o Orewa Marae

Stillwater

O Mahurangi - Penlink

Valued connections to the coast



- Unit boundary
 - Stretch
 - Informal recreation park
 - Mooring management area
 - Auckland Council owned land
- 0 250m 500m

Unit 1: Stillwater and Weiti Estuary

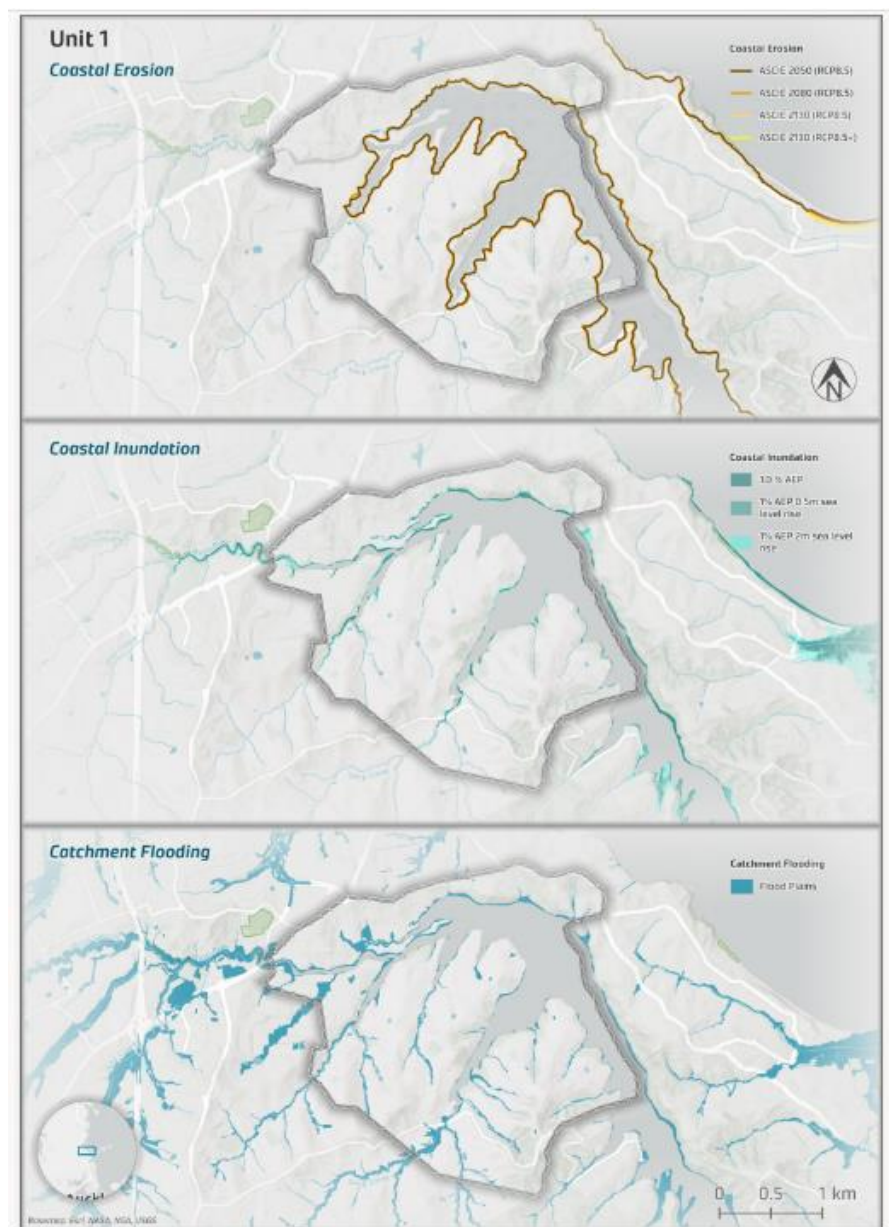
This unit begins at the upper reaches of the estuarine Weiti River, located within the Hibiscus and Bays Local Board area, commencing at Karaka Cove and concluding at Duck Creek, encompassing the coastal fringes of Red Beach, Stillwater and Silverdale.

What is happening? Coastal context and hazardscape

Unit 1's coastline of the upper Weiti Estuary is low energy in terms of wave climate, with very short fetch distances and shallow nearshore water depths. Mangrove forest (SA1.2, SA1), coastal broadleaved forest (WF4 – Regionally Endangered) and a series of chenier – type shell barrier beaches (SA1.5) line the coastal margin, fragmented by private property and Auckland Council-owned land infrastructure. With a low energy coastline, there are no existing coastal protection structures, e.g. seawalls, for erosion management along this section of coastline.

This coastline is predominantly characterised by alternating muddy sandstone and mudstone, with occasional interbedded lenses of grit. This geology is subject to ongoing weathering and erosion. As a result, Auckland Council-owned land and water infrastructure is exposed to erosion, exacerbated by sea-level rise. Coastal inundation for Unit 1 poses a greater hazard risk to Auckland Council community facilities and roading connections under a high climate scenario, with coastal flooding predicated to impact the low-lying boat landing reserve (Wade Landing Reserve) and accessways lining the coastal margin.

Figure 2: Coastal Hazardscape for the Stillwater and Weiti Estuary 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 and which relate to the use of the low, moderate and high climate change scenarios. At the unit level, risk from coastal erosion susceptibility to Auckland Council-owned land (i.e. Wade Landing Reserve) is moderate. Coastal inundation from the coast will be an increasing issue over time, exacerbated by sea-level rise and catchment flooding, with a large overland flow path transversing the majority of this unit. The risk from erosion and coastal inundation to Watercare infrastructure situated within this unit is rated as high across all timeframes, indicating the need for ongoing engagement with Watercare to respond to this changing hazard risk.

Unit 1 Council-owned land & assets metrics and associated risk scores (short, medium, long terms)											
Council-owned land			Council community facilities			Transport infrastructure			Water infrastructure		
Park and reserve land (26.9 ha) Buildings, wharves (3 No.)			Park amenity structures, carparks, accessways, buildings (0.1 ha)			AT roads (11.2 km) Bridges (504.1 m ²)			Water pipes (51.4 km)		
Short	Medium	Long	Short	Medium	Long	Short	Medium	Long	Short	Medium	Long
Coastal erosion and instability susceptibility											
Moderate	Moderate	Moderate	Low	Low	Low	Moderate	Moderate	Moderate	High	High	High
Coastal inundation											
Moderate	Moderate	Moderate	Moderate	Moderate	High	Moderate	Moderate	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 stretch that may be impacted by coastal hazards (inclusive of catchment flooding) over changing climate scenarios.



- Limited to pockets of unmaintained and maintained esplanade reserves (Lennon Weiti River Lennon Access Road Reserve, Weiti Esplanade Accessway Reserve) and associated accessways.
- Recreational reserve (Wade Landing Reserve), featuring public a boat ramp and park facilities.



- Blue Gum wastewater pump station and storage tanks are also situated within this coastal unit.



Harbour access:

- Boat ramp – Wade Landing 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.



- Specific cultural values and outcomes for this unit will be developed through ongoing involvement with local iwi identified in Volume 2. Guiding objectives and outcomes which have informed the development of adaptation strategies have been identified in Volume 2.



- The upper stretches of the Weiti River are dominated by mangrove forest, scrub and regenerating ecosystems (Mānuka, kānuka scrub), providing ecological corridors across coastal reserves.



- Keeping the coastal margin as natural as possible whilst supporting existing community facilities, connections and boat haul-out areas.
- Enhancing predator control around riparian margins, with particular attention to protecting native bird species inhabiting coastal broadleaved forest ecosystems along the coastline.
- Improving catchment management where possible, to reduce debris entering Weiti River during heavy rainfall events.

What can we do about it? Adaptation Strategy Unit 1 Stillwater and Weiti Estuary

1.1: Weiti Esplanade Reserve

This stretch commences at Matheson Road in the east, culminating just before Titan Place (approximately the property boundary of Fulton Hogan).

Scenarios for change		
Low	Moderate	High
No action 	No action 	No action 
Explanation The coastal edge is largely in a natural state with limited Auckland Council-owned assets (limited to reserves) located within hazard prone areas. A no action approach accommodates the provision of ecological corridors and natural landscapes in alignment with community feedback. Under a high climate change scenario, the need to consider proactive management of risk to accessways and respond to increasing erosion risk along the coastal margin of reserves may be required.		
Implementation notes No action predominantly relates to management/ defence of the coastal margin. No action regarding coastal defence/ protection structures to fortify the coastal edge does not forego the option to manage coastal access/ accessways and associated facilities via planting and proactive planning across all climate scenarios.		

1.2: Weiti River

This stretch commences at Titan Place Reserve, culminating at the property boundary of 12 Blue Gum Avenue, Silverdale.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Adaptation priority 
Explanation Most uses, roads, reserve areas, assets (i.e. accessways and pump stations) and coastal access points (i.e. Wade Landing boat ramp and wharf) can continue to be supported by maintain to remain in their current location via localised repairs/ upgrades under a low-moderate climate scenario. However, under a high climate scenario, coastal inundation and erosion is likely to impact highly valued community facilities and roading connections. The location of a community marae and the multitude of land uses/ values for this stretch of coast, means a transition to adaptation priority reflects the needs for proactive management in response to changing coastal hazard risks. This pathway aligns with community values focused on maintaining existing coastal infrastructure and coastal connections, whilst managing coastal hazard risk associated with inundation of the coastal margin.		
Implementation notes - Asset-specific design and actions may be required to respond to increasing hazard exposure under a moderate climate change scenario. - Under both low and moderate climate change scenarios, support for natural coastal buffers, riparian planting and care will be required.		

1.3: Norfolk Downs and Duck Creek

This stretch commences at the eastern boundary of Wade Landing Reserve concluding just to the south of Messenger Road.

Scenarios for change		
Low	Moderate	High
No action 	No action 	No action 
Explanation The coastal edge along this coastal stretch is largely in a natural state with limited Auckland Council-owned assets and land (limited to pockets of unmaintained reserves) located within hazard prone areas. A no action approach accommodates the provision of ecological corridors and community values. Under both low and moderate climate change scenarios, support for coastal accessways will be managed via riparian planting, where required, to provide a natural buffer for the coastal margin. Under a high climate change scenario, the need to consider proactive management of risk to road ends to respond to increasing erosion risk may be required.		
Implementation notes • No action regarding coastal defence/ protection structures to fortify the coastal edge does not forego the option to manage important road ends via localised (roading specific) interventions where required. • Adaptation strategies may also need to consider the Weiti pump station being exposed to coastal inundation in a moderate climate scenario and the stormwater treatment facility exposed to coastal erosion in the moderate to high climate change scenario.		



Unit 2

Weiti Estuary to Devonport



O Mahurangi -
Penlink

Cedar Terrace
Scott Road

Te Araroa National
Walking Trail & highly
valued connection

Buster Elliot
Memorial
Landing Reserve

Stillwater

Duck Creek
Reserve

Stillwater
Reserve

Weiti River



Highly valued
ecological area &
Auckland Council
biodiversity focus area

Buster Elliot
Memorial
Landing Reserve

Stillwater
Motor Camp
(Closed)

Duck Creek
Reserve

Duck Creek Rd

Stillwater
Reserve

- Unit boundary
- Stretch
- Informal recreation park
- Mooring management area
- Auckland Council owned land

0 250m 500m

Te Araroa National
Walking Trail & highly
valued connection

Unit 2: Weiti South

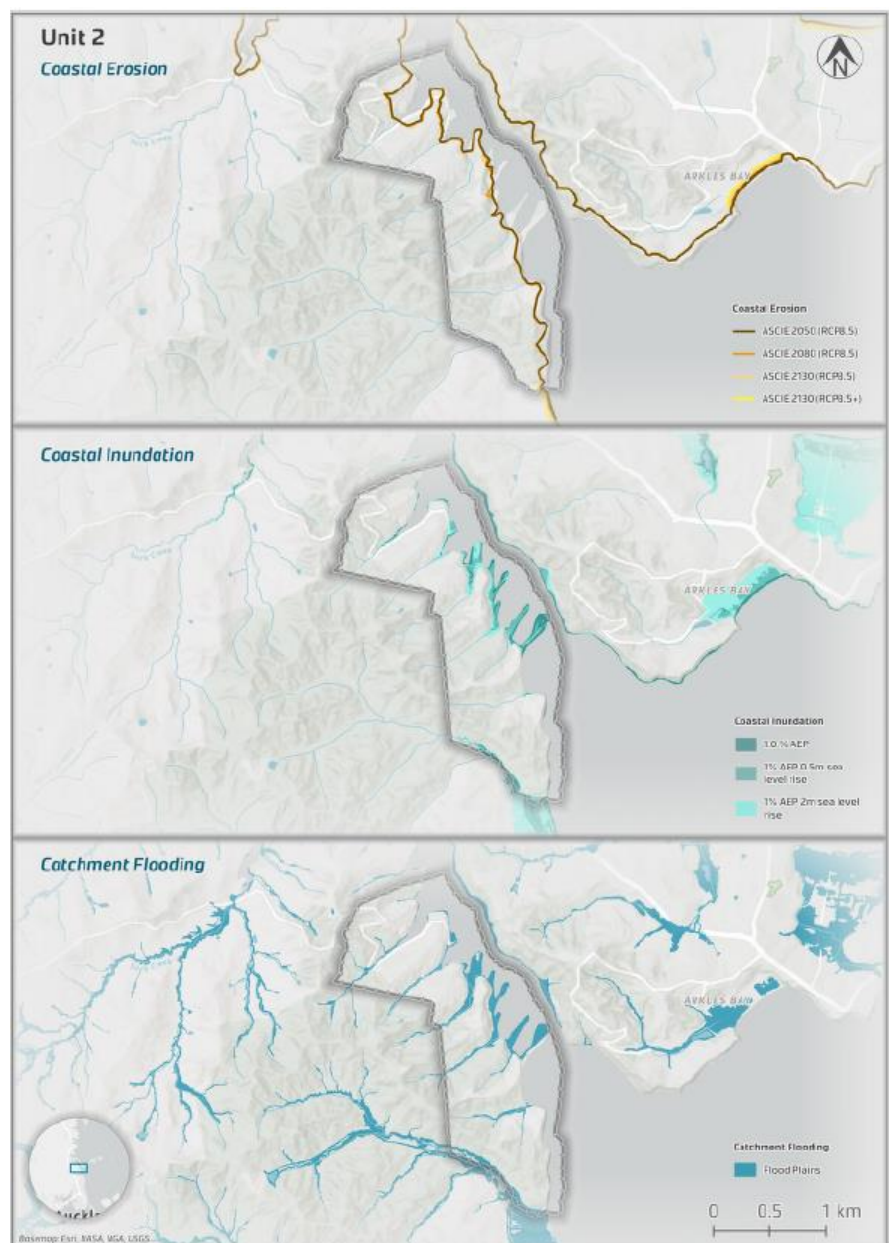
This unit continues south, following the drowned river valley system of Weiti River until reaching Ara Weiti Road just short of Dacre Historic Cottage at Karepiro Bay Beach.

What is happening? Coastal context and hazardscape

Unit 2 coastline of the upper Weiti Estuary is low energy in terms of wave climate, with very short fetch distances and shallow nearshore water depths. A seawall armours Buster Elliot Memorial Landing Recreational Reserve (Auckland Council, 2024b).

Park land in this reserve is predominantly reclaimed. Sections of the coastline (Buster Elliot Memorial Landing Reserve) have been modified with reclamation and coastal armoured. Where coastal areas are armoured and protected, coastal erosion susceptibility may not be identified, however unprotected areas of the coast whether cliff coast or low-lying areas may be impacted by increasing sea levels exposing coastal edges to changed patterns of wetting and drying from the sea which may impact their stability over time. Land towards the mouth of the Weiti Estuary along this coastline will be increasingly impacted by coastal inundation with sea-level rise presenting a risk to low-lying land and associated assets within this unit. Aside from a seawall armoured the Buster Elliot Memorial Landing Recreational Reserve, there are no other existing coastal protection structures present.

Figure 3: Coastal Hazardscape for the Weiti South 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 and which relate to the use of the low, moderate and high climate change scenarios. At the unit level, risk from coastal erosion susceptibility to Auckland Council-owned land and transport infrastructure is high. Coastal inundation from the coast will be an increasing issue over time, exacerbated by sea-level rise and catchment flooding, reflective in moderate to high risk ratings for Council-owned land, water infrastructure, community facilities and transport.

Unit 2 Council-owned land & assets metrics and associated risk scores (short, medium, long terms)											
Council-owned land			Council community facilities			Transport infrastructure			Water infrastructure		
Park and reserve land (28.9 ha) Buildings, wharves (6 No.)			Park amenity structures, carparks, accessways, buildings (0.1 ha)			AT roads (4.9 km) Bridges (0 m ²)			Water pipes (16.4 km)		
Short	Medium	Long	Short	Medium	Long	Short	Medium	Long	Short	Medium	Long
Coastal erosion and instability susceptibility											
High	High	High	Moderate	Moderate	Moderate	High	High	High	Moderate	High	High
Coastal inundation											
Moderate	Moderate	High	Moderate	Moderate	High	Low	Low	Moderate	Low	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 stretch that may be impacted by coastal hazards (inclusive of catchment flooding) over changing climate scenarios.



- Buster Elliot Memorial Landing Reserve, Duck Creek Reserve, Stillwater Reserve and Dacre Historic and Esplanade Reserve are situated within this coastal unit, having Auckland Council assets of high community value (i.e. boat ramps, coastal accessways, park facilities).
- Duck Creek landfill is situated within this section of the coast, however management of the landfill is subject to guidance under the Closed Landfill Asset Management Plan.



- Weiti wastewater pump station.



Harbour access:

- Buster Elliot Memorial Landing Reserve, 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.



- Specific cultural values and outcomes for this unit will be developed through ongoing involvement with local iwi identified in Volume 2. Guiding objectives and outcomes which have informed the development of adaptation strategies have been identified in Volume 2.

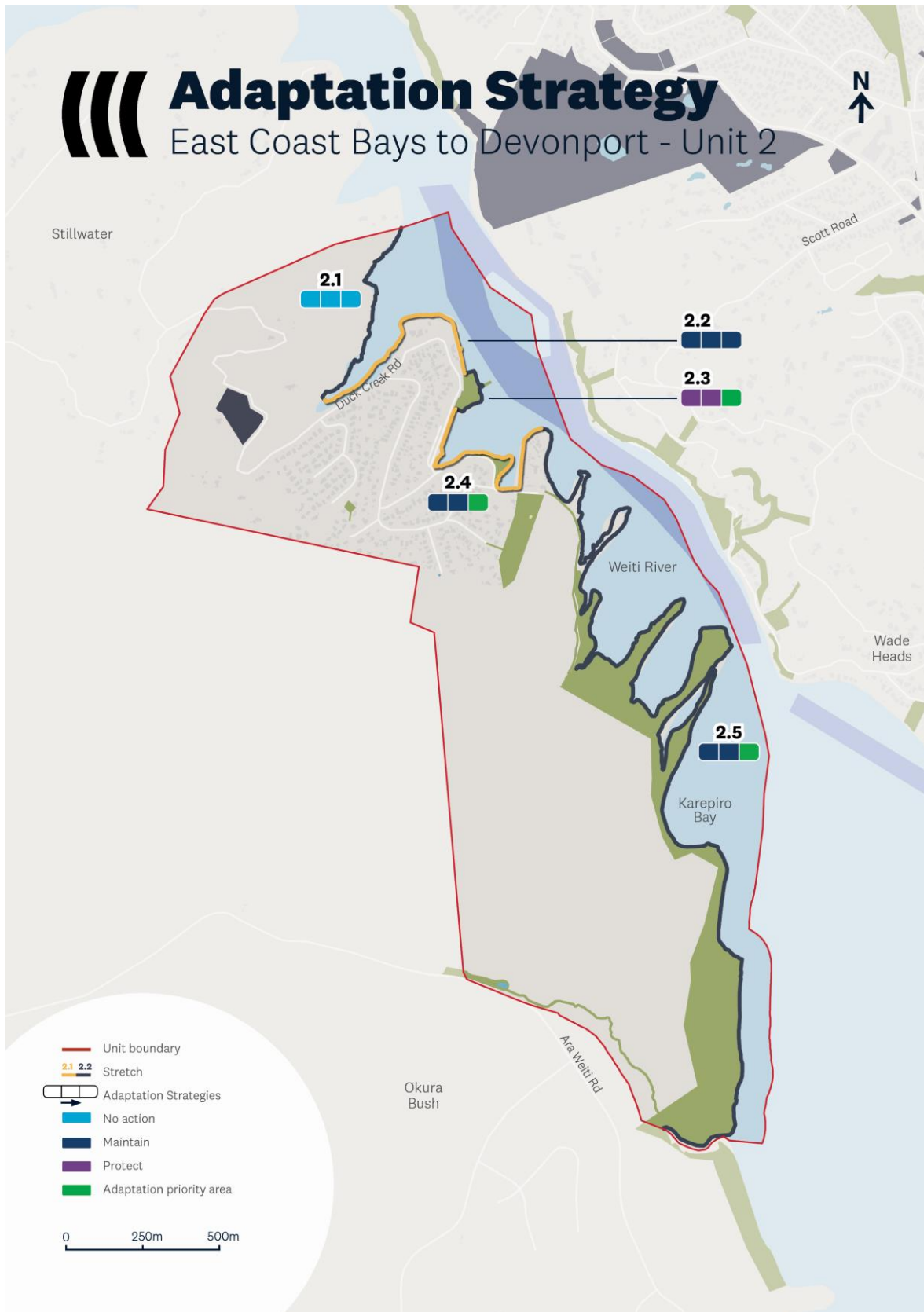


- A series of shell barriers containing Chenier-type shell barrier beaches (SA1.5 – critically endangered ecosystem) have grown across the estuary in a northerly direction (established near Stillwater Public Reserve), sheltering the inland waters from the open coastal environment.
- Mangroves and saltmarsh (SA1) have established in the more sheltered waters of this coastal unit.



When asked what people valued about the Stillwater coastal area and what matters most to locals and visitors alike, many described their:

- Deep appreciation for the bush, birds, and walks on the mudflats at Okura.
- Connections to the natural environment and the importance of supporting native birdlife and landscapes via management of riparian margins and waterways. Chenier barrier beaches along the coast of Weiti Estuary were frequently commented on as highly valued coastal landscapes, highlighting the need for management of dog-friendly areas to protect roosting shorebirds.
- Supporting coastal connections (i.e. Okura walkway) and ensuring accessibility to the coast is not restricted with sea-level rise and future development.

What can we do about it? Adaptation Strategy Unit 2 Stillwater

2.1: Doctors Creek

This stretch commences at the unit boundary (adjacent to Weiti River) and extends along a small stretch of coast, concluding just north of Duck Creek inlet (at the Duck Creek Road Reserve closed landfill/ 167 Duck Creek Road). It encompasses a predominantly rural area with limited Auckland Council-owned land and assets.

Scenarios for change		
Low	Moderate	High
No action 	No action 	No action 
Explanation The natural state of the coastal edge and the limited Auckland Council-owned land and assets located within this stretch fits a no action strategy.		
Implementation notes No action regarding coastal defence/ protection structures to fortify the coastal edge does not forego the option to manage coastal access/ accessways and associated facilities via planting and proactive planning across all climate scenarios.		

2.2: Duck Creek (Stillwater North)

This stretch commences from north of Duck Creek inlet (approx 167 Duck Creek Road) and concludes just north of Weiti Wharf.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation A maintain approach across all climate change scenarios reflects the need to maintain critical roading connections in this unit, with Duck Creek Road (providing access to the Stillwater Community) prone to coastal inundation and coastal erosion under a low-high climate change scenario. With sea-level rise and coastal inundation increasing, risk to water services under a high climate scenario may need to be specifically detailed within this stretch.		
Implementation notes Social: Duck Creek Road is the only road providing access to Stillwater community from East Coast Road. It is noted that the Penlink connection between East Coast Bays and Whangaparāoa Peninsula is currently under construction. This has not been considered in this decision but may need to be considered when adaptation strategies are implemented, given this is a major project. Closed landfill: Duck Creek 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. Water infrastructure: Long-term inundation risk to water services may need to be specifically detailed within this stretch. Ongoing collaboration with Watercare will be required.		

2.3: Weiti Wharf (Buster Elliot)

This stretch commences just north of Weiti Wharf and concludes at approx. 16 Stillwater Crescent Stillwater, including the entirety of Buster Elliot Memorial Landing Reserve.

Scenarios for change		
Low	Moderate	High
Protect 	Protect 	Adaptation Priority 
Explanation Protect in the low to moderate climate scenario enables ongoing maintenance and provision of highly valued community assets and infrastructure (i.e. Buster Elliot Memorial Landing Reserve, Stillwater Boating Club, carparking and boat ramp) whilst managing the increasing risk of coastal erosion and coastal inundation. A transition to adaptation priority under a high change scenario recognises the need to realign and relocate assets to manage increasing levels of risk.		
Implementation notes • Social: Stillwater Boating Club is located within this stretch. Engagement with this organisation is recommended to understand how the implementation of adaptation strategies may impact on the operation of these facilities, and how impacts could be managed.		

2.4: Duck Creek and Stillwater Reserve

This stretch commences from south of the Weiti Wharf to the east of the park/holiday park area, encompassing a small peninsula extending into Weiti River.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Adaptation priority 
Explanation It is important to recognise the significance of assets and infrastructure located within this stretch (Duck Creek Road and pump station). Maintain accommodates ongoing maintenance of community spaces in the current location under a low to moderate climate change scenario, whilst enabling an opportunity to transition to adaptation priority under a high climate change scenario to manage risk from coastal inundation.		
Implementation notes • Under a high climate change scenario, the need to consider proactive management of inundation risk to assets and uses within Stillwater Recreation Reserve may be required. Maintain under a low to moderate climate change scenario recognises the significance to local communities of assets and infrastructure located within this stretch, allowing for ongoing maintenance of community spaces, whilst enabling an opportunity to transition to adaptation priority under a high climate change scenario. • Adaptation priority under a high climate change scenario signals the need to respond to risk to assets and uses within Stillwater Recreation Reserve. • Social: Stillwater Community Hall is exposed within this stretch. Engagement with the Stillwater community (e.g. the Stillwater Community Association) is recommended to understand how implementation of adaptation strategies may impact on the operation of this important community asset, and how impacts could be managed.		

2.5: Duck Creek South (Redvale)

This stretch commences at Duck Creek Road end in the north-east through to the end of the coastal unit at Ara Weiti Road in the south.

Scenarios for change					
Low		Moderate		High	
Maintain		Maintain		Adaptation priority	
Explanation					
A maintain approach under a low to moderate climate change scenario reflects the need to maintain highly valued coastal connections and road networks, with a transition to adaptation priority under a high climate change scenario reflecting the ongoing exposure of Council land and assets in this stretch to coastal inundation with sea-level rise, requiring the need for proactive management.					
Implementation notes					
• Social: Te Ara trail and the Ōkura Bush walkway run through this stretch; both of which are popular walking tracks for the local and wider community. The Ōkura Bush walkway path is managed by DOC and traverses areas of Auckland Council-owned reserve as well as DOC land. Ongoing engagement with DOC will be required in implementing adaptation strategies. • Social: Weiti Bay residential development subdivision is currently being constructed slightly inland from the coastline in this stretch. Consideration of future roading connections and land uses may be required to ensure coastal connections and roading networks are accommodated for within this pathway. • Ecological: Stretch 2.5 includes the Weiti River shell barrier BFA. Monitoring potential impacts of adaptation strategies on ecological values and understanding opportunities for nature-based solutions in alignment with cultural and ecological values will be required.					



Unit 3

Weiti Estuary to Devonport



Unit 3: Ōkura

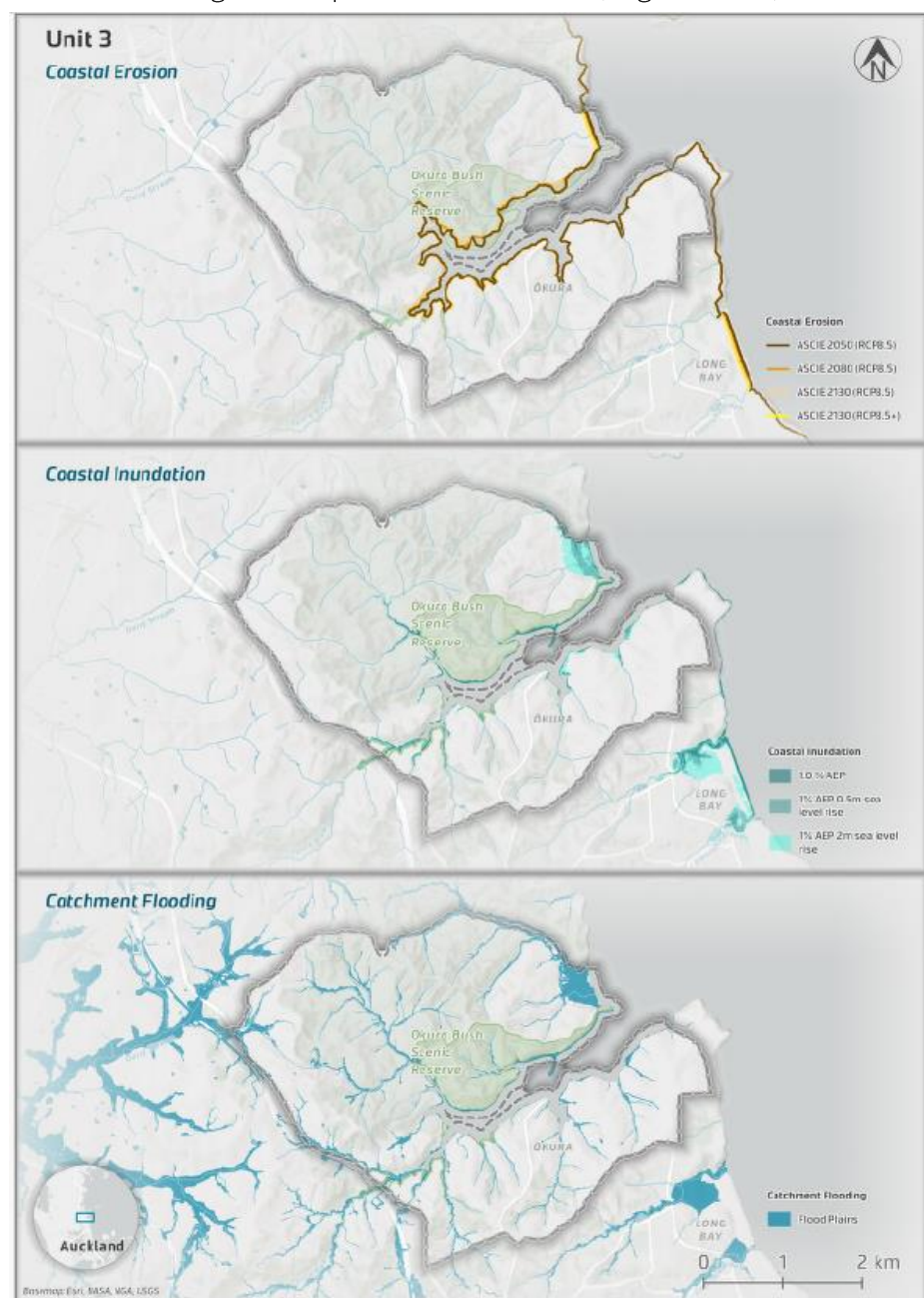
This coastal unit is located within the Hibiscus and Bays Local Board area, beginning in the north at Okura Bush walkway (Karepiro Bay) and concluding in the south at Piripiri Park, just short of Piripiri Point Headland and Long Bay Regional Park. This unit is made up of a predominantly privately-owned coastline, walking trails and reserves interspersed with established private residential development and subdivisions. Okura Estuary Scenic Reserve and Okura River Marginal Strip both occupy this section of coast, each sitting under DOC management.

What is happening? Coastal context and hazardscape

Unit 3 coastline is low energy in terms of wave climate, with very short fetch distances and shallow nearshore water depths. There are no existing coastal protection structures, e.g. seawalls, for erosion management along this section of coastline (Auckland Council, 2024b).

Across all climate scenarios, increasing inundation exposure from both catchment and coastal sources is likely to intensify the weathering of the coastal margin. Figure 4 provides a visual of the hazardscape across Unit 3, with Karepiro Bay vulnerable to inundation from both the coast and catchment.

Figure 4: Coastal Hazardscape for the Okura 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 and which relate to the use of the low, moderate and high climate change scenarios. At the unit level, risk from coastal erosion and instability susceptibility to Auckland Council-owned land is high. Coastal inundation from the coast will be an increasing issue over time, exacerbated by sea-level rise, reflective in moderate to high risk ratings for Council-owned land and community facilities.

Unit 3 Council-owned land & assets metrics and associated risk scores (short, medium, long terms)											
Council-owned land			Council community facilities			Transport infrastructure			Water infrastructure		
Park and reserve land (58.9 ha) Buildings, wharves (7 No.)			Park amenity structures, carparks, accessways, buildings (0.4 ha)			AT roads (8.8 km) Bridges (89.8 m ²)			Water pipes (15.1 km)		
Short	Medium	Long	Short	Medium	Long	Short	Medium	Long	Short	Medium	Long
Coastal erosion and instability susceptibility											
High	High	High	Moderate	Moderate	Moderate	Low	Low	Moderate	Low	Low	Low
Coastal inundation											
Moderate	Moderate	Moderate	Moderate	High	High	Low	Low	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 stretch that may be impacted by coastal hazards (inclusive of catchment flooding) over changing climate scenarios.



- Auckland Council-owned land located within this unit is limited to pockets of unmaintained reserve (Ōkura River Esplanade), Deborah Reserve and Ōkura Reserve. Accessways, a public jetty, boat ramp, boardwalk and stairways leading inland from Okura River Road occupy Deborah Reserve.
- Ōkura Reserve, located further back from the coastal edge, features a playground, pathway/ walking track, skatepark, accessway to the Ōkura Reserve and Community Hall and a carpark.



- Ōkura Community Hall – located slightly inland at Ōkura Hall.
- Dacre Historic Barn/Shed and Dacre Historic Cottage.



- Duck Creek wastewater pump station.



Key pathway connections

- Okura track.



Harbour access

- Deborah Reserve Wetland jetty.
- Longshore Drive boat ramp and Ōkura 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.



- Specific cultural values and outcomes for this unit will be developed through ongoing involvement with local iwi identified in Volume 2. Guiding objectives and outcomes which have informed the development of adaptation strategies have been identified in Volume 2.



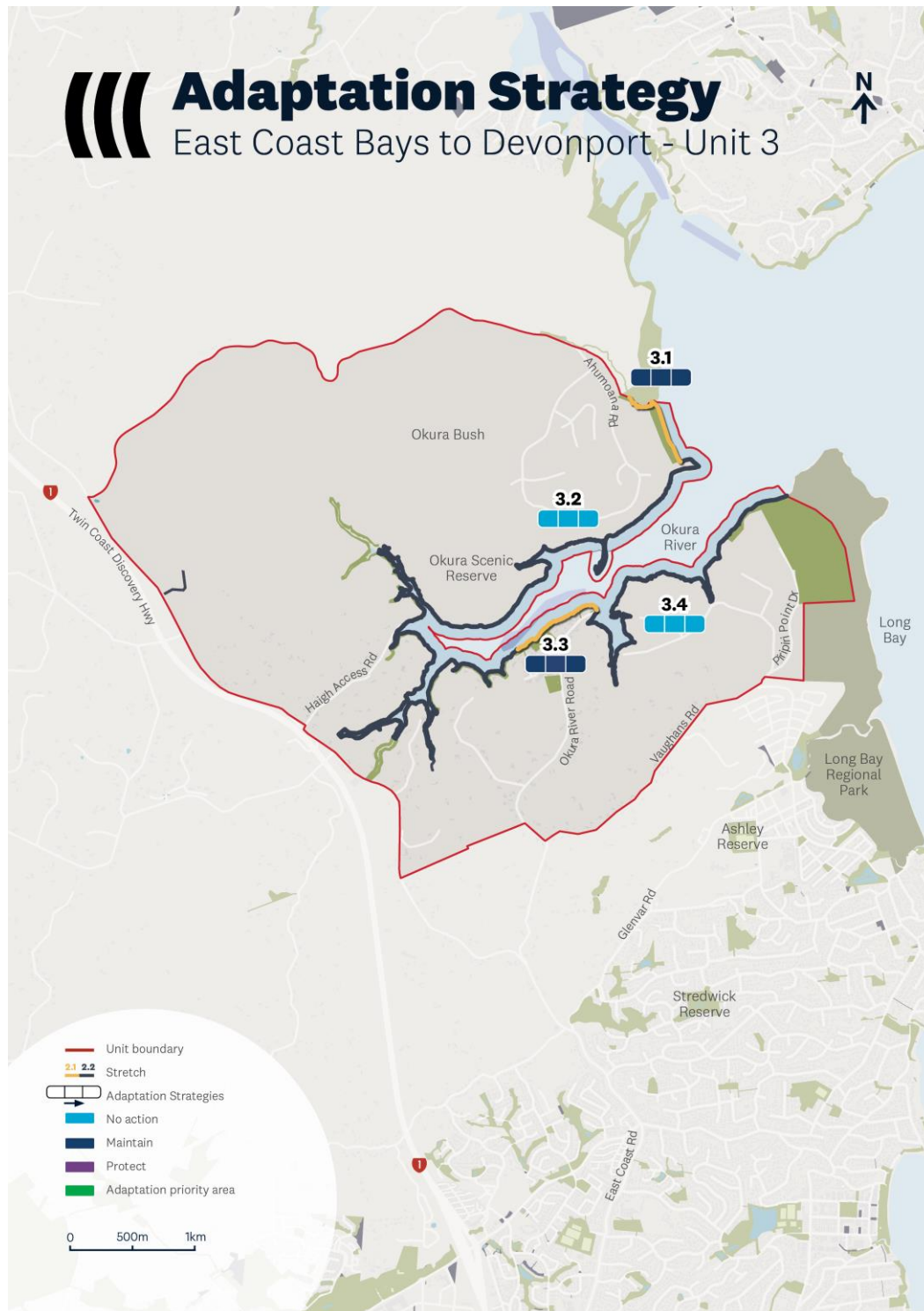
- Karepiro Bay at the mouth of the Ōkura River is popular and used for recreational activities such as boating, fishing, and kayaking.
- Ōkura Bush walkway has previously been a popular walking track providing access to Karepiro Bay, but the walkway has been closed for several years (noting access to Dacre Cottage from Stillwater is still open).
- The unit also features Ōkura Scenic Reserve, which is managed by DOC (Department of Conservation, 2024).



- Regenerating ecosystems, composed of Mānuka and Kānuka scrub/forest, shell-barrier beaches (Chenier Plains), spinifex, pīngao grassland/sedgeland (dune ecosystems), pōhutukawa treeland/flaxland/rockland (cliff ecosystems).
- Mangrove forest and scrub line the coastal margins of this unit, providing habitat for a range of species.
- Long Bay – Ōkura Marine Reserve also overlays into this unit, protecting a variety of coastal habitats from sandy beaches, rocky reefs and estuarine mudflats through to mangroves.
- The Ōkura Scenic Reserve and coastline to the north is classified as a BFA and is ecologically significant for its intact vegetation sequence from terrestrial forest to the estuary (Tiaki Tāmaki Makaurau, 2024a).



- Experience of coastal accretion around Weiti River shell barrier beaches, along with coastal inundation of assets and coastal walkways was frequently commented on. Aspirations are for the Ōkura bush track to be repaired.
- Locals use the walkway from Stillwater (particularly for dog – walking) but avoid going as far as the coast (seabird/ shorebird roost). There are aspirations to support and protect natural ecosystems and corridors in coastal adaptation responses, whilst maintaining key coastal connections.

What can we do about it? Adaptation Strategy Unit 3 Ōkura

3.1: Karepiro Bay

Stretch 3.1 commences at the coastal unit boundary in the north (at Ara Weiti Road) and concludes just north of Okura Bush Scenic Reserve (headland).

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Adaptation priority 
Explanation A maintain approach under a low to moderate climate change scenario reflects the need to manage highly valued reserves and community facilities in response to coastal erosion and inundation, enabling localised realignment and design response (for protection of the reserve and Ōkura Bush walkway) under a low climate change scenario. Under a high climate change scenario, adaptation priority is identified, acknowledging the important historic values of Dacre Historic Cottage and the need to consider proactive relocation of this facility away from hazard risk areas.		
Implementation notes • Historical: The Dacre Historic Barn/Shed and Dacre Historic Cottage are historic features that are popular features along the Ōkura Bush walkway. They are highly valued by both the local and wider community. Engagement with Heritage New Zealand is likely needed to determine the best management/ relocation of the heritage buildings, as well as with the Dacre Cottage Management Committee. • Management: Ara Weiti Village Development is located further inland of this coastal stretch. Whilst a private development, consideration of road networks may be required under a high climate change scenario.		

3.2: Ōkura Estuary

Stretch 3.2 commences just north of Ōkura Bush Scenic Reserve (headland) and concludes at the southern boundary of Ōkura Esplanade Reserve, just shy of Deborah Reserve on the eastern side of Ōkura estuary. Ōkura Bush Scenic Reserve, Ōkura Esplanade Reserve and Ōkura River Marginal Strip are located within this stretch.

Scenarios for change		
Low	Moderate	High
No action 	No action 	No action 
Explanation The coastal edge along this stretch is largely in a natural state with limited Auckland Council-owned assets (limited to reserves) located within hazard-prone areas. A no action approach accommodates the provision of ecological corridors and natural landscapes in alignment with community feedback. Under a high climate scenario, the need to consider proactive management of risk to accessways and respond to increasing erosion risk along the coastal margin of reserves may be required.		

Scenarios for change		
Low	Moderate	High
Implementation notes • No action predominantly relates to management/ defence of the coastal margin. No action regarding coastal defence/ protection structures to fortify the coastal edge does not forego the option to manage coastal access/ accessways and associated facilities via planting and proactive planning across all climate scenarios. • Ecological: Important ecological features include a SEA (significant wading bird area Ōkura Bush BFA, Shell-barrier beach (SA1.5) and oioi restiad wetland margins (WL10 – Regionally Endangered). The sheltered Karepiro Bay is also frequently used by a range of At Risk and Threatened shorebirds and seabirds. Consideration of potential impacts of adaptation strategies on ecological values, and how these may need to be managed will be required in implementation, noting the opportunity for nature-based solutions. • Management: Haigh Access Road may be prone to coastal erosion and inundation under a high climate change scenario – ongoing engagement with Auckland Transport may be required. • Social: Ōkura Bush walkway runs through this stretch. As per Stretch 2.5, this is a popular walking track for the local and wider community. Managed by DOC it traverses areas of Auckland Council-owned reserve as well as DOC land. Ōkura Bush walkway between Dacre Historic Cottage and Haigh Access Road has been closed for several years due to Kauri Dieback Disease. Ongoing engagement with DOC across all climate change scenarios will be required to understand future intentions for management of, or potential, re-opening of the path, and how adaptation strategies may impact on this and vice versa. • Cultural: Multiple midden are located within this coastal stretch, noting this area is of high cultural significance to local iwi. Ongoing engagement with local iwi across all climate change scenarios will be required.		

3.3: Ōkura Village

Stretch 3.3 commences at the southern boundary of Ōkura Esplanade Reserve, just shy of Deborah Reserve, and concludes at the southern boundary of Deborah Reserve. It encompasses a small residential area which is part of the Ōkura community. Parks and reserves include Deborah Reserve and Ōkura Reserve, both of which are small areas of open space used for informal recreation by the Ōkura community. At Ōkura Reserve there is a basketball court and Auckland Council-owned building – the Ōkura Hall. At Deborah Reserve there is a wastewater pump station, and a SEA situated within / adjacent to parkland. There is also a jetty off Deborah Reserve which provides access to the coast from the foreshore, important for water-based recreation. Walking paths around the reserve provide access for informal recreation; there are also trails for horse riding.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation A maintain approach over all climate change scenarios enables management of the coastal edge to respond to the complex values of the area whilst managing coastal hazard risk (note Deborah Reserve is valued by the community and allows for coastal access).		
Implementation notes • Management: Maintain supports the maintenance of important access connections (wharf infrastructure) while acknowledging the coastline is not fixed and risks may need to be managed through landward realignment and design of walkways and coastal connections.		

3.4: Ōkura East

Stretch 3.4 commences at the southern boundary of Deborah Reserve and concludes at the unit boundary, just shy of Long Bay Regional Park. This stretch encompasses the entirety of Piripiri Park, a grassy area which backs onto Long Bay Regional Park and Long Bay community. There are no other Auckland Council-owned infrastructure or assets in this stretch, noting that the majority of this coastal stretch sits under private property ownership (rural farmland).

Scenarios for change		
Low	Moderate	High
No action 	No action 	No action 
Explanation		
No action in relation to coastal defences, allows for a focus on maintaining a natural coastal edge. This approach does not preclude the maintenance of existing trails within Piripiri Park.		
Implementation notes		
No action predominantly relates to management/ defence of the coastal margin. No action regarding coastal defence/ protection structures to fortify the coastal edge does not forego the option to manage coastal access/ accessways and associated facilities via planting and proactive planning across all climate scenarios.		



Unit 4

Weiti Estuary to Devonport



Okura Estuary

Te Araroa National Walking Trail & highly valued connection



Long Bay Okura Marine Reserve

Regionally significant marine reserve for a variety of coastal habitats, providing for bird roosts and marine life. A key consideration is the rocky reef environments at either end of the bay



Sir Peter Blake Marine Education & Recreation Centre

Longshore Drive Wetland

Vaughan Homestead

Vaughan Stream



Awaruka Wetland

Highly valued coastal connection, ramp access

Long Bay Regional Park

Long Bay Beach Road Reserve

Unit boundary

Stretch

Informal recreation park

Mooring management area

Auckland Council owned land

0 250m 500m

Coventry Reserve

Swell Park

Awaruka Wetland

Beach Rd

Unit 4: Long Bay

This unit, located within the Hibiscus and Bays Local Board area, commences at the boundary of Long Bay Regional Park in the north (just to the south of Piripiri Park), includes the coastline of Long Bay, concluding just south of Beach Road at the Marine Education and Recreation Centre. Its coastline includes extensive, highly valued walking trails and coastal connections, vegetated coastline, and key community facilities. Long Bay Regional Park itself occupies 160 ha of coastal land, featuring strands of native bush, walking trails and the historic Vaughan Homestead. Long Bay Beach at the southern end of Long Bay Regional Park (Stretch 4.2) features multiple carparks, picnic facilities, walking tracks, accessways, playgrounds, boardwalks, park roads, toilet facilities and changing rooms and ramp access to the beach.

What is happening? Coastal context and hazardscape

The Waitematā sandstone cliffs present along the unit's coastline are subject to slow, ongoing weathering and erosion, with occasional episodic failures or slips occurring. The high coastal cliffs north of the park are also periodically subject to erosion, particularly during large storm or rainfall events. Planning for the future managed realignment of coastal track further inland should be considered (in alignment with the Regional Parks Management Plan, 2022). The significant amount of cultural heritage, including archaeological sites and built heritage structures, located near the coast at Long Bay are particularly vulnerable to the effects of climate change.

While the Long Bay coastline is typically a low energy beach, during significant events it receives moderate and on occasion, high wave energies. Long Bay Beach and the adjacent intertidal area is relatively flat or dissipative in profile, which results in wave shoaling effects before waves reach the upper beach. During significant storm events and elevated water levels, erosion of the upper beach and sand dunes can occur, following which the beach recovers, and the dunes rebuild often aided by further dune planting on the seaward face of the dunes, together with controlling pedestrian access through defined pathways to the beach. Monitoring of beach profiles at Long Bay since 1990 show no significant trend of net erosion or accretion over this period.

At the unit level, risk from coastal erosion and coastal inundation susceptibility to Auckland Council-owned land and assets is high, with the risk of inundation becoming more of an issue in the long term with sea-level rise.



Figure 5: Long Bay Beach and dunes

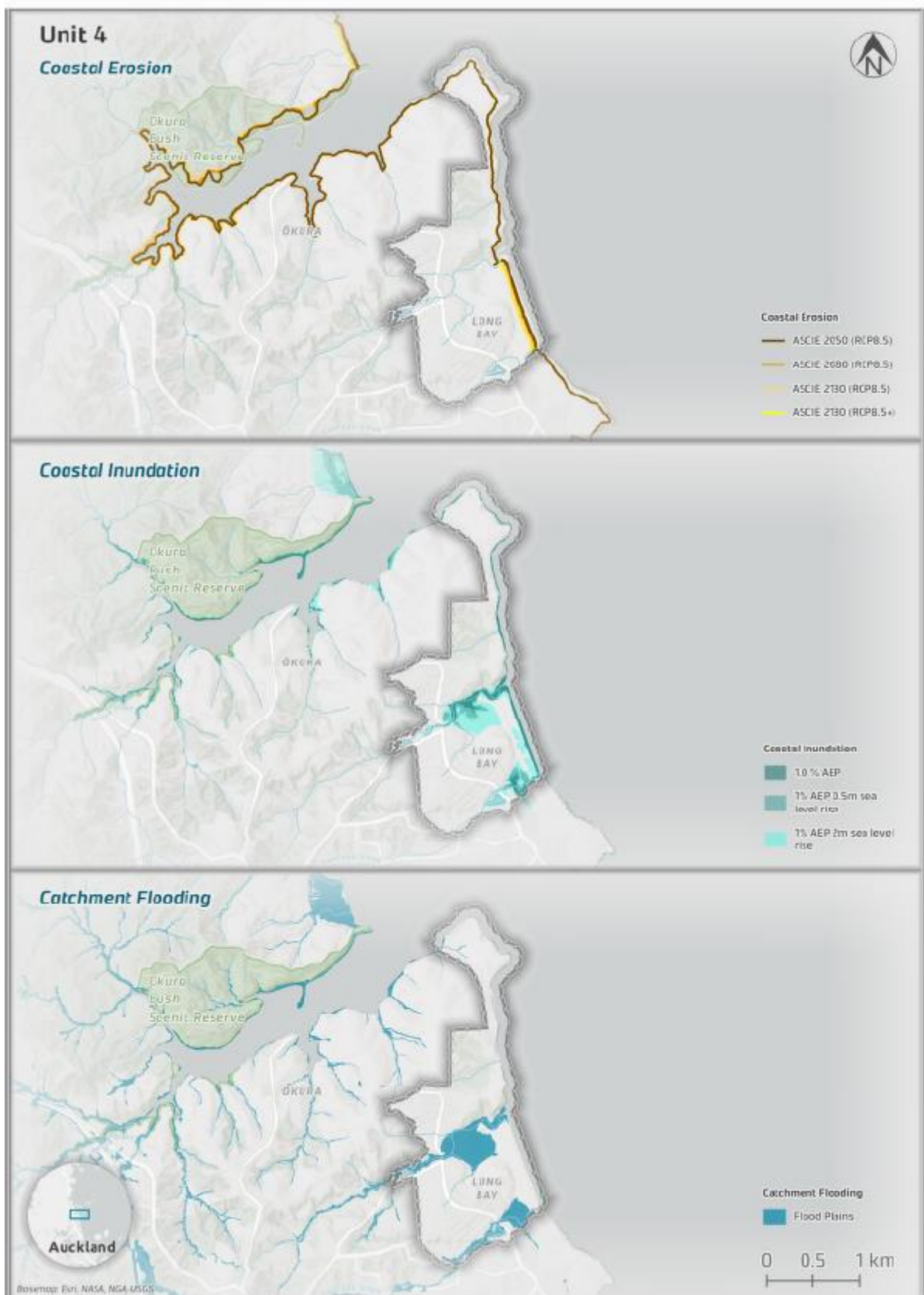


Figure 6: Coastal Hazardscape for the Long Bay Unit, reflecting coastal erosion susceptibility for 2050, 2080 and 2130 considering RCP4.5 and RCP8.5 emission scenarios, coastal inundation for 1%AEP storm surge for present day and with 0.5 m, 1 m and 2 m sea-level rise and the identification of flood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



Risk assessment

The table below summarises the risk levels for Auckland Council asset types in the short, medium, and long term and which relate to the use of the low, moderate and high climate change scenarios. At the unit level, risk from coastal erosion and instability susceptibility to Auckland Council-owned land and community facilities is high. Coastal inundation poses from the coast will be an increasing issue over time, exacerbated by sea-level rise, posing the greatest risk to community facilities at Long Bay Beach and Long Bay Regional Park, noting the exposure of walking tracks and key community assets to coastal hazards over all climate change scenarios. Key roading connections into and along this unit are also at risk to coastal inundation under a moderate to high climate change scenario.

Unit 4 Council-owned land & assets metrics and associated risk scores (short, medium, long terms)											
Council-owned land			Council community facilities			Transport infrastructure			Water infrastructure		
Park and reserve land (153.6 ha) Buildings, wharves (37 No.)			Park amenity structures, carparks, accessways, buildings (3.9 ha)			AT roads (8.8 km) Bridges (502.1 m ²)			Water pipes (79.0 km)		
Short	Medium	Long	Short	Medium	Long	Short	Medium	Long	Short	Medium	Long
Coastal erosion and instability susceptibility											
High	High	High	High	High	High	Low	Low	Low	Very low	Very low	Very low
Coastal inundation											
High	High	High	High	Very high	Very high	Moderate	Moderate	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 stretch that may be impacted by coastal hazards (inclusive of catchment flooding) over changing climate scenarios.



- Long Bay Regional Park runs along the entire coastline of Unit 4, including areas of farmland, native bush, and beach.
- Behind the regional park are several small inland parks, including Ridgeline Park, Swell Park, and Stream View Way Park.



- The unit features a variety of Auckland Council-owned buildings such as storage sheds, workshops, recreational facilities including the Sir Peter Blake Marine Education and Recreation Centre, playgrounds, and historical structures, e.g. Vaughan Homestead. These buildings are primarily located within the regional park and provide for recreational use of the park.



- Unit 4 contains a pump station (Long Bay pump station), and public toilets situated in Long Bay Reserve.



Key pathway connections

- Key coastal access points to Long Bay and Long Bay Regional Park include Piripiri Point Drive, Glendavar Ridge Road and Beach Road.
- Long Bay Coastal Track.



Harbour access:

- Long Bay Beach Road 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.



- The Ngāti Manuhiri Claims Settlement Act 2012, the Te Kawerau ā Maki Claims Settlement Act 2015 and Ngāi Tai ki Tamaki Claims Settlement Act 2018 all include a coastal statutory acknowledgment describing the iwi association with this area of the Hauraki Gulf.



- Specific cultural values and outcomes for this unit will be developed through ongoing involvement with local iwi identified in Volume 2. Guiding objectives and outcomes which have informed the development of adaptation strategies have been identified in Volume 2.
- Unit 4 encompasses Long Bay Regional Park and Long Bay subdivision, which consists of residential areas set back from Long Bay Regional Park. Long Bay was previously characterised by rural properties and large areas of farmland but over the last decade has been developed into a large subdivision with a village centre. Long Bay Village Centre acts as a community hub with several cafes, shops, a gym, medical centre and regular markets.
- Long Bay is one of the most popular regional parks in Auckland, receiving 1.365 million recorded visitors in 2021/2022 (Auckland Council, 2022b). The park services both the local community and people from around Auckland, as well as visitors from further afield. The coastal path in Long Bay forms part of the Greater North Shore Coastal Walk which is 31.4 km in length. Te Araroa trail runs along the extent of the park.
- The Sir Peter Blake Marine Education and Recreation Centre (MERC) is located near Long Bay Beach. This facility focuses on marine education, outdoor adventure, and environmental awareness (Sir Peter Blake MERC, 2024).



Unit 4 includes the land surrounding Long Bay suburb, including Long Bay Regional Park and Long Bay Beach, categorised by its sweeping sandy landscape, coastal dunes and Waitematā sandstone cliffs, broadleaf coastal forest remnant with native vegetation. There are also extensive areas of freshwater and saline wetlands located beside Vaughan Stream in the park's northern section. The following key ecological features are noted within this unit:

- The regional park is largely covered in reserve grass, however the cliffs along the edge are covered in pōhutukawa-dominated coastal forest (WF4, CL1 – Regionally Vulnerable) (Singers, me ētahi atu, 2017).
- Awaruku Creek is located at the southern portion of the unit and provides habitat and a migratory pathway for a range of freshwater fish including longfin eel, shortfin eel, banded kokopu, and inanga (Sotffels, 2022). Spawning surveys undertaken in Awaruku Creek confirmed inanga spawning activity in 2018 (Whitebait Connection, 2019).
- Vaughan Stream also traverses the park, with its coastal location and habitat providing opportunities for restoring native fish species, including the regionally threatened giant kokopu, which used to be found in the park.
- Long Bay Beach and its characteristic dunes provide habitat for a range of coastal birds, including the little penguin, pied-shag, white-faced heron, variable oystercatcher and New Zealand dotterels.
- This unit is included within the Long Bay – Ōkura Marine Reserve, which was formally established in 1995. It is designated as a 'no-take' reserve aimed at safeguarding a portion of the Hauraki Gulf (Department of Conservation, n.d.). See Unit 3 above for more detail on the ecological values along the Ōkura River and at Karepiro Bay.



- The presence of available open space for walking, running, and cycling activities was the feature which the greatest number of respondents identified as of value to them. Several people noted they enjoy bringing their dogs along for a walk.
- Passive recreation including nature watching is also highly valued. The native bird life and presence of a regional park were identified as particular contributions to this value.
- People also enjoy both passive (i.e. picnicking) and active water-based activities at Long Bay Beach including swimming.

What can we do about it? Adaptation Strategy Unit 4 Long Bay

4.1: Long Bay Regional Park

This stretch commences at Long Bay Regional Park in the north (just south of Piripiri Park) and continues south along the coast, concluding at the Vaughan stream tidal inlet (slightly to the north of Vaughan Homestead).

Scenarios for change					
Low		Moderate		High	
Maintain		Maintain		Maintain	
Explanation					
A maintain approach over all climate change scenarios provides for ongoing maintenance of existing community assets and supports ongoing safe use of walkways within Long Bay Regional Park. Localised realignment of existing track networks may be required to mitigate cliff instability and erosion risks (in alignment with the Regional Parks Management Plan).					
Implementation notes					
• Social: Long Bay Regional Park is a popular park for the local and wider regional community. The Long Bay Coastal Walk is very popular and runs along the clifftop from Long Bay Beach to Ōkura River. Ongoing provision of walking tracks will be required across all climate change scenarios, reflecting community feedback on the amenity and recreational value of these coastal connections/ assets. • Management: Under the Reserves Park Management Plan 2022, Long Bay has a special management structure due to its heritage and cultural significance, with the Long Bay Heritage Protection Zone (HPZ) being formed after an Environment Court decision on the proposed Long Bay Structure Plan in 2007. The plan also mentions high visitor numbers to the park, with 1.3 million people visiting between 2021-2022. Management intentions for the park note the need to investigate other ways of accessing the park, including public transport routes and new walking and cycling connections. Implementation of adaptation strategies will need to take this into account. • Ecological: There are also SEAs within the Long Bay Regional Park, primarily classified as pōhutukawa-dominated coastal forest (WF4, CL1 – Regionally Vulnerable). Ongoing consideration of the potential impacts of adaptation strategies on ecological values, and how these may need to be managed may be provided for under this pathway. • Management: Important localised roads are located throughout the stretch which form a critical part of the area’s transport network. Ongoing engagement and collaboration with Auckland Transport will be required.					

4.2: Long Bay Beach

Stretch 4.2 commences at the Long Bay Regional Park pillbox to the north of Vaughan Homestead and concludes at the Long Bay Regional Park boundary, just south of the Long Bay Regional Park boundary (at approx. 1 Te Oneroa Way, Long Bay). The stretch encompasses the southern part of Long Bay Regional Park and the entirety of Long Bay Beach.

Scenarios for change			
Low	Moderate		High
Maintain 	Adaptation priority 	Adaptation priority 	
Explanation Maintain fits the requirement for ongoing maintenance and provision of highly valued community assets and infrastructure (such as walking tracks, park facilities, and boat ramp) and supports ongoing safe public access to Long Bay Beach, whilst managing risk from coastal hazards, providing for ongoing maintenance of dune systems and management of the stream mouth at Vaughan Stream. Under a moderate to high climate change scenario, with ongoing erosion and inundation risk to community facilities, the need to consider the long-term provision of existing services within this stretch will be required. Further consideration of the design and location of road access within and to Long Bay Regional Park and Long Bay Beach may be required under a high climate scenario.			
Implementation notes • Management intentions for the park note the need to investigate other ways of accessing the park (high visitor numbers cause parking issues and congestion over the summer months), including public transport routes and new walking, and cycling connections. • Management: Important localised roads are located throughout the stretch which form a critical part of the area's transport network. Under a high climate scenario, the need to consider action to protect road access, manage risk to assets and accessways and respond to increasing inundation risk may be required. • Heritage: Long Bay Regional Park is part of a Heritage Protection Zone, which recognises the heritage value of the park area and heritage features such as Vaughan Homestead. This will be a key consideration in the implementation of coastal management and will take place in collaboration with the Heritage Team at Auckland Council. • Management intentions: Coastal dunes along the length of Long Bay Beach are vulnerable to sea-level rise and coastal erosion, with replanting of the dunes occurring to mitigate this. The high coastal cliffs are also subject to erosion, particularly during large storm or rainfall events. Management intentions note the need to consider mechanisms for protecting dune and cliff systems. • Ecological: Ongoing management of Awaruku Creek to provide ongoing habitat for freshwater fish that have been recorded will be required across all climate scenarios and factored into decision making.			

4.3: Beach Road and Marine Centre

Stretch 4.3 commences at the southern boundary of Long Bay Regional Park (just north of 1 Te Oneroa Way Long Bay) and concludes just south of the Sir Peter Blake Marine Education and Recreation Centre at the unit boundary.

Scenarios for change			
Low	Moderate		High
Maintain 	Adaptation priority 	Adaptation priority 	
Explanation Maintain relates to existing community assets (such as walking tracks, the boat ramp and MERC) and supports ongoing safe public access to Long Bay Beach via existing coastal infrastructure, whilst managing risk from coastal hazards. Under a moderate to high climate scenario, coastal inundation, catchment flooding and coastal erosion will become an ongoing issue impacting key roading connections (Beach Road) and the use of community facilities within this stretch, necessitating a transition to adaptation priority to trigger the proactive management of assets and roading networks. Given the existing timber retaining wall at the southern end of the stream mouth, a targeted protect approach may also be appropriate in specific locations to maintain a fixed coastal edge around the MERC centre (which is a highly valued community facility and has a functional need to be located at the coast) and along the length of Long Bay Beach.			
Implementation notes - Adaptation strategies may also need to consider the adaptation priority. - Under a high climate scenario, the need to consider proactive management of risk to road ends to respond to increasing erosion risk may be required.			



Unit 5

Weiti Estuary to Devonport



Unit 5: Torbay

This unit, located within the Hibiscus and Bays Local Board area, commences just past Long Bay Marine Education and Recreation Centre and concludes at approximately 24 Sharon Road in the south, covering off the coastal suburbs of Torbay, Winstones Cove, Waiake. This coastline includes sections of Long Bay Beach Road Reserve and associated pathways and accessways (i.e. Gilbert Road accessway), continuing past Toroa Point (Gull Point) south towards Marama Street Reserve and associated coastal accessways. Winstones Cove and Rock Isle Beach Reserve, and Waiake Beach reserve and its associated community facilities, fragmented by private properties are also included within this section of coast, with Tor Island present from Waiake Beach.

What is happening? Coastal context and hazardscape

Unit 5's coastline is exposed to relatively long fetch distances from the northeast to east. Whangaparāoa Peninsula, Coromandel Peninsula, and offshore islands (particularly Aotea (Great Barrier Island)) shelter this coastline from the full exposure to open coast wave energies. While this coastline is typically low energy, during significant events it receives moderate and on occasion, high wave energies. The coastline adjacent to Cliff Road is characterised by coastal cliffs and shore platforms and receives the highest wave energies along the Unit 5 coastline. Waiake Beach is sheltered by The Tor (a small rock formation just off the coast of the beach which is classified as both an Outstanding Natural Feature and a High Natural Character Area) and adjacent offshore reef features.

During significant storm events and elevated water levels, erosion of Waiake Beach can occur, following which sand levels tend to recover. The stream mouth at Waiake Beach is highly dynamic in response to rainfall and coastal processes. Waitematā sandstone cliffs present along the coastline of this unit are subject to slow ongoing weathering and erosion, and occasional episodic failures or slips.

Multiple pieces of coastal protection exist within this unit. A rock masonry seawall at Winstones Cove provides protection for a wastewater pump station. At Waiake Beach, renewal of an existing rock revetment seawall and upgrade to a shotcrete seawall was completed in 2023. A rock masonry seawall armours the coastline between Waiake Beach and Rock Isle Beach Reserve and rock revetment armours the northern bank of the stream that discharges onto Waiake Beach (Auckland Council, 2024b).

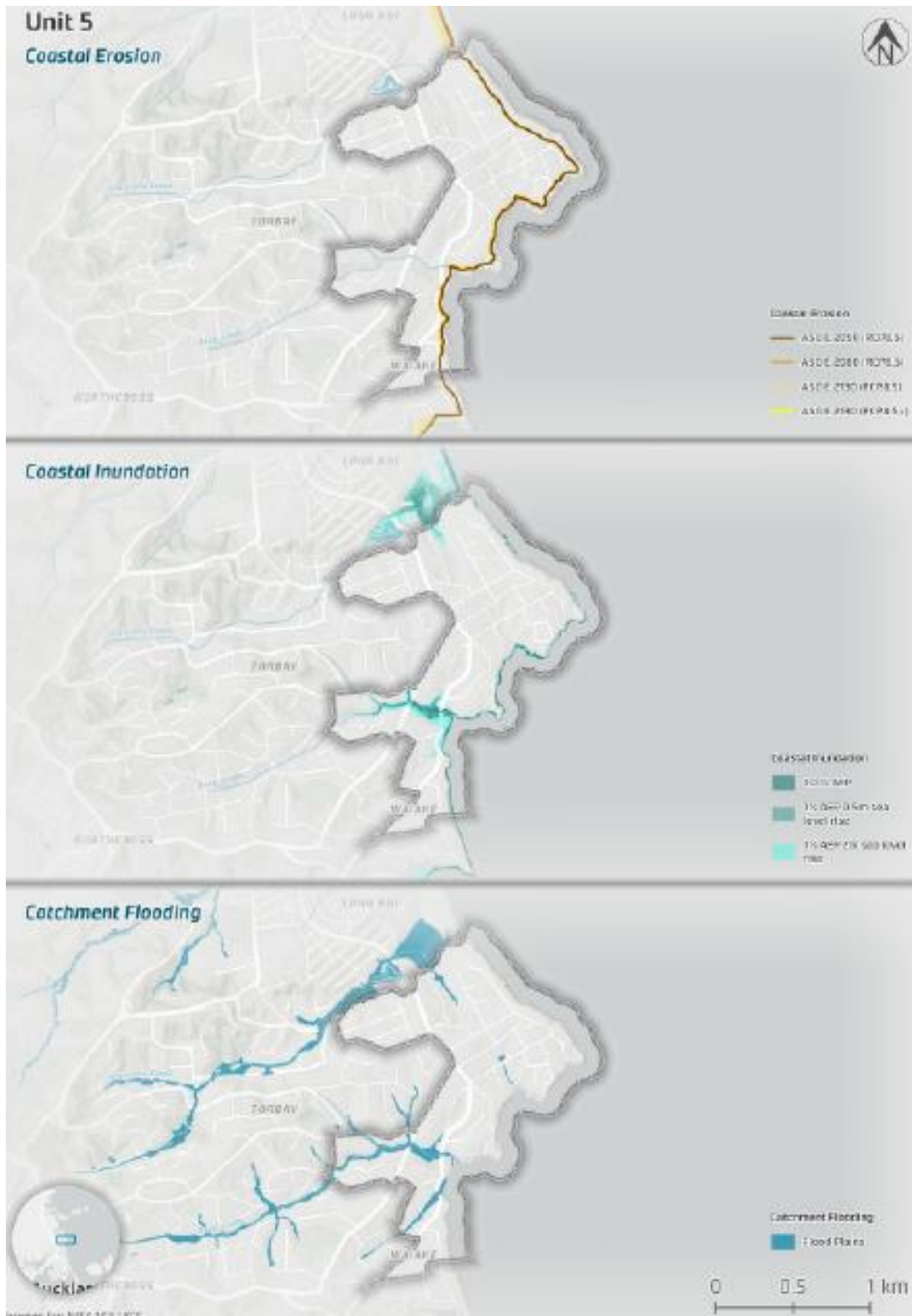


Figure 7: Coastal Hazardscape for the Long Bay Unit, reflecting coastal erosion susceptibility for 2050, 2080 and 2130 considering RCP4.5 and RCP8.5 emission scenarios, coastal inundation for 1%AEP storm surge for present day and with 0.5 m, 1 m and 2 m sea-level rise and the identification of flood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



Risk assessment

The table below summarises the risk levels for Auckland Council asset types in the short, medium, and long term and which relate to the use of the low, moderate and high climate change scenarios. At the unit level, risk from coastal erosion and instability susceptibility to water infrastructure is high, whilst coastal inundation poses the greatest risk to community facilities and transport infrastructure.

Unit 5 Council-owned land & assets metrics and associated risk scores (short, medium, long terms)											
Council-owned land			Council community facilities			Transport infrastructure			Water infrastructure		
Park and reserve land (6.0 ha) Buildings, wharves (17 No.)			Park amenity structures, carparks, accessways, buildings (0.2 ha)			AT roads (12.6 km) Bridges (488.6 m ²)			Water pipes (81.2 km)		
Short	Medium	Long	Short	Medium	Long	Short	Medium	Long	Short	Medium	Long
Coastal erosion and instability susceptibility											
Moderate	Moderate	Moderate	Moderate	Moderate	High	Moderate	Moderate	High	High	High	High
Coastal inundation											
Low	Low	Low	High	High	High	High	High	High	Low	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 stretch that may be impacted by coastal hazards (inclusive of catchment flooding) over changing climate scenarios.



- Aicken Reserve
- Campbell Glade Reserve
- Long Bay Beach Road Reserve
- Marama Street
- Ringwood Reserve
- Rock Isle Beach Reserve
- Waiake Beach Reserve
- Winstones Cove



- Scout Assoc Of NZ - Awatuna Sea Scouts
- The Green Sailing Shed
- Torbay Sailing Club
- Torbay Schools Waterwise Inc



- Cliffs pump station
- Grays Crescent pump station
- Rock Isle 1 pump station
- Rock Isle 2 pump station
- Beach 2 pump station



Key pathway connections

- There are several small walking tracks throughout the unit which primarily connect between residential streets or provide access to the coast or reserves.



Harbour Access

- Rock Isle Beach Reserve boat ramp
- Waiake Beach Reserve boat ramp
- Winstones Cove handheld craft 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.



- Specific cultural values and outcomes for this unit will be developed through ongoing involvement with local iwi identified in Volume 2. Objectives and outcomes which have informed the development of adaptation strategies have been identified in Volume 2.



- Open space conservation and informal recreation areas within Unit 5 include Marama Street Reserve, Campbell Glade Reserve, Winstones Cove, Aicken Reserve, and Long Bay Beach Road Reserve.
- Rock Isle Beach Reserve includes a well-used boat ramp, with a Mooring Zone located just offshore.
- Waiake Beach Reserve runs along Waiake Beach and includes a boat ramp, playground and picnic / BBQ areas. There are several small walking tracks throughout the unit which primarily connect between residential streets or provide access to the coast or reserves.
- Awatuna Sea Scouts operate out of an Auckland Council-owned building on Aicken Reserve, and Torbay Sailing Club operates from an adjacent building. Torbay Sailing Club is a large facility which is home to the sailing club, provides storage for boats, is used by local schools as part of the Waterwise water safety education programme, and is also rented out for private events, community events and community classes such as yoga.
- This unit includes The Tor which is a distinctive dramatic island landform that combines sheer sedimentary cliffs, craggy rock formations and rocky shoals. It been noted as a High Natural Character area and an Outstanding Natural Feature (Auckland Council, 2016). The land on The Tor is classified as part of Waiake Beach Reserve.



- A large portion of this unit is characterised by residential land use. Ecological features within Unit 5 are limited to the coastal cliffs which are lined with pōhutukawa-dominated coastal forest (WF4, CL1) (Singers et al., 2017). Additionally, a variety of avifauna have been recorded along this area, including shorebirds, seabirds, and passerine species (eBird New Zealand, n.d.).



- Commentary on stormwater management and catchment – advocacy for a more holistic approach to catchment management rather than focusing solely on the foreshore.
- Commentary on preserving coastal walking connections and assets (i.e. boat ramps around Waiake and Rock Isle Beach) to maintain access to the harbour, noting many people value being able to partake in recreational activities in the harbour (swimming, kayaking, fishing).
- Community commentary on the impact of erosion and instability around Winstones Cove, noting the impact/ risk to highly valued walking connections.

What can we do about it? Adaptation Strategy Unit 5 Torbay



5.1: Torbay North (Long Bay Beach Reserve)

Stretch 5.1 commences just south of the MERC centre. It concludes at the southern boundary of Long Bay Beach Road Reserve, near Gilbert Place, encompassing clifftop residential areas that make up part of Torbay community.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation To accommodate the management of risk to well-used coastal walkways within Long Bay Beach Road Reserve and the accessways off Gilbert Place, maintain is the preferred option. The pathway has potential for localised realignment of coastal walkways within the reserve in the moderate to high climate change scenarios to manage the coastal erosion risk. No coastal defences are anticipated within this stretch.		
Implementation notes - This pathway includes potential for localised realignment of coastal walkways within the reserve in the moderate to high climate change scenarios to manage the coastal erosion risk. No coastal defences are anticipated. Ecology: A terrestrial SEA, which comprises pōhutukawa-dominated coastal forest (WF4, CL1) is located within this stretch. Consideration of ecological corridors and management of ecological landscapes will be a key consideration in managing this stretch of coast in response to changing coastal hazard risk.		

5.2: Toroa/Gull Point

Stretch 5.2 commences at the southern boundary of the Long Bay Beach Road Reserve and concludes at Marama Street Reserve, encompassing clifftop residential areas of Torbay (predominantly private property).

Scenarios for change		
Low	Moderate	High
No action 	No action 	No action 
Explanation No action was chosen due to the limited presence of Auckland Council land and assets near the coast (this stretch is made up of predominately private property).		
Implementation notes Localised limited intervention may be required in relation to management of Cliff Road to provide for ongoing maintenance of safe public access (manage the risk of erosion and cliff instability).		

5.3: Winstones Cove and Cliff Road coastal access

Stretch 5.3 commences at Marama Street Reserve and encompasses the entirety of Winstones Cove, beginning at the eastern end of the beach near Marama Street, culminating at the western end. Access to Winstones Cove is available via paths and steps onto the foreshore from both Marama Steet and Grey Crescent, with a small ramp for handheld craft off Grey Crescent. A rock masonry seawall at Winstones Cove provides protection for a wastewater pump station.



Figure 8: Winstones Cove access steps from Marama Street, 2023 upgrade

Scenarios for change			
Low	Moderate		High
Maintain 	Maintain 	Adaptation priority 	
Explanation Increasing inundation and erosion risk over time will impact the ability for all existing uses and assets within this stretch of coast to remain safe and function in their current location. Thus maintain was selected under a low – moderate climate change scenario, to provide for ongoing maintenance and where possible, localised realignment for community facilities (Winstones Cove Reserve) situated within this stretch of coast. Under a high change scenario, the identification of an adaptation priority area acknowledges the need for proactive planning and engagement with local communities. Localised protection measures may be required to protect and maintain the functionality of water infrastructure (Grays Crecent pump station).			
Implementation notes - Realignment of coastal accessways connecting through to Marama Reserve and Winstones Cove to provide for ongoing maintenance of safe public coastal accessways along the coast may be required under a low to moderate change scenario with increasing erosion and instability hazards. Ecological: Scattered patches of terrestrial SEA, which comprises pōhutukawa-dominated coastal forest (WF4, CL1) are located within this stretch. Advocacy for supporting natural corridors is suggested. - Under a high climate change scenario, localised protection measures may be required to protect and maintain the functionality of water infrastructure (Grays pump station).			

5.4: Winstones Cove South and The Tor

Stretch 5.4 commences at Gray Crescent Road end (just past Gray Crescent coastal accessway) and extends south along the coast, encasing the remaining section of Winstones Cove Park. The coastal margin of Winstones Cove Park is lined by predominantly privately-owned dwellings (there are no Auckland Council assets in close proximity to the coastal edge). This stretch also encompasses The Tor.

Scenarios for change					
Low		Moderate		High	
No action		No action		No action	
					
Explanation					
The coastal edge along this stretch is largely in a natural state with limited Auckland Council-owned assets and land (limited to pockets of Winstones Cove Park land, no assets present) located within hazard prone areas. A no action approach accommodates the provision of ecological corridors and community values. Under both a low and moderate climate scenario, support for coastal accessways can be managed via riparian planting to provide a natural buffer for the coastal margin (if required).					
Implementation notes					
Ecology: A terrestrial SEA, which comprises pōhutukawa-dominated coastal forest (WF4, CL1) is located within this stretch. Management of riparian margins to accommodate for the provision of ecological corridors is advocated for this coastal stretch.					

5.5: Rock Isle Beach and road access

Stretch 5.5 begins at approx. 50 Rock Isle Road, Torbay, just shy of Winstones Cove Park, and concludes at the Waiake Street to Rock Isle Road accessway, encasing Rock Isle Beach Reserve.



Figure 9: Rock Isle Road boat ramp and adjacent moorings (Auckland Council)

Scenarios for change					
Low		Moderate		High	
Protect		Adaptation Priority		Adaptation Priority	
Explanation					
Protect covers need to continually manage highly valued community facilities and roading connections (Rock Isle Road) across all climate scenarios. The low-lying nature of this coastal stretch of Rock Isle Beach Reserve and current exposure to catchment flood hazards requires management of uses and consideration of the design and location of new uses, such as pathway connections, to ensure risk is managed to uses and assets within this stretch. Further exploration of the feasibility of options to achieve protection of uses and asset in their current locations will be required and may require consideration of alternative pathways in response to moderate and high climate scenarios in future.					
Implementation notes					
- Protection measures are required to provide ongoing maintenance and protection of the coastal edge via existing coastal protection structures (rock masonry seawall), supporting critical infrastructure (pump station) and community assets of high amenity value (i.e. boat ramp and carpark). - Under a moderate to high climate scenario, the need to consider proactive management of risk to road ends to respond to increasing erosion risk may be required. A transition to adaptation priority recognises the need to consider the management of risk to assets (including roading), within the coastal areas from ongoing coastal erosion and inundation from sea-level rise.					

5.6: Waiake Beach North

Stretch 5.6 commences at the Waiake Street to Rock Isle Road accessway just short of Rock Isle Beach Reserve and concludes at Deep Creek just short of Waiake Beach. This stretch is predominantly private property albeit from the northern section of Waiake Beach Reserve. The section of Waiake Beach Reserve north of the stream to Rock Isle Beach Reserve is partially armoured with a rock revetment seawall. (Auckland Council, 2024b).

Scenarios for change					
Low		Moderate		High	
Maintain		Maintain		Maintain	
Explanation					
Maintain is our preferred pathway as the coastal edge along this coastal stretch is largely in a natural state with limited Auckland Council-owned assets and land (limited to pockets of unmaintained reserves) located within hazard prone areas. A no action approach accommodates the provision of ecological corridors and community values. Under both a low and moderate climate scenario, support for coastal accessways can be managed via riparian planting to provide a natural buffer for the coastal margin (if required).					
Implementation notes					
Under a high climate scenario, the need to consider proactive management of risk to road ends to respond to increasing erosion risk may be required.					

5.7: Waiake Beach

This coastal stretch commences just past 65 Rock Isle Road, Torbay (where the rock armouring marks the northern section of Deep Creek inlet) and concludes where Ellangowan Road connects with Waiake Road, covering the entirety of Waiake Beach and associated facilities. The northern end of the reserve is armoured with a shotcrete-faced wall extending north from the boat ramp, which connects to a rock revetment seawall that returns into the stream mouth along the reserve edge. These armouring structures were renewed in 2022. The remaining reserve edge south from the boat ramp is armoured with a rock masonry seawall. (Auckland Council, 2024b).



Figure 10: Renewed rock revetment and shotcrete seawall upgrade, Waiake Beach Reserve

A concrete boat ramp extends across the beach from the center of Waiake Beach Reserve. Aickin Reserve is located on the other side of Beach Road and is a large grassy area used for informal recreation and boat parking. At Aickin Reserve there are two Auckland Council-owned buildings, the Scout Association of NZ - Awatuna Sea Scouts and Torbay Sailing Club. These venues provide for and host a range of outdoor and water-based activities and events. (Awatuna Sea Scouts, 2024). (Yachting NZ, 2024)

Scenarios for change			
Low	Moderate		High
Maintain 	Adaptation priority 	Adaptation priority 	
Explanation Maintain recognises the highly valued coastal connections, assets and open spaces along the coast, accommodating a wide range of uses and facilities, which are exposed to varying degrees of coastal erosion and inundation. Under a low climate change scenario, ongoing maintenance of the coastal edge is required via management of existing protection structures supporting critical infrastructure and community assets of high amenity value (i.e. boat ramps, wharf, Torbay Sailing Club, Awatuna Sea Scouts and associated facilities). However, under a moderate to high climate change scenario ongoing erosion, inundation and catchment flooding within this stretch will become a reoccurring issue, requiring the need for proactive management of hazard risks, allowing for asset function to be maintained to acceptable levels of service. This is particularly relevant for critical roading connections (Beach Road) and infrastructure (Beach 2 pump station). Important community facilities (Torbay Sailing Club and Awatuna Sea Scouts) may be exposed from the short term, and this adaptation strategy does not preclude potential retreat of these facilities before the long term if erosion and inundation impede use of the facilities.			
Implementation notes • Social: Torbay Sailing Club and Awatuna Sea Scouts are well-used community facilities. 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. • Management: A portion of Beach Road is located within this unit and is exposed to hazards. This is an important road which connects suburbs along much of the SAP area. Ongoing collaboration with Auckland Transport will be required under a moderate to high climate change scenario.			

5.8: Waiake Beach to Tipau Point

Stretch 5.8 commences at 919 Beach Road Reserve and concludes at the southern unit boundary, situated at approx. 24 Sharon Road, Waiake. It encompasses residential areas of Waiake / Torbay. Except for a small area of Waiake Beach Reserve (at the southern end of Waiake Beach), the rest of the coastline in this stretch is made up of privately-owned clifftop properties between Torbay and Browns Bay. Sharon Road provides access to these properties.

Scenarios for change			
Low	Moderate		High
No action 	No action 	No action 	
Explanation No action as the coast is predominantly private (absence of Auckland Council land and assets in this stretch).			
Implementation notes • No action regarding coastal defence/ protection structures to fortify the coastal edge does not forego the option to consider management options with Auckland Transport in relation to Sharon Road (in response to coastal erosion).			



Unit 6

Weiti Estuary to Devonport



Torbay

Freyberg Park

Brown Bay Village Green

Orchard Rd

Clifton Rd

Valley Rd

Clyde Rd

Beach Rd

Arillo Rd

Woodland Cres

Glencoe Rd

Sherwood Reserve

Taiātea Reserve

Browns Bay Creek

Browns Bay Beach Reserve

Browns Bay

Roths Bay Beach Reserve

Roths Bay

Lotus Walk

Ti Pau Point / Ōmangaia Pā

Canaan Way to Manly Esplanade

Key coastal connection Lotus walkway

Unit boundary

Stretch

Informal recreation park

Mooring management area

Auckland Council owned land

0 250m 500m

Browns Bay Boating Club

Browns Bay Beach Reserve

Browns Bay Creek

Browns Bay Boating Club

Browns Bay Beach Reserve

Browns Bay Creek

Browns Bay Boating Club

Browns Bay Beach Reserve

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Browns Bay Beach Reserve

Browns Bay Creek

Browns Bay Boating Club

Browns Bay Beach Reserve

Browns Bay Creek

Unit 6: Browns Bay

This unit, located within the Hibiscus and Bays Local Board area, commences near 24 Sharon Road just south of Waiake Beach Reserve and concludes at the southern end of Browns Bay Beach Reserve, including the coastal suburb of Browns Bay. The coastline includes Browns Bay Beach Reserve, Browns Bay Beach, Manly Esplanade (and Lotus walkway) and small sections of Waiake Beach Reserve, fragmented by private properties. Browns Bay Beach Reserve is of high amenity value to the local community, supporting carparking, toilet facilities, pathways, boardwalks, a playground and skatepark, picnic areas and coastal access, both to the foreshore via accessways and to the Waitemata Harbour via a boat ramp.

What is happening? Coastal context and hazardscape

This coastline is typically a low-energy environment, sheltered by Whangaparaoa Peninsula, Coromandel Peninsula, offshore islands and an offshore reef. However, during significant storm events, it can be exposed to moderate wave energies that can erode upper beach sand levels at Browns Bay Beach. This was evident during the 2023 storm events, where the upper beach sand levels at Browns Bay were significantly lowered, resulting in erosion of the reserve edge and triggering the renewal of legacy rock armouring. The Waitematā sandstone cliffs present along this coastline are subject to slow ongoing weathering and erosion, and occasional episodic failures or slips.

The ‘Lotus Walk’ which extends along the cliff top from the northern end of Browns Bay and has been impacted by instability and landslides. Stabilisation works were undertaken in 2018 to enable the walkway to be safely reopened; however, the walkway remains vulnerable to future cliff instability (Urban Solutions Pro, 2024). Transport infrastructure located near to the coast (i.e. low-lying sections of Manly Road) is also vulnerable to coastal inundation under a low climate change scenario.

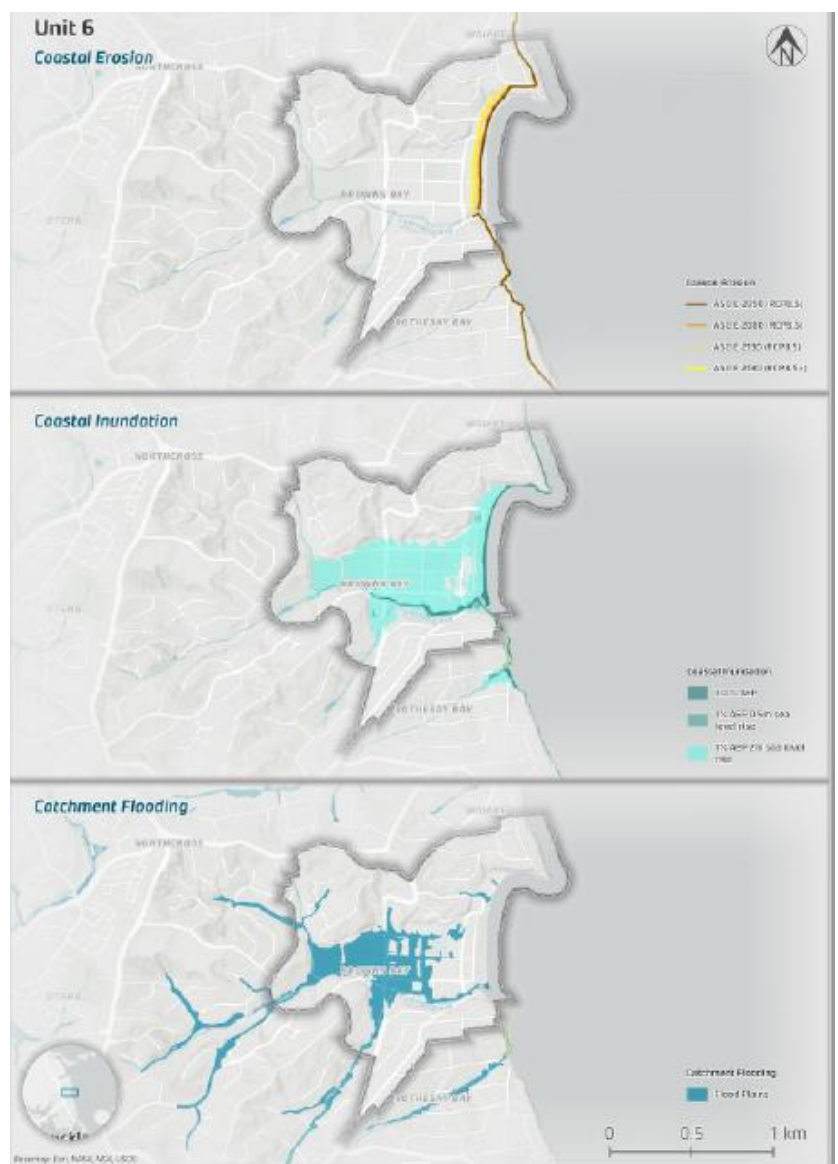


Figure 11: Coastal Hazardscape for the Browns Bay Unit, reflecting coastal erosion susceptibility for 2050, 2080 and 2130 considering RCP4.5 and RCP8.5 emission scenarios, coastal inundation for 1% AEP storm surge for present day and with 0.5 m, 1 m and 2 m sea-level rise and the identification of flood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



Risk assessment

The table below summarises the risk levels for Auckland Council asset types in the short, medium, and long term and which relate to the use of the low, moderate and high climate change scenarios. At the unit level, risk from coastal inundation poses the greatest risk to community facilities and transport infrastructure for the Browns Bay unit.

Unit 6 Council-owned land & assets metrics and associated risk scores (short, medium, long terms)											
Council-owned land			Council community facilities			Transport infrastructure			Water infrastructure		
Park and reserve land (20.9 ha) Buildings, wharves (21 No.)			Park amenity structures, carparks, accessways, buildings (2.1 ha)			AT roads (14.2 km) Bridges (681.3 m ²)			Water pipes (93.3 km)		
Short	Medium	Long	Short	Medium	Long	Short	Medium	Long	Short	Medium	Long
Coastal erosion and instability susceptibility											
Moderate	Moderate	Moderate	Moderate	Moderate	High	Moderate	Moderate	Moderate	High	High	High
Coastal inundation											
Low	Moderate	Moderate	Moderate	High	Very high	Moderate	High	Very high	Moderate	High	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 stretch that may be impacted by coastal hazards (inclusive of catchment flooding) over changing climate scenarios.



- Browns Bay Beach Reserve
- Browns Bay Creek
- Freyberg Park



- Browns Bay Racquets Club Inc
- Browns Bay Women's Bowling Club
- Red Cross Society Incorporated
- St Annes Hall



- Browns Bay pump station



Key pathway connections:

- Lotus Walk, Rothesay to Browns Bay Path
- Primary access to the coast at Browns Bay is provided via Beach Front Lane



Harbour access:

- Browns Bay Valley Road boat ramp
- Waiake Beach Reserve boat ramp
- Dinghy ramp at Browns Bay Valley 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.



- Specific cultural values and outcomes for this unit will be developed through ongoing involvement with local iwi identified in Volume 2. Guiding objectives and outcomes which have informed the development of adaptation strategies have been identified in Volume 2.



- Open space conservation and informal recreation areas within Unit 6 include Browns Bay Beach Reserve, Browns Bay Village Green and Freyberg Park. Freyberg Park is a notable recreational area in Browns Bay, offering various amenities and facilities that cater to the community's needs for sports, leisure, and outdoor activities. These include sports fields used for rugby, soccer, and cricket; tennis courts; playgrounds; walking paths; restrooms; and picnic areas (Auckland Council, 2024c).
- One of the main coastal areas in Unit 6 is Browns Bay Beach, which is highly valued by the local community. This is a long sheltered beach and is a popular spot for swimming, paddleboarding, and other water activities (Discover Auckland, 2024). A large playground and skatepark are situated at the northern end of the beach, and there is a wide boat ramp for boat launching. Additionally, a boardwalk runs along the reserve adjacent to the beach, lined by numerous cafes and restaurants (Discover Auckland, 2024).



- A large portion of Unit 6 is residential. There are only two small patches of indigenous vegetation: one area of coastal broadleaved forest (WF4) along Lotus walkway to the north and one area to the south of Taiāotea Creek. A variety of avifauna have been recorded along this area, including shorebirds, seabirds, and passerine species (eBird New Zealand, n.d.).



- The presence of available open space for walking and running activities was the feature which the greatest number of respondents identified as of value to them. Passive recreation including nature watching is also highly valued. People also enjoy both passive (i.e. swimming), and open water-based activities at Browns Bay Beach including sailing.
- Some respondents have also observed erosion of coastal cliff tops and its impacts on coastal walkways.
- Feedback received for Unit 6 also reflected the importance of the green spaces within this unit. This is highlighted by the volunteer work undertaken by some respondents to clean up the reserve areas.

What can we do about it? Adaptation Strategy Unit 6 Browns Bay

6.1: Ōmangaia Pā / Tipau Point

Stretch 6.1 commences at 24 Sharon Road and concludes just short of Manly Esplanade. The stretch encompasses residential areas of Waiake. Privately-owned clifftop properties line most of the coastline in this stretch, except for several small pockets of Waiake Beach Reserve along the coastal edge. There is a SEA at the small headland.

There is no other Auckland Council-owned land, infrastructure, and assets within the stretch.

Scenarios for change					
Low		Moderate		High	
No action		No action		No action	
					
Explanation					
No action recognises the natural state of the coastal edge and the limited Auckland Council-owned land and assets located within this stretch. Risk to water services under a high climate scenario may need to be specifically detailed within this stretch.					
Implementation notes					
No action regarding coastal defence/ protection structures to fortify the coastal edge does not forego the option to consider management options with Auckland Transport in relation to Sharon Road (in response to coastal erosion).					

6.2: Manly Esplanade (Lotus Walk)

Stretch 6.2 begins at 62 Sharon Road and concludes at the southern boundary of Manly Esplanade. The stretch encompasses Lotus Walk walkway at the north end of Browns Bay Beach.

Lotus Walk is on a small strip of reserve land and connects Sharon Road to Browns Bay Beach via a steep concrete track. The walk is quite vulnerable to erosion and has recently been repaired after extensive damage to the track in the 2023 flood and storm events (rock masonry wall near the base of the track). The small stretch encompasses the residential areas of Browns Bay adjacent to Lotus Walk; these houses are serviced by Clifton Road and Sharon Road. There is no other Auckland Council-owned land, assets, or infrastructure within the stretch. Stretch 6.2 contains Pillboxes (2), which is a heritage site listed as Category A* under the Auckland Unitary Plan (AUP).

Scenarios for change			
Low		Moderate	High
Maintain		Adaptation priority	
Explanation A maintain approach under a low climate change scenario recognises the need to maintain coastal access connections through existing stabilisation works along the coastal edge. Noting the ongoing vulnerability of Lotus Walk to erosion and instability, an adaptation priority area is identified in the medium to long term. This recognises the need to manage increasing levels of risk and achieve coastal connections for the community through proactive planning.			
Implementation notes • Management: Lotus walkway is classified as a significant ecological area. Opportunities to maintain this coastal connection in alignment with community values, whilst providing for ecological corridors (nature-based solutions) may be considered within the implementation of adaptation strategies.			

6.3: Browns Bay Beach Reserve

Stretch 6.3 commences at the southern boundary of Manly Esplanade where the reserve connects with Manly Road and concludes at the southern boundary of Browns Bay Beach Reserve at the end of the unit.

Browns Bay Beach is a highly valued coastal area with a wide range of beachfront amenities including coastguard facility, playgrounds, and boat ramp. Browns Bay pump station is situated adjacent near the beach, adjacent to Taiaotea Stream at the southern end. A boardwalk runs along the length of Browns Bay Beach Reserve and connects to other walking tracks (Lotus Track to the north and Browns Bay to Rothesay Bay Path to the south), providing a pedestrian link along the coastline.

Sherwood Reserve is located inland from Browns Bay Beach and is home to Taiaotea Creek. Freyberg Park contains several sports facilities including tennis courts, basketball courts rugby/general sports fields and bowling facilities. Browns Bay Women's Bowling Club, Browns Bay Racquets Club, Red Cross Society, and St Annes Hall (all Auckland Council-owned buildings) are located in Freyberg Park.

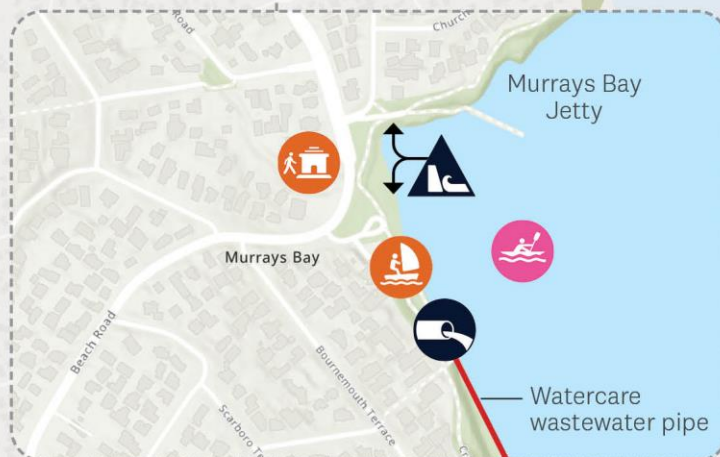
Stretch 6.3 includes Taiaotea Creek which has historic records for inanga, banded kokopu, and longfin eels (Whitebait Connection, 2019). Furthermore, inanga spawning activity was identified in 2019 within the grassy vegetation alongside the stream, adjacent to the Browns Bay Racquets Club (Whitebait Connection, 2019). The coastline along Stretch 6.3 also includes areas of coastal broadleaved forest (WF4).

Scenarios for change			
Low		Moderate	High
Protect		Adaptation Priority	
Adaptation Priority 			
Explanation A protect approach under a low climate change scenario recognises the significance of Browns Bay Beach and Reserve to the local community and aims to support the protection and functionality of existing key community facilities (Browns Bay Marine Centre Trust, St Annes Hall, Browns Bay Racquet Club, Browns Bay playground) in the reserve via maintenance of the existing coastal defence structures. Adaptation priority under a moderate to high climate change scenario recognises the risk to key roading networks and coastal connections (Te Araroa, New Zealand's trail), along with ongoing erosion and inundation of Browns Bay Beach Reserve (plus catchment flooding/ flooding from Browns Bay Creek), supporting the proactive management of assets via realigning, redesigning and/ or relocating assets to manage risk.			
Implementation notes • Management intentions: Reshaping or replanting of the 'naturalised' section of Browns Bay Beach Reserve along with localised landward reconfiguration of assets within the wider reserve area may be provided for under each climate change scenario. • Social: Browns Bay Marine Centre Trust, St Annes Hall and Browns Bay Raquet Club are well-used community facilities. 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. • Ecological: Important ecological features include Taiāotea Creek and areas of coastal broadleaved forest (WF4). Consideration of options to support ecological values/ ecosystems may be provided under all climate change scenarios.			



Unit 7

Weiti Estuary to Devonport



- Unit boundary
 - 7.1 7.2 Stretch
 - Informal recreation park
 - Mooring management area
 - Auckland Council owned land
- 0 250m 500m

Unit 7: Rothesay Bay and Murrays Bay North

This unit, located within the Hibiscus and Bays Local Board area, commences at the southern end of Browns Bay Beach Reserve and concludes just south of Murrays Bay Boat Club, encasing the coastal suburbs of Murrays Bay and Rothesay Bay. This coastline includes Murrays Bay Beach Reserve, Bay Beach, Manly Esplanade (and Lotus walkway) and small sections of Waiake Beach Reserve, Murrays to Rothesay Bay Pathway (Gymdiggers Trail), Churchill Reserve, Rothesay Bay Beach Reserve, Clifftop Walkway Reserve, fragmented by private properties. Rothesay Bay Beach Reserve and Murrays Bay Beach Reserve are each of high-amenity value to the local community, supporting carparking, toilet facilities, pathways, playgrounds, picnic areas and coastal access, both to the foreshore via accessways and to the Waitemata Harbour via boat ramps at both beaches. Murrays Bay sailing club is also situated within this coastal unit. Walkways along the cliff tops of this unit are at risk to ongoing erosion.

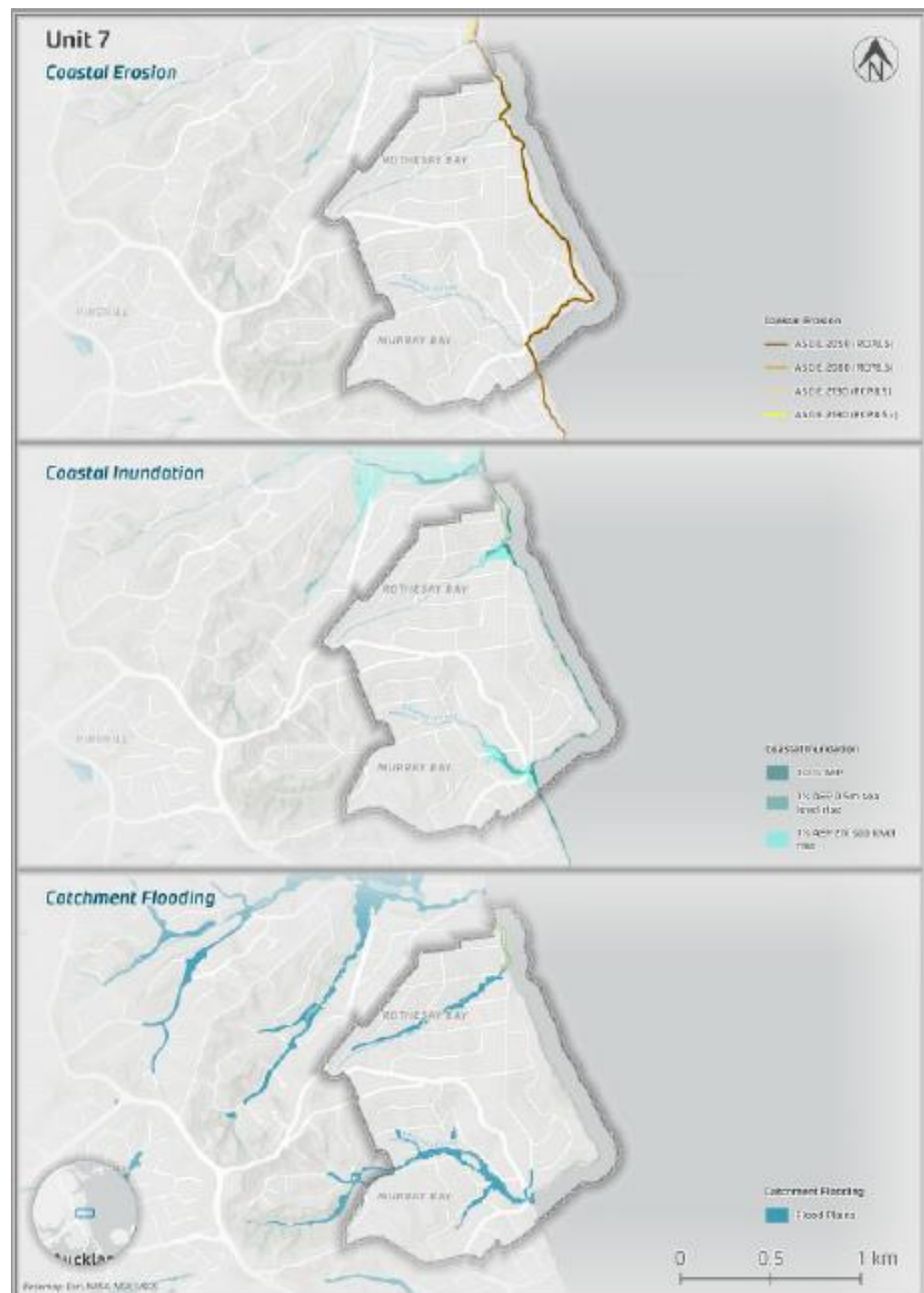


Figure 12: Coastal Hazardscape for the Rothesay Bay and Murrays Bay Unit, reflecting coastal erosion susceptibility for 2050, 2080 and 2130 considering RCP4.5 and RCP8.5 emission scenarios, coastal inundation for 1%AEP storm surge for present day and with 0.5 m, 1 m and 2 m sea-level rise and the identification of flood plains.

What is happening? Coastal context and hazardscape

Like Browns Bay and Long Bay, this coastline is typically a low-energy environment, sheltered by Whangaparaoa Peninsula, Coromandel Peninsula and offshore islands. However, during significant storm events, it can be impacted by moderate wave energies that can result in beach erosion. Streams discharge onto Rothesay Bay and Murrays Bay beaches, and can result in significant beach scour at the stream mouths during extreme rainfall events, following which the beaches recover naturally.



Risk assessment

The table below summarises the risk levels for Auckland Council asset types in the short, medium, and long term and which relate to the use of the low, moderate and high climate change scenarios. At the unit level, risk from coastal inundation poses the greatest risk to community facilities, whilst coastal erosion and instability poses the greatest risk to water infrastructure for the Rothesay Bay and Murrays Bay coastline.

Unit 7 Council-owned land & assets metrics and associated risk scores (short, medium, long terms)											
Council-owned land			Council community facilities			Transport infrastructure			Water infrastructure		
Park and reserve land (8.9 ha) Buildings, wharves (8 No.)			Park amenity structures, carparks, accessways, buildings (0.4 ha)			AT roads (15.5 km) Bridges (1,018.9 m ²)			Water pipes (96.2 km)		
Short	Medium	Long	Short	Medium	Long	Short	Medium	Long	Short	Medium	Long
Coastal erosion and instability susceptibility											
Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	High
Coastal inundation											
Low	Low	Low	Moderate	High	High	Low	Low	Moderate	Low	Low	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 stretch that may be impacted by coastal hazards (inclusive of catchment flooding) over changing climate scenarios.



- Rothesay Bay Beach Reserve
- Churchill Reserve
- Murrays Bay Beach Reserve
- Portal Place



- Outram Hall



- Churchill pump station
- Portal pump station



- **Key pathway connections**
- Murrays to Rothesay Bay Path
- Rothesay to Browns Bay Path
- Clifftop walkway Masterton To Beechwood
- Campbells to Murrays Bay Path Clifftop walkway
- Murrays To Churchill clifftop walkway



- Murrays Bay Beach Road boat ramp
- Rothesay Bay Beach Boat/ dinghy ramp Wharf at Murrays Bay

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.



- Specific cultural values and outcomes for this unit will be developed through ongoing involvement with local iwi identified in Volume 2. Guiding objectives and outcomes which have informed the development of adaptation strategies have been identified in Volume 2



- Notable open spaces include Rothesay Bay Beach Reserve, Churchill Reserve, and Murrays Bay Beach Reserve.
- An esplanade reserve and coastal walkway connects Murrays Bay and Rothesay Bay, serving as a popular route for walkers, joggers, and cyclists from the local community and the wider East Coast Bays area (noting the walkway continues into other units).
- The Gum Diggers walkway (which starts at Murrays Bay Beach Reserve and extends along the waterfront to Rothesay Bay Beach) is a particularly popular walkway which offers seating areas with ocean views and provides for connectivity along the coast for walkers (Auckland Council, 2024e).
- A wharf located at the northern end of Murrays Bay Beach is a popular spot for fishing and wharf jumping. Murrays Bay Sailing Club is located at Murrays Bay Beach Reserve at the southern end of the beach; this is a popular sailing club and provides for sailing lessons, regattas and boat launching and storage. Murrays Bay Beach and associated amenities are of very high value to the local community.



- Unit 7 is primarily residential and there are limited ecological features identified within this unit. These features primarily comprise the coastal cliffs which are lined with coastal broadleaved forest (WF4) (Singers et al., 2017). A variety of avifauna have been recorded along this area, including shorebirds, seabirds, and passerine species (eBird New Zealand, n.d.).



- Feedback received for Unit 7 reflected community awareness of shifts in the coastline, with commentary indicating awareness of the changes caused by coastal erosion and coastal storms. Additionally, community members highlighted concerns about erosion of cliffs and flooding of the pedestrian underpass, emphasising the need for effective flood management and the need to mitigate the impact of coastal erosion on coastal walkways.

When asked what people valued about the Rothesay Bay and Murrays Bay coastal area and what matters most to locals and visitors alike, many described their:

- Use of available open space for walking, running, and cycling activities, with most respondents identifying this feature as of value to them. Several people noted they enjoy bringing their dogs along for a walk.
- Enjoyment of both passive (i.e. swimming), open and active water-based activities including sailing.
- Support of coastal connections (i.e. coastal pathway from Murray's Bay to Mairangi Bay) and ensuring accessibility to the coast and these connections is not restricted.

What can we do about it? Adaptation Strategy Unit 7 Rothesay Bay and Murrays Bay North



7.1: Clifftop walk (Browns Bay to Rothesay)

Stretch 7.1 commences at the northern unit boundary just past Browns Bay Beach Reserve and concludes at Masterton Road, encasing the Masterton to Beechwood clifftop walkway.

Scenarios for change			
Low		Moderate	High
Maintain		Maintain	
			Adaptation priority
			
Explanation			
A maintain approach under a low to moderate climate change scenario supports maintenance of the existing coastal defence structures in this stretch. Localised realignment of pathways within the Clifftop Walkway Reserve – Beechwood Road to Masterton Road may be required to maintain community connectivity in alignment with community values, noting the ongoing risk of cliff instability and erosion for this stretch of coast. A transition to adaptation priority under a high climate change scenario enables the evaluation of risk to existing services that can be sustained within this stretch. This acknowledges the potential need to relocate assets to allow for safe use and access to coastal areas and maintain the amenity of coastal spaces.			
Implementation notes			
• Management: The clifftop walkway along the coast of this stretch makes up part of a wider network of paths (Rothesay to Browns Bay Path) that connects much of the coastline in this SAP area. This walkway is of importance to the local community requiring ongoing consideration in the implementation of strategies.			

7.2: Rothesay Bay

Stretch 7.2 commences at Masterton Road and concludes at the southern end of Rothesay Bay Beach Reserve. Rothesay Bay Beach Reserve is a large, flat green space behind the beach which is used for informal recreation. It includes a toilet block, playground, and carpark. There is a boat ramp at the beach, as well as a seawall adjacent to the carparking area, noting that Rothesay Bay Beach is prone to ongoing erosion.

Scenarios for change			
Low		Moderate	High
Maintain		Maintain	
			Maintain
			
Explanation			
Maintain supports maintenance of the existing coastal defence structures in this stretch under all climate change scenarios, supporting highly valued community assets at Rothesay Bay Beach Reserve (i.e carparking and boat ramp).			
Implementation notes			
• Ecology: Important ecological features include areas of coastal broadleaved forest (WF4), and Rothesay Bay Stream. Opportunities to support ecological corridors via the implementation of coastal adaptation strategies may be considered under all climate change scenarios.			

7.3: Rothesay Bay South

Stretch 7.3 commences at Rothesay Bay Road and concludes at the Churchill Road accessway connecting to Churchill Reserve and includes Rothesay Bay residential areas. A thin strip of Auckland Council-owned reserve runs along the coast for most of this stretch and provides a thin buffer between the cliffs and residential properties. There is no other Auckland Council-owned land, assets, or infrastructure within the stretch.

Scenarios for change		
Low	Moderate	High
No action 	No action 	No action 
Explanation		
No action in relation to coastal defences is reflective of the predominantly private ownership of stretch coastal areas		
Implementation notes		
• Management: No action does not preclude the maintenance of the existing coastal cliff accessways connections, noting that the Murrays Bay to Rothesay Bay Path continues through this stretch but runs slightly inland to follow Rothesay Bay Road for a short stretch before rejoining the coast at Churchill Road. This is part of a wider network of paths that connect much of the coastline in this SAP area, popular with the local and wider community.		

7.4: Clifftop Walkway Reserve – Rothesay Bay to Murrays Bay

Stretch 7.4 commences at the Churchill Road accessway connecting to Churchill Reserve and concludes just shy of Murrays Bay wharf, encasing the entirety of Churchill Reserve. The stretch encompasses residential areas of Murrays Bay. There are three parks / reserves in the stretch: Churchill Reserve, Clifftop walkway – Murrays to Churchill and Portal Place.

The Clifftop walkway – Murrays to Churchill is a thin strip of green space running along the coastline between the cliff and residential properties. Portal Place and Churchill Reserve are larger pockets of open space along the coast which provide for informal recreation and walking. The Murrays Bay to Rothesay Bay Path extends along the coast and connects to a wider network of paths along the coastline in this SAP area. There are also two pump stations in the stretch at Portal Place and Churchill Reserve.

Scenarios for change		
Low	Moderate	High
Maintain 	Adaptation priority 	Adaptation priority 
Explanation		
A maintain approach under a low climate change scenario reflects the need to manage risk through design and location of assets within Churchill Reserve and coastal connections and accessways within Clifftop Walkway Reserve. Acknowledging the importance of coastal walkways and connections along this stretch of coast, a transition to adaptation priority under a moderate to high climate change scenario may be required to facilitate proactive management and evaluate services that can be sustained within this stretch with sea-level rise and coastal hazard risk.		

Scenarios for change		
Low	Moderate	High
Implementation notes		
Management intentions: Under a low climate change scenario, localised realignment of pathways within the Clifftop Walkway Reserve connecting Murrays Bay to Churchill Reserve may be required to respond to cliff instability and erosion. Acknowledging the importance of coastal connections to the local community, ongoing maintenance of walkways must be provided where possible over all climate scenarios.		

7.5: Murrays Bay

Stretch 7.5 commences at Murrays Bay wharf and concludes just south of Murrays Bay Boat Club at the southern end of the coastal unit. The community of Murrays Bay is located further inland; with Beach Road the main road providing access to and through this section of the coast.

Murrays Bay Beach Reserve is an open space area along the beach. There is a boat ramp at the beach and a small toilet/change block as well as carparks along Beach Road, with the southern end of Murrays Bay Beach fortified by a seawall. Murrays Bay Sailing Club (not Auckland Council-owned) is located within this stretch and is a popular sailing club with a clubhouse and boat storage area. On the other side of Beach Road is Outram Hall (Auckland Council-owned) which is a community facility available for hire. There is also a wharf located at Murrays Bay Beach (Murrays Bay Wharf). The wharf is classified as part of the Campbells to Murrays Bay Path and is very popular for fishing and wharf jumping, particularly over summer. This is a highly valued community asset.

Scenarios for change		
Low	Moderate	High
Protect	Maintain	Adaptation Priority
		
Explanation		
Protect under a low climate change scenario reflects ongoing maintenance and protection of the coastal edge, supporting defence of community assets of high amenity value (i.e. boat ramp, reserve facilities and accessways) from increasing coastal hazard risk. Maintain under a moderate climate change scenario allows for ongoing maintenance of community spaces and coastal protection structures in the medium term, whilst enabling an opportunity to transition to adaptation priority which reflects the need to evaluate services that can be sustained within the Murrays Bay Beach Reserve with sea-level rise and coastal hazard risks.		
Implementation notes		
Management: Sections of Beach Road are exposed to hazards within this stretch. This is an important local road which provides for connectivity throughout the SAP area. Auckland Transport, the asset manager, will be engaged to understand how adaptation strategies may impact on operation of this asset. Social: Murrays Bay Sailing Club is located on the coast and uses the boat ramp that is exposed from the short term. Engagement is recommended to understand how implementation of adaptation strategies may impact on the operation of these facilities, and how impacts could be managed. Management: The Campbells to Murrays Bay Path extends along the stretch, connecting to other paths which run north-south through the SAP area. Noting this is a highly valued coastal connection, ongoing consideration of this walkway will be required across all climate change scenarios.		



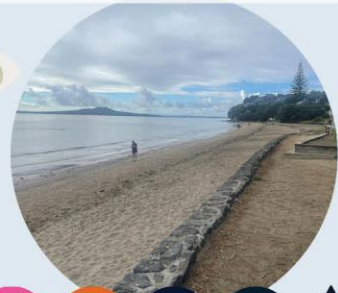
Unit 8

Weiti Estuary to Devonport

Mairangi Bay Beach is a highly valued coastal hotspot, featuring a range of facilities including a playground, coastal access (dingy ramp), walkways, Watercare assets and the Mairangi Bay surf club. Mairangi Bay stream prone to flooding and coastal inundation



Highly valued community connections along coast both clifftop walkway and along the top of the sewer pipeline



Mairangi Bay Beach Reserve

Key walking connection and beach access

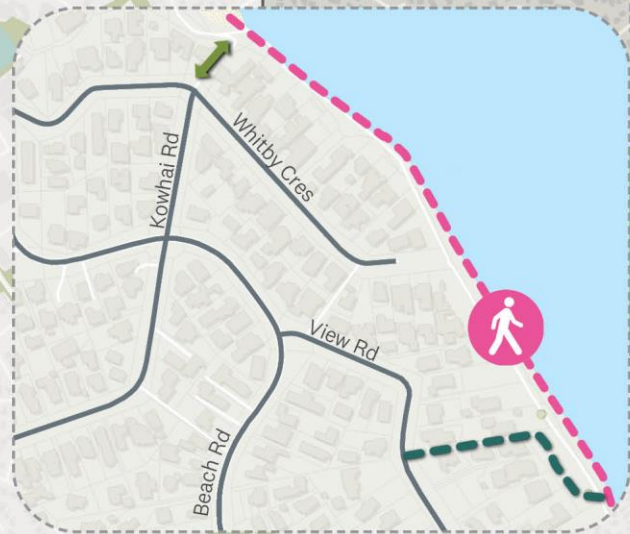
Coastal access Campbells Bay, small water craft

Campbells Bay



Campbells Bay Reserve

Key coastal access connection



- Unit boundary
- 8.1 8.2 Stretch
- Informal recreation park
- Mooring management area
- Auckland Council owned land

0 0.5 1km

Unit 8: Mairangi Bay and Campbells Bay

This unit, located within the Hibiscus and Bays Local Board area, commences just south of Murrays Bay Boat Club and concludes at the southern unit boundary, situated at approx. 197 Beach Road, Campbells Bay, and includes the coastal suburbs of Mairangi Bay and Campbells Bay. The coastline includes Mairangi Bay Beach Reserve, Possum Ladder Park, Campbells Bay, Beach Reserve and Huntly Road Reserve (Campbells Bay Esplanade Reserve) fragmented by private coastal properties. Located further inland from the coast is Mairangi Bay Park, Centennial Park, and Pupuke Golf Course. Key community facilities and harbour access facilities are located at Mairangi Bay Beach and Campbells Bay Beach, each highly utilised spaces valued by local communities and visitors alike. The unit's coastline includes an important water reservoir, situated further back from the coast.

What is happening? Coastal context and hazardscape

Whangaparaoa Peninsula, Coromandel Peninsula, and offshore islands particularly Aotea (Great Barrier Island), shelter this coastline from the full exposure to open coast wave energies. While this coastline is typically low energy, during significant events it receives moderate and on occasion, high wave energies. Murrays Bay, Mairangi Bay and Campbells Bay are impacted by shorter period waves generated by strong onshore winds that can impact coastal structures and result in beach erosion.

Streams discharge onto Murrays Bay, Mairangi Bay and Campbells Bay beaches, and can result in significant beach scour at the discharge points during extreme rainfall events. A footbridge provides for pedestrian access over the stream mouth at the southern end of Campbells Bay, noting that there is also a footbridge over the stream towards the mouth at Mairangi Bay. The abutments of this structure, which is located in the coastal environment, are armoured with rock revetments. Murrays Bay, Mairangi Bay and Campbells Bay are also armoured with rock revetment and rock masonry seawalls that provide protection to the adjacent reserve land from coastal processes. Repair works on the Mairangi Bay rock masonry seawalls were undertaken in recent years following storm damage. A renewed rock masonry seawall was constructed at Murrays Bay in 2024 in response to storm-related failure of the previous seawall.



Figure 13: Figure 14: Mairangi Bay beach, stream mouth, and Waitemata sandstone cliffs immediately north (Source: Matthew McNeil)

Unit 8's coastline is exposed to relatively long fetch distances from the northeast to east angles, with Waitemata sandstone cliffs present along its coastline making the area prone to slow, ongoing weathering and erosion, and occasional episodic failures or slips.

In 2017, the Crows Nest walkway along the cliff top between Murrays to Mairangi Bay was impacted by a slip. In response, cliff and walkway stabilisation works were undertaken to enable the walkway to reopen. However, the walkway is likely to be further impacted by cliff instability and erosion over time. Encased trunk sewer lines extend along the foreshore at the toe of the cliffs between Mairangi Bay to Murrays Bay, and between Mairangi Bay to Campbells Bay. While not designed to have an erosion protection function, these structures do provide some buffer to the adjacent cliff toe from wave attack.

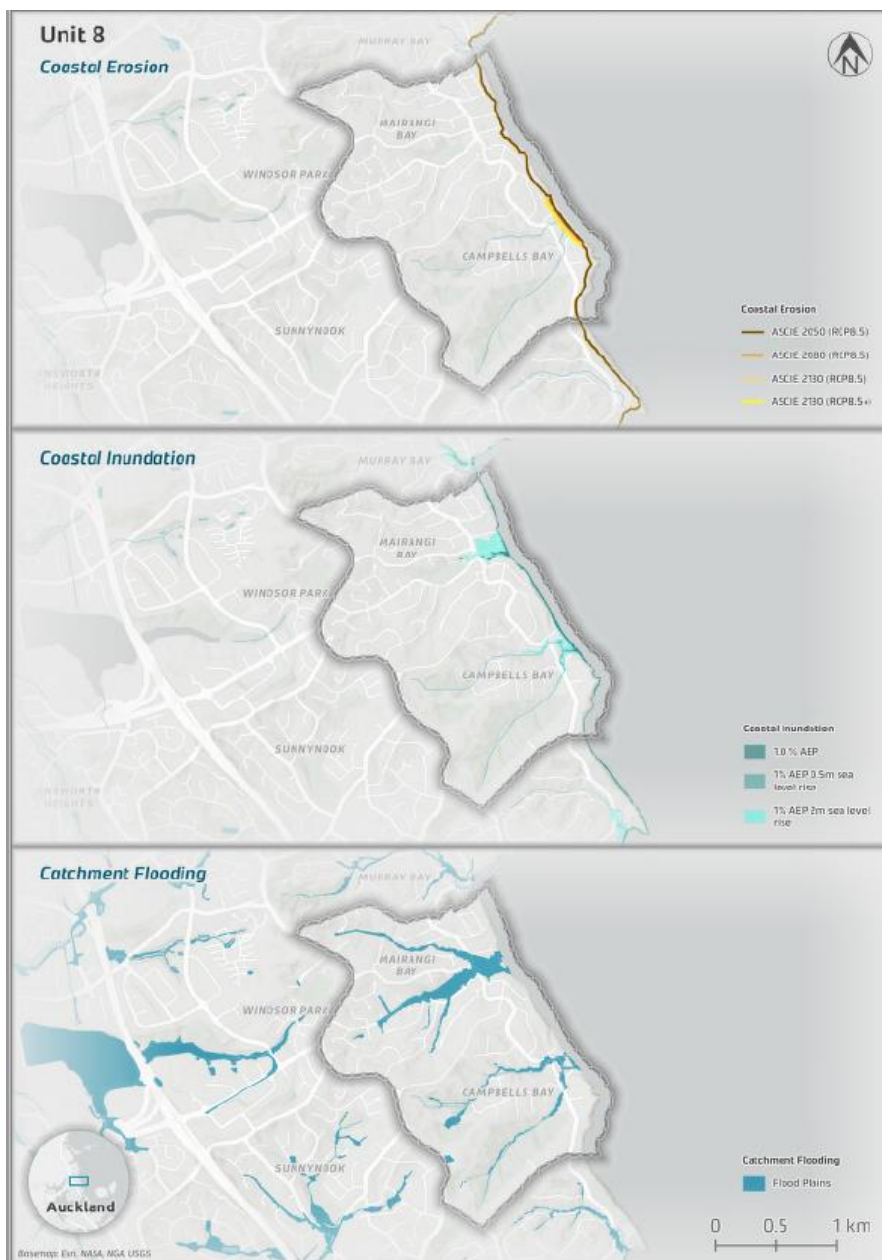


Figure 15: Coastal Hazardscape for the Mairangi Bay & Campbells Bay Unit, reflecting coastal erosion susceptibility for 2050, 2080 and 2130 considering RCP4.5 and RCP8.5 emission scenarios, coastal inundation for 1%AEP storm surge for present day and with 0.5 m, 1 m and 2 m sea-level rise and the identification of flood plains.



Risk assessment

The table below summarises the risk levels for Auckland Council asset types in the short, medium, and long term and which relate to the use of the low, moderate and high climate change scenarios. At the unit level, water infrastructure is the most at risk to coastal erosion, whilst Council community facilities are the most prone to coastal inundation.

Unit 8 Council-owned land & assets metrics and associated risk scores (short, medium, long terms)											
Council-owned land			Council community facilities			Transport infrastructure			Water infrastructure		
Park and reserve land (84.9 ha) Buildings, wharves (20 No.)			Park amenity structures, carparks, accessways, buildings (1.2 ha)			AT roads (24.3 km) Bridges (79.7 m ²)			Water pipes (166.8km)		
Short	Medium	Long	Short	Medium	Long	Short	Medium	Long	Short	Medium	Long
Coastal erosion and instability susceptibility											
Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Low	Low	Low	Moderate	High	High
Coastal inundation											
Low	Low	Moderate	Moderate	Moderate	High	Very low	Low	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 stretch that may be impacted by coastal hazards (inclusive of catchment flooding) over changing climate scenarios.



- Murrays Bay Beach Reserve
- Mairangi Bay Beach Reserve
- Mairangi Bay Park
- Montrose Terrace
- Sidmouth Street
- Sidmouth Street
- Possum Ladder Park
- Campbells Bay Esplanade Reserve
- Huntly Road Reserve
- Centennial Park - Campbells Bay



- The recently upgraded Sidmouth pump station, encased trunk sewer line provides for pedestrian access over the stream mouth at the southern end of Campbells Bay and through to neighbouring beaches/ bays. The abutments of this structure, which is located in the coastal environment, are armoured with rock revetments.



Key pathway connections

- Highly valued coastal walking tracks include Campbells to Murrays Bay Path (informal walking track), Crows Nest walkway, Possum Ladder walkway, Centennial Park Path.
- Footbridges provide for pedestrian access over the streams at Mairangi Bay and Campbells Bay. (Note the large recreational wharf at Murrays Bay is actually located in Unit 7, however it is very much a Murrays Bay asset).



Harbour Access

- Key coastal access to the coast is provided via the boat ramps at Murrays Bay and Mairangi Beach, with small craft/ boat-dingy access ramps at Campbells Bay Esplanade and Huntly Road Reserve on the side of the estuary. There is also a small boat ramp at The Esplanade, situated at the southern end of this unit.

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.



- Specific cultural values and outcomes for this unit will be developed through ongoing involvement with local iwi identified in Volume 2. Guiding objectives and outcomes which have informed the development of adaptation strategies have been identified in Volume 2.



- Mairangi Bay village centre – located off Beach Road.
- Key community uses – Murrays Bay Sailing Club, Centennial Park and associated walkways (also Campbells Bay Tennis Club is within Centennial Park), Pupuke Golf Course (not Auckland Council-owned) and Campbells Bay Reserve and walking tracks, Mairangi Bay Surf Club (located at the southern end of Mairangi Bay Beach Reserve).
- Beaches and coastal connections – Murrays Bay Beach, Mairangi Bay Beach and Campbells Bay Beach and associated coastal walking tracks and play facilities.



- Unit 8 is also primarily dominated by residential dwellings with few ecological features of note. Within Unit 8 is Centennial Park, a recreational area that contains an area of tawa, kohekohe, rewarewa, hīnau podocarp forest (WF13 – Regionally Vulnerable) and supports several threatened vascular plant species (Hursthouse, 2005). A variety of avifauna have been recorded along this area, including shorebirds, seabirds, and passerine species (eBird New Zealand, n.d.).



- The presence of available open space for walking and running was the feature which the greatest number of respondents identified as of value to them. Passive recreation including nature watching is also highly valued. People also enjoy passive water-based activities at Mairangi Bay including swimming and playing in the water.
- Reflecting on what people valued, aspirations for the Mairangi Bay and Campbells Bay included:
 - Support from some respondents for ‘hold the line’ strategies, with most respondents supporting the maintenance of protection structures. In the more immediate short term, the use of limited intervention is generally supported.
 - Improving management of local streams and waterways where possible, to address concerns regarding pollution.

What can we do about it? Adaptation Strategy Unit 8 Murrays Bay to Campbells Bay

8.1: Murrays Bay to Mairangi Bay

This coastal stretch commences just south of Murrays Bay Boat Club at the northern end of the coastal unit and concludes at Montrose Terrace, just shy of Mairangi Bay Beach. Sections of Mairangi Bay Beach reserve are situated within this coastal stretch, featuring Montrose Terrace clifftop pathway (Crows Nest Rise Walk) which provides coastal connectivity from Mairangi Bay to Murrays Bay. The encased trunk sewer at the toe of the cliff is informally used for pedestrian access along the foreshore. Both walkway connections are highly valued by the local community.

Scenarios for change			
Low		Moderate	High
Maintain 		Adaptation priority 	Adaptation priority 
Explanation A maintain approach under a low climate change scenario enables the short-term maintenance of highly valued coastal walkways. A transition to adaptation priority under a moderate to high climate change scenario reflects the ongoing coastal erosion and instability risk to highly valued coastal connections and the need for proactive management of assets.			
Implementation notes • Management: Encased trunk sewer lines extend along the foreshore at the toe of cliffs between Mairangi Bay and Murrays Bay. Noting that this is not a formal walkway, this is still perceived as a popular route between the two beaches (as well as connecting to other beaches along this SAP area) by the local community. Consideration of maintaining coastal connections via management of this asset will be required across all climate change scenarios, noting ongoing engagement with Watercare will be required.			

8.2: Mairangi Bay Beach

This coastal stretch commences at Montrose Terrace road end and concludes at approx. 36 Whitby Crescent, Mairangi Bay. It includes the community of Mairangi Bay as well as the entirety of Mairangi Bay Beach.

Rock masonry seawalls extend along the length of the beach, with a rock revetment armouring the reserve to the south of the stream mouth. The main community facility at Mairangi Bay Beach (Auckland Council-owned) is Mairangi Bay Surf Lifesaving Club. This club is the base for volunteer surf lifesaving services along much of the North Shore beaches and runs junior surf training and surf lifesaving events (Mairangi Bay Surf Lifesaving Club (Inc), n.d.). There is a public boat ramp at Mairangi Bay Beach which is also used by the Surf Lifesaving Club.

Scenarios for change			
Low		Moderate	High
Maintain		Adaptation priority	Adaptation priority
			
Explanation			
Maintain under a low climate change scenario supports the maintenance of existing coastal protection structures (rock revetment and rock masonry seawall at Mairangi Bay Beach Reserve) whilst facilitating the localised landward realignment of services at increasing coastal erosion and inundation risk particularly regarding assets such as the Surf Lifesaving Club and the encased sewer pipeline. Adaptation priority under a moderate to high climate change scenario recognises the need to manage risk to assets from coastal erosion and inundation risk with sea-level rise and allow for key activities and uses to be designed and relocated for their safety and function in proximity to the coastal edge. This includes consideration of the pump station, reserves and associated carparking. Adaptation strategies set out for this stretch align with Mairangi Bay Beach Reserve Plan, noting ongoing engagement with the local park's team is taking place.			
Implementation notes			
• Management: The Mairangi Bay Beach Reserve Management Plan 2015 and associated Concept Plan is being updated (<i>notification of such planned for early April – to be confirmed following Local Board business meeting on 25 March</i>) to provide direction on adapting to increasing coastal hazards that will impact the reserve as a result of climate change. The reviewed Concept Plan identifies a preferred landward location for the Surf Lifesaving Club building which is up for renewal, closing Montrose Terrace where it crosses the reserve, and future landward realignment of the reserve edge to maintain high tide beach space. The future realigned reserve edge will be informed by triggers such as increasing loss of dry high tide beach space and increasing maintenance requirements for the existing seawall. • Social: Mairangi Bay Surf Club is a well-used community facility. Ongoing engagement with this highly valued community facility will be required across all climate change scenarios.			

8.3: Mairangi Bay to Campbells Bay (inc Possum Ladder Park)

This coastal stretch commences at approx. 36 Whitby Crescent, Mairangi Bay and concludes at the southern boundary of Possum Ladder Park, encompassing Possum Ladder Park - a small strip of open space along the clifftop with a flight of stairs leading down to the beach. Residential areas of Campbells Bay / Mairangi Bay are adjacent to Possum Ladder. The encased trunk sewer at the toe of the cliff between Mairangi Bay and Campbells Bay is informally used for pedestrian access between these beaches.

Scenarios for change			
Low	Moderate		High
Maintain 	Adaptation priority 	Adaptation priority 	
Explanation A maintain approach under a low climate change scenario provides for safe public coastal accessways along the coast in response to the current hazardscape (i.e. erosion and inundation risk to the Possum Ladder Park stairs, which provide for access to the beach). Adaptation priority under a low to moderate climate change scenario recognizes the challenge of safely accommodating accessways in response to projected coastal erosion and inundation risk with sea-level rise.			
Implementation notes • Management: While the Possum Ladder Park stairs provide access to the beach, the main beach access points to Campbells Bay are from The Esplanade and Huntly Road Reserve. Maintaining and repairing the stairs as needed to extend the life of this asset may be possible under this pathway. • Management intentions: The encased trunk sewer line in this stretch is exposed to erosion under a low climate change scenario, a maintain approach allows for maintenance and repair of the trunk sewer line as required. Ongoing engagement with Watercare to manage this asset will be required.			

8.4: Campbells Bay

This coastal stretch begins at the southern boundary of Possum Ladder Park and concludes at Huntly Road end (approx. 25 Huntly Road, Campbells Bay), encasing Campbells Bay Beach. This stretch culminates at the southern side of the stream mouth which experiences some coastal inundation, near 25 Huntly Road. The stretch includes Campbells Bay community.

Campbells Bay Beach is a sheltered beach which is popular with the local community. It is accessed from two carparking areas at The Esplanade and Huntly Road. There is a strip of reserve land between each carpark and the beach, allowing for beach access. Apart from these areas, the rest of the beachfront is lined by privately-owned properties and seawalls. At Huntly Road Reserve, there is a playground and toilet block as well as a footbridge over Campbells Bay Stream which has rock revetments along the stream banks at the bridge abutments. The Esplanade has a small boat ramp.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Adaptation priority 
Explanation A maintain approach under a low to moderate climate change scenario allows for ongoing maintenance of coastal protection structures (rock revetment and rock masonry seawall within this stretch). A transition to adaptation priority under a high climate change scenario signals the need to consider risks to assets and uses within Campbells Bay Reserve and Huntly Road Reserve in response to sea-level rise and inundation risk.		
Implementation notes • Ecological: Within Stretch 8.4 there are several small, scattered patches of mapped terrestrial significant ecological area. Ongoing consideration of providing for ecological corridors in the implementation of adaptation strategies is possible across all climate change scenarios.		

8.5: Campbells Bay Esplanade Reserve South

This coastal stretch begins at Huntly Road end (approx. 25 Huntly Road, Campbells Bay) and concludes at the southern unit boundary, situated close to 197 Beach Road, Campbells Bay. The stretch encompasses residential areas of Campbells Bay. Most of the coastline is lined by privately-owned clifftop properties, although there are several pockets of esplanade reserve located along these cliffs (i.e. Campbells Bay Esplanade Reserve - provides for coastal access from road ends).

A significant area of green space in this stretch is Centennial Park, a large reserve within the suburb of Campbells Bay set back slightly from the coast (includes Pupuke Golf Club, Mairangi Playcentre, Campbell Bay Tennis Club, walking tracks and a nature trail, along with a diversity of highly significant ecosystems). Popular walking tracks include Centennial Park Path and Centennial Park Nature Path. While this park is set slightly back from the coast, it is highly valued by the local community, including by the volunteer group who help maintain it.

Scenarios for change		
Low	Moderate	High
No action 	No action 	No action 
Explanation A general approach of no action for coastal management will be applied along this stretch of coast, allowing for a focus on maintaining a natural coastal edge.		
Implementation notes • Management intentions: No action does not preclude the maintenance of the existing coastal accessways where present within this stretch.		



Unit 9

Weiti Estuary to Devonport



Kennedy Point accessway - highly valued coastal walkway prone to land instability and ongoing erosion

Kennedy Park



Castor Bay



Wairau Creek - Community commentary on ecological values associated with Wairau Creek and the need to factor in water quality and holistic catchment management into planning approaches (community groups active in restoration efforts)

Milford supports a range of highly valued coastal hotspots, from Milford Beach Front Reserve with a range of community facilities, coastal connections and boat access points, through to Milford Marina, a significant area in the context of the Making Space for Water work program. Milford and the wider catchment is prone to catchment flooding and coastal inundation, a significant issue likely to worsen with sea level rise.

Thorne Bay



Milford to Takapuna coastal walkway - highly valued by local communities and visitors alike

Thorne Bay Beach

Minnehaha Ave

Lake Pupuke

- Unit boundary
- 9.1 9.2 Stretch
- Informal recreation park
- Mooring management area
- Auckland Council owned land

0 0.5 1km

Unit 9: Castor Bay & Milford

This unit, located within the Devonport – Takapuna Local Board area, commences at Beach Road Campbells Bay and concludes past Thorne Bay Beach (Minnehaha Avenue Takapuna), including the coastal suburbs of Castor Bay and Milford. The coastline includes Kennedy Park, Castor Bay Beach, Milford Marina, Milford Beach and Thorne Bay Beach, fragmented by private coastal properties and both formal and informal coastal walkways. Key community facilities and harbour access facilities are located at Castor Bay Beach, Milford Marina and Milford Beach Reserve, with these spaces supporting a range of recreational activities from water sports through to picnicking.

What is happening? Coastal context and hazardscape

Basaltic reefs extend offshore from the southern end of Milford Beach and act as wave-focusing features. These features dissipate some wave energy before it reaches the adjacent shoreline. During storm events and elevated water levels, Milford Beach receives significant wave energies that can result in beach erosion.

Castor Bay and Milford Beach are armoured with rock masonry, rock revetment, and concrete seawalls. Milford beachfront is armoured with a mix of private seawalls along the beachfront properties, and Auckland Council-owned seawalls along the sections of reserve. Minor repair works to the rock masonry seawalls armouring reserve along Milford Beach have been undertaken in recent years in response to storm damage (Auckland Council, 2024b). Due to the seaward position and footprint of the private seawalls at Milford, for much of the beach's length there is no dry high tide beach space. This restricts public access at high tide, and makes the beach vulnerable to the impacts of storm events and sea-level rise. Windblown beach sand builds up against the northwest corner of the seawall at Castor Bay, and in strong easterly winds blows over the wall onto the road. As an operational response, Auckland Council periodically relocates the sand from where it accumulates against the seawall, and redistributes it towards low tide along the beach to the south.



Figure 16: Castor Bay Beach and boat ramp

A boat ramp provides for launching of vessels from Castor Bay Beach. During heavy rainfall events, beach scour from a large storm water outfall that discharges alongside the ramp, can impact usability of the ramp. A timber staircase connecting Kennedy Park Reserve to the beach below failed

during a slip triggered by the January 2023 storm. The Devonport Takapuna intend to reinstate this accessway as reflected in resolution number DT/2024/200.



Figure 17: Council and private seawalls, stormwater outfall, and basalt intertidal reef, Milford Beach (Source: Matthew McNeil)

Sand levels at Castor Bay and Milford Beach are dynamic in response to coastal processes. Castor Bay is more sheltered with reduced wave energies, due to its southeastern orientation and associated reduced fetch, and due to sheltering by Kennedy Point (Rahopara Pā) and an adjacent reef. However, during storm events and elevated water levels, Milford Beach receives significant wave energies that can result in beach erosion. Beach profile surveys undertaken at Milford Beach since 1998 show no trend of any significant net beach accretion or erosion. The Waitematā sandstone cliffs present along the coastline of this unit are subject to slow, ongoing weathering and erosion, with occasional episodic failures or slips occurring. The basalt coastline extending south from Milford Beach is more resilient to coastal processes, with resulting slow rates of coastal erosion (NZ Transport Agency, 2024).

This unit includes properties which following the 2023 storm events, are now [categorised as high-risk](#). Decisions on the future use and management of this land 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.

Wairau Valley's flood resilience project is identified under Auckland Council's 'making space for water' (blue green networks). This project is addressing flooding risk for homes and roads and improving stormwater flow and making the network more resilient. Further information can be found [here](#). Ongoing collaboration with Healthy Waters to ensure alignment in the implementation of adaptation strategies set out for Unit 9 will be required across all climate change scenarios.

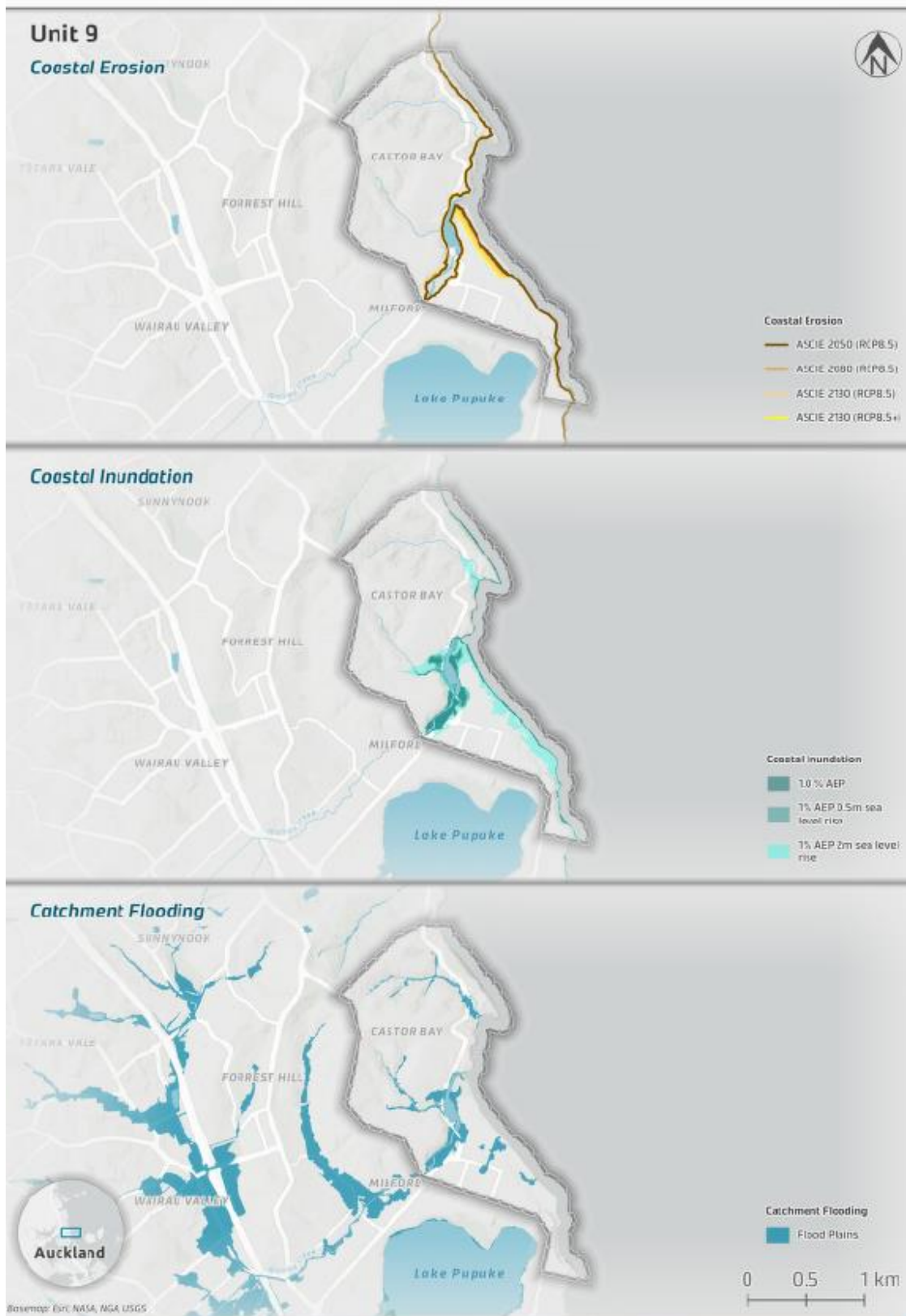


Figure 18: Coastal Hazardscape for the Milford Unit, reflecting coastal erosion susceptibility for 2050, 2080 and 2130 considering RCP4.5 and RCP8.5 emission scenarios, coastal inundation for 1%AEP storm surge for present day and with 0.5 m, 1 m and 2 m sea-level rise and the identification of flood plains.



Risk assessment

The table below summarises the risk levels for Council asset types in the short, medium, and long term and which relate to the use of the low, moderate and high climate change scenarios. At the unit level, Council community facilities groupings are the most at risk to coastal inundation and coastal erosion, reflective of the highly valued facilities located in close proximity to the coastal margin along the wider Castor Bay Milford unit.

Unit 9 Council-owned land & assets metrics and associated risk scores (short, medium, long terms)											
Council-owned land			Council community facilities			Transport infrastructure			Water infrastructure		
Park and reserve land (15.6 ha) Buildings, wharves (28 No.)			Park amenity structures, carparks, accessways, buildings (1.1 ha)			AT roads (20.9 km) Bridges (311.3 m ²)			Water pipes (116.6 km)		
Short	Medium	Long	Short	Medium	Long	Short	Medium	Long	Short	Medium	Long
Coastal erosion and instability susceptibility											
Moderate	Moderate	Moderate	Very high	Very high	Very high	High	High	High	High	High	High
Coastal inundation											
Moderate	Moderate	Moderate	High	Very high	Very high	High	High	High	Moderate	High	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 stretch that may be impacted by coastal hazards (inclusive of catchment flooding) over changing climate scenarios.



- Beach Road Reserves
- Brian Byrnes Reserve
- Castor Bay Beach Reserve
- Commodore Parry Reserve
- Kennedy Park
- Milford Beach Front Reserve
- Milford Reserve
- Rahopara Pā (Kennedy Point)
- Thornes Bay
- Wairau Estuary Reserve



- Milford Sea Scouts
- Kennedy Park Observation Post
- Pétanque facility at Kennedy Park



- Beach 1 pump station
- Black Rock pump station
- Castor Bay pump station
- Craig pump station
- Omana pump station
- Thornes Bay wastewater pump station



- Key pathway connections:**
- Kennedy Park to Castor Bay Path
 - Milford to Castor Bay Path
 - Milford to Takapuna Path
 - Kennedy Park to Castor Bay Path
 - Milford to Castor Bay Path
 - Milford to Takapuna Path
 - Minnehaha Avenue Accessway



Key roading connections: Milford, Inga, Omana, Cecil, and Saltburn Roads

Harbour access:

- Boat ramp at Milford Reserve; Wairau Estuary Reserve boat ramp; boat ramp – Milford Beach Front 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.



- Rahopara Pā – of high cultural significance to local iwi.
- Specific cultural values and outcomes for this unit will be developed through ongoing involvement with local iwi identified in Volume 2. Guiding objectives and outcomes which have informed the development of adaptation strategies have been identified in Volume 2.
- Te Ākitai Waiohū have Statutory Acknowledgement over the Thorne Bay Recreation Reserve (Refer deed plan OMCR-131-034), as per the Deed Of Settlement between Te Ākitai Waiohū and the Crown. The immediacy of the Thorne Bay Recreation Reserve to Tīkapa Moana (Hauraki Gulf) underscores the importance of this vital resource, means of communication and 'living entity' to Te Ākitai Waiohū. The Thorne Bay Recreation Reserve further serves to bind Te Ākitai Waiohū to Pupukemoana (Lake Pupuke) immediately inland to the west, and thence to Te Kopua a Matakamokamo and Te Kopua a Matakerepo to the south: All three bodies being intrinsically bound to the vulcan deity Mataaoho, whom Te Ākitai Waiohū claim as an ancient tupuna. Additionally, Pupukemoana is a footstep of Mataaoho and a 'twin' that at one time closely resembled Te Pūkaki Tapu o Poutūkeka (Pūkaki Lagoon), the historic tidal lagoon and volcanic tuff crater in Mangere.



- Milford Sea Scouts also operate from a building on Milford Reserve (City of Takapuna, 1985).
- Kennedy Park features a playground and historical World War II gun emplacements and tunnels, which are accessible to the public (Auckland Council, 2024). Deformed Waitematā strata at Kennedy Park is scheduled as an Outstanding Natural Feature in the AUP.
- Milford Reserve, at the northern end of the beach, includes amenities including picnic tables, BBQ areas and a playground. This beach is also home to the Milford Cruising Club.
- Milford Marina is situated at Milford Reserve.
- Three coastal walkways provide for walking access along the length of the unit (and connect into other units) serving as popular routes for walkers, joggers, and cyclists. The coastal paths form part of the Greater North Shore Coastal Walk which is 31.4 km in length (Outdoor Access Commission, 2024). It spans from Long Bay (Unit 4 to Unit 13).
- Lake Pupuke is located landward of the coast and is an explosion crater from one of the oldest known volcanoes in the Auckland Volcanic Field. Lake Pupuke is an Outstanding Natural feature (identified in the Auckland Unitary Plan) and is an important feature of the urban landscape, highly valued by communities for a range of activities and uses.



- The peninsula located to the north of Castor Bay is largely classified as coastal broadleaved forest (WF4) which continues along the western slopes of the estuary. A variety of avifauna have been recorded along this area (eBird New Zealand, n.d.). Threatened shorebird species, including variable oystercatcher and seabird species, including white-fronted tern utilise the Milford Reserve and the coastal environment to the east (eBird New Zealand, n.d.).
- Inland from the coast within the Sylvan Reserve, a small remnant of Pūriri forest (WF7) is identified on the shores of at Lake Pupuke. This carries a regional IUCN threat status of Critically Endangered.



- The presence of scenic spaces for walking and running was the feature which the greatest number of respondents identified as of value to them. A number of respondents valued the proximity of natural spaces to their homes. Passive recreation including nature watching, picnicking and sunbathing is also highly valued.
- Maintaining existing, and establishing new access to popular areas such as Milford Beach and Kennedy Bay was important.
- Reducing and managing pollution from and within Wairau Stream (i.e. rubbish and sediments), with commentary noting that runoff from Wairau Creek was associated with a decline in ecology in the area. Local residents in Milford expressed an interest in the use of mangroves for improving water quality, with an interest regarding fish passage and whitebait spawning grounds around Wairau Creek.

What can we do about it? Adaptation Strategy Unit 9 Castor Bay and Milford

9.1: Campbells to Kennedy Park

Stretch 9.1 commences at the northern unit boundary, close to 197 Beach Road, Campbells Bay and concludes just shy of Kennedy Park. This stretch is mainly made up of private clifftop properties.

Scenarios for change		
Low	Moderate	High
No action 	No action 	No action 
Explanation		
A no action approach recognises that the coastal edge along this stretch is composed solely of private properties with no known Auckland Council-owned assets or land present within hazard-prone areas.		
Implementation notes		
N/A – no Auckland Council-owned assets or land present		

9.2: Kennedy Park & Walkway

Stretch 9.2 commences at the northern boundary of Kennedy Park and concludes at Rahopara Pā (Kennedy Point). It includes residential areas of Campbells Bay and Castor Bay, Kennedy Park and Kennedy Point, two connected reserves. Kennedy Park to Castor Bay Path runs along this reserve land. It provides beach / coastal access down the escarpment bordering the park. Rahopara Pā contains a toilet block and there is a groyne adjacent to Rahopara Pā.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Adaptation priority 
Explanation		
Maintain recognises the need to provide for coastal connections and accessways whilst reflecting the ongoing coastal erosion and instability risk to assets. A transition to adaptation priority under a high climate change scenario recognises the ongoing risk to assets and accessways (with increased coastal instability and sea-level rise) allowing assets and infrastructure function to be maintained to acceptable levels of service and risk to land uses managed appropriately through location or design.		
Implementation notes		
Management: There is a need to retain the open space character of Kennedy Park, protect the natural character of the coastal environment and prioritise informal recreation activities (City of Takapuna, 1985). Cultural: Rahopara Pā is of high cultural value to local iwi. Ongoing engagement with local iwi will be required across all climate change scenarios. Management: A timber staircase connecting Kennedy Park to the coast at the base of the cliffs has failed several times due to slips. The stairs failed again in recent storm events and have yet to be repaired. Over the last year, geotechnical engineers investigated slope instability issues associated with Kennedy Point staircase. Ongoing engagement with Auckland Council Parks Team to ensure alignment in the management of this asset will be required, acknowledging conversations taking place in parallel with the Devonport – Takapuna Local Board.		

9.3: Castor Bay Beach

Stretch 9.3 commences at Rahopara Pā (Kennedy Point) north of Castor Bay Beach and concludes at Beach Road accessway. Castor Bay Beach is a small and sheltered beach, primarily serving the local community. The surrounding area of this stretch includes residential properties in Castor Bay, with access provided by Beach Road and The Esplanade. Castor Bay pump station is located adjacent to The Esplanade, which also provides direct access to the beach via a boat ramp and accommodates a carpark.

Castor Bay Beach Reserve includes green space, picnic tables, seating, a playground, and public toilet facilities located at the northern end of the beach. The Kennedy to Castor Bay Pathway terminates at Castor Bay Beach Reserve, while the Milford to Castor Bay Pathway begins at this location (connecting to the south and west to Beach Road). A seawall runs along the edge of the pathway and northern portion of The Esplanade Road Reserve (from the north) And a further seawall (a separate structure) armours the edge of the park access road which runs parallel to the beach front area south of The Esplanade Road end.

Scenarios for change					
Low		Moderate		High	
Maintain		Adaptation priority		Adaptation priority	
Explanation A maintain approach under a low – moderate climate change scenario recognises the need to provide for coastal connections and accessways whilst reflecting the ongoing coastal erosion and instability risk to assets. Maintain provides for the continued use of coastal protection (currently present within this coastal stretch), and the continued support for uses (including park access roads which traverse the stretch) while enabling flexibility in the design and alignment of the coast through the renewal of coastal structures, which support both amenity outcomes for the beach space and use outcomes for the reserve area and coastal access. A transition to adaptation priority under a moderate climate change scenario recognises the highly valued urban beach and reserve area and the assets and accessways located within this area.					
Implementation notes • Cultural: Rahopara Pā and the adjoining coast is of high cultural value to local iwi. Ongoing engagement with local iwi will be required across all climate change scenarios. • Maintain provides for the continued use of coastal protection structures while enabling flexibility in the design and alignment of the coast through the renewal of coastal structures. • Management of risk to uses and assets should also consider the design and location of assets in response to coastal hazards and catchment flood exposure. • Adaptation priority will require proactive identification of uses, key values (such as dry high-tide beach space) and options to manage risk and protect the values identified for this coastal stretch. This will require engagement and collaboration between iwi, communities and asset owners. • Local board views: Devonport Takapuna local board supports the protection of Castor Bay Beach as an important community open space and coastal asset.					

9.4: Castor Bay Beach to Wairau Creek

Stretch 9.4 commences at Beach Road accessway at Castor Bay and concludes at Beach Road Reserve. It encompasses residential areas of Castor Bay. The coastline is privately owned, consisting of clifftop residential properties with several small patches of reserve land.

Scenarios for change					
Low		Moderate		High	
No action		No action		No action	
Explanation					
A no action approach reflects the limited presence of Auckland Council land and assets within this stretch.					
Implementation notes					
• Ecology: The coastline of Stretch 9.4 is mapped as terrestrial SEA and is classified as coastal broadleaved forest. A no action approach supports the provision of ecological corridors across this stretch. • Management: The Milford to Castor Bay Path extends along the stretch, adjacent to Beach Road. Providing for ongoing coastal connections via this pathway may be accommodated within this stretch. No action in relation to management of the coastal edge does not preclude the ability to manage coastal connections.					

9.5: Wairau Creek (Milford Marina) to South of Inga Road

Stretch 9.5 commences at Beach Road Reserve (approx. 1 Beach Road, Castor Bay) and concludes just south of Inga Road. This stretch is located within Milford community which is a residential area with a commercial centre, one of the larger commercial areas within this SAP area.

This stretch includes a number of important community assets and Auckland Council-owned features. Parks and reserves include Beach Road Reserves, Commodore Parry Reserve, Brian Byrnes Reserve and sections of Wairau Estuary Reserve (inclusive of the Wairau Estuary Reserve carpark and boat ramp just shy of Inga Road).

Inland of Wairau Creek, Brian Byrnes Reserve is an open space area which is home to Milford Bowling Club and associated clubrooms and carparking areas (Auckland Council-owned) as well as Seaview pump station. It is also home to Milford Marina which has around 419 berths, offers gated access and security, 7-day ferry service to Auckland, private bathroom and laundry facilities, and power / water services to the berths (Milford Marina, 2024). There is carparking along Inga Road providing access to the marina, and a small boat ramp for dinghies.

Scenarios for change					
Low		Moderate		High	
Maintain		Maintain		Adaptation priority	
Explanation					
A maintain approach under a low to moderate climate change scenario provides for the ongoing maintenance and protection of the coastal edge via existing coastal protection structures, supporting critical infrastructure and community assets of high amenity value (i.e. boat ramps, carparking, and Milford Marina). Adaptation priority under a high climate change scenario may be required to manage increasing inundation risk to coastal reserves, existing services, and community facilities. Key facilities including community buildings in Brian Byrnes Reserve and the boat ramp are exposed to erosion and inundation under all climate scenarios, and proactive relocation of these facilities may need to be considered from a moderate change scenario when functional use of these facilities is impacted.					
Implementation notes					
• Management: Inga Road bridge and adjoining roads sit within the inundation and erosion area of this stretch, a key consideration acknowledging that Inga Road Bridge forms a critical part of the transport network. Initial engagement with Auckland Transport on Inga Road Bridge has taken place during the development of the Weiti Estuary to Devonport SAP to ensure alignment in management approaches, noting that Inga Road Bridge is coming up for its replacement design phase. Ongoing collaboration with Auckland Transport will take place across all climate scenarios to ensure alignment in strategies. • Ecological: For several years, restoration efforts have been undertaken at the estuary to help restore the habitat. Despite the largely modified nature of the surrounding catchment and the historic degradation that has occurred, a total of nine species of freshwater fish has been recorded from this stream (Conservation Volunteers New Zealand, n.d.) (Auckland Council, 2020). Acknowledging community aspirations for restoration of Wairau Catchment, opportunities for natural-based solutions may be factored into decision making. • Management: Wairau Catchment may be subject to further action funded under the Blue Green/ Making Space for Water Catchment Programme to respond to flood risk. Ongoing collaboration with Healthy Waters, manager of this programme of work, will be required across all climate scenarios to ensure alignment in management approaches.					

9.6: Wairau Creek (Inlet)

Stretch 9.6 commences just south of Inga Road, covering the Wairua Estuary inlet from Inga Road, to Kitchener Road and back up the eastern side of the creek, concluding at the eastern boundary of Wairau Estuary Reserve (19 Omana Road Milford). Sections of Wairau Estuary Reserve make up this stretch, with accessways connecting to Wairau Estuary Reserve off of Kitchner Road. This stretch is located within Milford community which is a residential area with a commercial centre, one of the larger commercial areas within this SAP area. The Wairau Valley flood resilience project, part of our Making Space for Water Programme is located within the landward stormwater catchment.

Scenarios for change			
Low		Moderate	
High			
Maintain		Maintain	
		Adaptation priority	
Explanation			
A maintain approach recognises the need to maintain critical roading connections and coastal walkways in this stretch of coast, with a transition to adaptation priority under a high climate scenario reflective of the risk of catchment flooding and coastal inundation to critical infrastructure located in proximity to the coast. This approach aligns with taking place as part of the 'Making Space for Water' catchment programme and recovery actions. SAPs, as living documents, will be updated as decisions are made on the land and management of catchment flood risk.			
Implementation notes			
• Management: Omana Road bridge and adjoining roads sit within the inundation and erosion area of this stretch, a key consideration acknowledging that Omana Road forms a critical part of the transport network. Ongoing collaboration with Auckland Transport will take place across all climate scenarios to ensure alignment in strategies. • Ecological: For several years, restoration efforts have been undertaken at the estuary to help restore the habitat. Despite the largely modified nature of the surrounding catchment and the historic degradation that has occurred, a total of nine species of freshwater fish has been recorded from this stream (Conservation Volunteers New Zealand, n.d.) (Auckland Council, 2020). Acknowledging community aspirations for restoration of Wairau Catchment, opportunities for natural-based solutions may be factored into decision making. • Management: Wairau Catchment may be subject to further actions funded under the Blue Green/ Making Space for Water Catchment Programme to respond to flood risk. Ongoing collaboration with Healthy Waters, manager of this programme of work, will be required across all climate scenarios to ensure alignment in management approaches. Further detail is provided in Section 2.0 'what is happening' in <i>Shoreline Adaptation Plan: Weiti Estuary to Devonport Peninsula Volume 2: Introduction to the SAP area</i>. • NOTE: This area includes properties, which following the 2023 storm events, are now categorised as high-risk. Decisions on the future use and management of this land 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.			

9.7: Milford Centre, Beach & Reserve

Stretch 9.7 commences at the western boundary of Wairau Estuary Reserve (19 Omana Road, Milford) and concludes at Craig Road, Milford, just past Milford Reserve. The coastal stretch covers the entirety of Milford Reserve, and Milford Beach Front Reserve.

Milford Reserve, which is a large area of open space at the north end of Milford Beach, provides areas for informal recreation as well as a playground, toilets and two Auckland Council buildings which are home to Milford Sea Scouts and Milford Bowling Club. Carparking at the reserve is available along Craig Road. There is a groyne extending from the reserve near the mouth of Wairau Creek, and a small boat ramp next to the groyne provides for small boat access to the beach.

Scenarios for change			
Low	Moderate		High
Maintain 	Adaptation priority 	Adaptation priority 	
Explanation A maintain approach reflects the highly valued amenity of the natural coastal edge, where coastal protection structures may impact this amenity and coastal function. The preference is to manage risk to assets and uses through location and design of assets. Inundation risk (including sea-level rise) under a moderate climate change scenario recognises the need to proactively consider the design, location and potential for managed realignment of some uses and services, resulting in an adaptation priority area being identified.			
Implementation notes • Management: Milford Road, Cecil Road and Saltburn Road are in this stretch which forms a part of the transport network. Ongoing collaboration with Auckland Transport will take place across all climate scenarios to ensure alignment in strategies. • Management: Milford Sea Scouts and Milford Bowling Club are located within Milford Reserve. Ongoing engagement with community groups will be required to ensure implementation of adaptation strategies aligns with community uses and values. • Management: Milford to Castor Bay Path ends at Milford Reserve and the Milford to Takapuna Path commences at Milford Reserve; both are very popular walkways. Maintaining key coastal connections across all climate scenarios will be required to ensure alignment with community feedback and aspirations. • Local board views: Devonport Takapuna local board supports the protection of Milford Beach and reserve areas as an important community open space and coastal space.			

9.8: Onemaewao Milford Beach (East)

Stretch 9.8 commences at Craig Road Milford, just past Milford Reserve, and concludes at Saltburn Road and accessway. Roads servicing the coastal residential areas include Craig Road, Milford Road, Holiday Road, Cecil Road (boat ramp off of Cecil Road). Seawalls present along the entire shoreline protect private properties and roads.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation A maintain approach across all climate scenarios recognises highly valued coastal connections and walking tracks to and along Milford Beach, enabling the maintenance of carparking and key access points off of Craig Road, Milford Road, Holiday Road and Cecil Road in response to coastal inundation and erosion risk over all climate scenarios.		
Implementation notes Management: Milford Road, Cecil Road and Saltburn Road are in this stretch which forms part of the transport network. Ongoing collaboration with Auckland Transport will take place across all climate scenarios to ensure alignment of strategies.		

9.9: Oceanview to Black Rock Point

Stretch 9.9 commences at Saltburn Road (and accessway) and concludes at Thorne Bay Park encompassing residential areas around Thorne Bay and Milford. The park is a thin strip of land along most of the length of this stretch, providing a buffer between the coastline and residential properties. Key roading connections include Ocean View Road, Audrey Road, Muritai Road and Tiri Road.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Adaptation priority 
Explanation A maintain approach under a low to moderate climate change scenario recognises the presence of highly valued coastal connections (Milford to Takapuna Path within Thorne Bay Park), along with critical infrastructure (wastewater pipeline and pump station). A maintain approach under a low-moderate climate change scenario allows for maintenance of access to the coast via Auckland Council-owned landholdings and road ends. However, with increased coastal erosion and coastal inundation under a high climate scenario impacting the functionality of assets and infrastructure, a transition to adaptation priority will facilitate the need to consider the location of assets to manage risks. Water infrastructure may require specific management responses and associated coordination with Watercare.		

Scenarios for change		
Low	Moderate	High
Implementation notes		
• Management: Water infrastructure (wastewater pipeline) within this stretch may require specific management responses and associated coordination with Watercare. This asset extends along the foreshore, often encased or behind a seawall • Community interest in coastal connections: While walking access facilitated by the Watercare wastewater pipeline is not the primary role of this asset, this informal walking connection is highly valued by the local community. Communities and local boards seek engagement when considering options for the future management of the pipeline, and the coastal access and walking connections that this pipeline currently facilitates. • Local board views: Devonport Takapuna local board supports the protection of this stretch of coastline, reflective of the highly valued coastal connections located within this stretch.		

9.10: Thorne Bay Beach

Stretch 9.10 commences at the southern end of Thorne Bay Park and concludes at Minnehaha Avenue, Takapuna. It extends along the coast of Thorne Bay, culminating south of Minnehaha Avenue accessway. The stretch encompasses residential areas and the Milford to Takapuna Path continues along the stretch. Parkland and reserves in the stretch include Thorne Bay and Minnehaha Avenue accessway. Reserve land forms a thin buffer along the coast in most places, with some exceptions where private property directly abuts the coast. There are seawalls intermittently along the stretch, protecting private property and the coastal walkway.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Adaptation priority 
Explanation		
A maintain approach under a low to moderate climate change scenario reflects the need to manage risk to road reserves and coastal accessways (i.e. Minnehaha Avenue accessway) providing access to the coastal margin of this stretch, noting management of risk through redesign and location of assets and uses is preferred to the use of coastal protection structures. Adaptation priority under a high climate change scenario may be required to manage increasing inundation risk to coastal reserves, existing services, and community facilities (walking track – Milford to Takapuna pathway).		
Implementation notes		
• Management: Water infrastructure (wastewater pipeline) within this stretch may require specific management responses and associated coordination with Watercare. This asset extends along the foreshore, often encased or behind a seawall (<i>*while not a formal walking connection, this asset is highly valued by the local community as an informal walkway</i>). • Cultural: Te Ākitai Waiohū have Statutory Acknowledgement over the Thorne Bay Recreation Reserve as discussed in the unit context above. Direct kanohi ki te kanohi engagement and consultation with Te Ākitai Waiohū will be required across all climate scenarios.		



Unit 10

Weiti Estuary to Devonport



Hauraki Gulf /
Tikapa Moana

Takapuna Beach Reserve

Highly valued coastal
accessways along the
coastal margin provide
access to and along
Takapuna Beach.

The coastline at Takapuna is
highly valued by many for its
large open spaces, grassy spots,
play facilities, sandy shores, boat
launching facilities, and coastal
walkways.



- Unit boundary
- 10.1 10.2 Stretch
- Informal recreation park
- Mooring management area
- Auckland Council owned land

0 250 500m

Unit 10: Takapuna

This unit, located within the Devonport – Takapuna Local Board area, commences south of Thorne Bay Beach (Minnehaha Avenue, Takapuna) and concludes at Hauraki Road end south of Takapuna Beach, including the coastal suburb of Takapuna. The coastline includes highly-valued Takapuna Beach accessways and coastal walkways, Caravan Park (The Promenade), and Takapuna Beach itself. A large all-tide boat ramp is located to the north of Takapuna Beach, extending from a reclaimed area that provides for trailer parking. A ramp for launching handheld craft extends onto the beach from Takapuna Beach Reserve, that provides for the Takapuna Boating Club and events at this site.

What is happening? Coastal context and hazardscape

While this coastline is typically low energy, during significant events it receives moderate and on occasion, high wave energies, with sections of the coastal margin having armoured seawalls. Basalt reefs extend offshore from the northern end of Takapuna Beach and act as wave-focusing features in some areas dissipating wave energy before it reaches the adjacent shoreline in other places. Beach profile surveys undertaken at Takapuna Beach since 1998, show no trend of any significant net beach accretion or erosion. However, during storm events and elevated water levels, large volumes of seaweed can be deposited on the beach. This deposited seaweed breaks down and remobilises naturally. The walkway adjacent the Caravan Park (The Promenade) is armoured with a rock masonry seawall. Takapuna Beach is armoured with a mix of private seawalls along the beachfront properties, and Auckland Council-owned seawalls along the sections of reserve.

During storm events and elevated water levels, Takapuna Beach receives significant wave energies that have the potential to result in beach erosion. There is a slight trend of beach face steepening evident in recent years during the La Nina phase from 2020 – 2023, however despite public concerns raised regarding low sand levels on the beach, post the La Nina phase, it has been left to recover naturally with no operational interventions undertaken.



Figure 19: Takapuna Beach



Figure 20: Takapuna basaltic shoreline with Takapuna Beach and Waitemata sandstone cliffs in the background



Figure 21: Coastal Hazardscape for the Takapuna 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 and which relate to the use of the low, moderate and high climate change scenarios. At the unit level, Council community facilities groupings are the most at risk to coastal inundation, reflective of the highly valued facilities located in close proximity to the coastal margin along the wider Takapuna unit.

Unit 10 Council-owned land & assets metrics and associated risk scores (short, medium, long terms)											
Council-owned land			Council community facilities			Transport infrastructure			Water infrastructure		
Park and reserve land (5.3 ha) Buildings, wharves (13 No.)			Park amenity structures, carparks, accessways, buildings (1.0 ha)			AT roads (6.0 km) Bridges (0 m ²)			Water pipes (35.4 km)		
Short	Medium	Long	Short	Medium	Long	Short	Medium	Long	Short	Medium	Long
Coastal erosion and instability susceptibility											
Low	Low	Moderate	Moderate	High	High	Low	Low	Moderate	High	High	High
Coastal inundation											
Low	Low	Moderate	High	Very high	Very high	Very 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 stretch that may be impacted by coastal hazards (inclusive of catchment flooding) over changing climate scenarios.



- The Strand
- Blomfield Spa
- Sanders Avenue
- Park Avenue
- Ewen Street Hauraki Road
- Takapuna Beach Park
- Hurstmere Green
- Gould Reserve
- The Caravan Park (Reserve land)



- **Community facilities:** Auckland Council-owned buildings for commercial use (Takapuna Beach café) and waka ama clubs e.g. the Taniwha Outrigger Canoe club.
- Takapuna Boating Club (Council-owned building)
- The Strand (Traffic Office)
- Takapuna Library
- The Strand Council Office
- Mary Thomas Centre



- Wastewater pipeline extending along the foreshore, often encased or behind a seawall, (forming part of an informal walkway).



Key connections:

- O'Neills Avenue and Brett Avenue accessways.
- Roads: The Strand, Blomfield Spa, Sanders Avenue, Park Avenue, Ewen Street.
- The Takapuna to Devonport walking and cycling path runs through Stretch 10.3.
- Takapuna Beach Path runs along this stretch and connects to other paths such as the Milford to Takapuna Path, however this is an informal path along the beach rather than a formed path.

**Harbour access:**

- Key boat launching facility (boat ramp) and associated car park supporting boat/ trailer parking and access to Takapuna Beach. Seawall protection along this coastline serves to armour the campground, boat trailer parking and the boat ramp.
- Gould Reserve Boat Ramp.

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



- Te Uru Tapu (the Sacred Grove) occupies a remnant coastal pōhutukawa forest pocket to the northern tip of Takapuna Beach, bounded by the boat ramp and adjoining carpark. The grove is comprised of old growth specimens that pre-date settlement, and were utilised by successive iwi in their pursuit of traditional funerary tikanga and kawa.
- Specific cultural values and outcomes for this unit will be developed through ongoing involvement with local iwi identified in Volume 2. Guiding objectives and outcomes which have informed the development of adaptation strategies have been identified in Volume 2.



- The popular Milford to Takapuna Path extends along the coastline.
- This unit encompasses Takapuna Holiday Park (located on Auckland Council-owned reserve).
- Waka ama groups.
- Stretch 10.2 contains the former Post Office, including outbuilding (B) and former Takapuna Automatic Telephone Exchange (B), which are heritage sites listed as heritage features under the AUP (Auckland Council, 2016).
- Takapuna Beach Park at the northern end of Takapuna Beach. This is a large open space that is well-used for informal recreation, particularly over the summer months.
- Takapuna Boating Club is a highly valued community organisation, supporting lessons and hosting triathlons and national championships over the years.



- Unit 10 is a small unit which covers Takapuna Beach and the residential land closest to the ocean. There is only one small remnant of original pōhutukawa trees (WF4) called Te Uru Tapu at the northern end of Takapuna Beach. There are areas of intact reef systems located below the cliff line which support a particularly diverse association of marine flora and fauna species (Turner & Schwarz, 2006).



- Coastal erosion impacts the usability of coastal spaces, reducing land availability for walking (impacting the usability of coastal connections) while seaweed has been known to accumulate and decay, contributing to unpleasant odours (post coastal storms).
- Feedback identified the importance of walkway/ accessway connections both to and along the coast, along with key local road connections which provide access to these networks, highlighting the need for proactive management of highly used connections in light of coastal hazards impacts.
- Community feedback identified a noticeable increase in stormwater runoff, carrying pollutants directly onto the beach, with an emphasis on water pollution increasing during rain and lacking any current containment or management systems.
- Commentary that the loss of natural barriers (like vegetation and trees) combined with unregulated construction is destabilizing the coastline. Riparian planting and ecological buffer zones are critical to reversing or slowing this trend.

What can we do about it? Adaptation Strategy Unit 10 Takapuna

10.1: Takapuna Beach Accessways

This coastal stretch commences at 25 Minnehaha Avenue, Takapuna and concludes just short of Caravan Park (The Promenade).

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Adaptation priority 
Explanation A maintain-focused approach reflects the need to manage risk to Auckland Council-owned assets (accessways, wastewater pipeline, reserve, and boat ramp) and uses at the coastal edge. Management of risk through design and location of assets and uses is preferred to coastal protection structures. Increasing inundation and erosion risk to highly valued coastal connections and critical infrastructure necessitates the transition to adaptation priority, enabling consideration of proactive relocation of exposed assets where required.		
Implementation notes Acknowledging the importance of highly utilised coastal accessways, the maintenance and ongoing provision of accessways to the coast will be a central focus under all climate scenarios.		

10.2: The Promenade (Boat access & Caravan Park)

This coastal stretch commences at the coastal end of Earnoch Avenue on the northern boundary of Caravan Park and concludes just past The Promenade on the southern boundary of Caravan Park.

Scenarios for change		
Low	Moderate	High
Protect 	Protect 	Adaptation Priority 
Explanation Protect as this stretch includes key boat launching facilities and supports a range of highly valued and utilised community facilities, as well as coastal connections and access points to and along Takapuna Beach. Modification of the coastal edge and presence of existing protection structures supports the preservation of coastal access and continued maintenance of community facilities in response to coastal erosion, with the coastline fixed in its current location. Under a moderate climate scenario, inundation exposure will continue to increase and the management of risk to some uses near the coastal edge may be required (utilising design and location of activities) or further protection measures employed to mitigate impacts from coastal inundation. With projected rates of sea-level rise exacerbating the severity of coastal erosion and frequency of coastal inundation impacting the use of landward areas under a high climate change scenario, adaptation priority area is identified due to the highly valued nature of this coastal connection and harbour access infrastructure. Maintaining boat access within this stretch is anticipated across all climate change scenarios.		

Scenarios for change		
Low	Moderate	High
Implementation notes		
- Waka ama groups and the Takapuna Holiday Park are community uses of this coastal area, which is subject to increasing coastal hazard exposure under a moderate change scenario. Engagement with these organisations will be required to understand how implementation of adaptation strategies may impact on their operation, and how impacts could be proactively managed. Cultural: Te Uru Tapu (the Sacred Grove) occupies a remnant coastal pōhutukawa forest pocket to the northern tip of Takapuna Beach, bounded by the boat ramp and adjoining carpark (discussed in further detail in the unit write-up). Regarding adaptation pathways set out above, local iwi (namely Te Akitai Waihoua) have advocated for full digital mapping and modelling to be facilitated and undertaken in advance of the anticipated impacts of sea-level rise and coastal processes being fully realised, to help mitigate impacts on this culturally significant site.		

10.3: Takapuna Beach North (The Promenade to The Strand)

Stretch 10.3 commences at The Promenade Road and concludes at The Strand road end. This stretch includes Takapuna Beach Reserve which is armoured with coastal protection structures. This highly used and valued beach reserve includes play facilities, leased areas (Takapuna Boating Club) walkway connections and multiple coastal access points, including two boat ramps.

Scenarios for change			
Low	Moderate	High	
Protect	Adaptation priority	Adaptation priority	
			
Explanation			
Under a low to moderate climate change scenario, the maintenance of existing coastal defence structures (seawalls) enables protection of the coastal edge through existing hard protection structures. Under a moderate and high climate scenario, the increasing exposure of the armoured coastal edge and highly valued community facilities, park reserve area and assets to coastal inundation will require further engagement with multiple partners and stakeholders to determine the preferred outcomes and identify and evaluate options to achieve these outcomes. Adaptation priority is identified to reflect the importance of the beach amenity, grassed reserve areas and the highly valued nature of this space to iwi and the wider community. Early and well-planned engagement will be necessary to successfully plan management of risk from coastal hazards and sea-level rise for Takapuna Beach.			
Implementation notes			
Protect: Supports the continued maintenance of existing protection and coastal access structures, noting Takapuna Beach front itself is a dynamic environment and renewal of assets will need to respond to identified hazard impacts and design and location of assets and uses should also be considered to manage risk. Cultural: Regarding adaptation pathways set out above, local iwi (namely Te Akitai Waihoua) have advocated for full digital mapping and modelling to be facilitated and undertaken in advance of the anticipated impacts of sea-level rise and coastal processes being fully realised. Adaptation priority: Will require engagement with multiple parties and stakeholders to consider preferred outcomes and identify and evaluate the options to achieve these outcomes in relation to managing risk to uses and assets within the northern areas of Takapuna Beach.			

10.4: Takapuna Beach central & south (The Strand to Hauraki Road)

Stretch 10.4 commences south of The Strand Road end and boat ramp and concludes at Hauraki Road end. It includes numerous accessways interspersed with privately-owned residential beachfront properties. Small pockets of reserve land at road ends (Blomfield Spa, Sanders Avenue, Park Avenue, Ewen Street) provide highly valued access to and from the beach.

Scenarios for change					
Low		Moderate		High	
Maintain		Adaptation priority		Adaptation priority	
Explanation					
Under a low climate change scenario, maintain provides for flexible design and risk-based maintenance of existing coastal defence structures (seawalls) at road ends and accessways. Maintain supports the ongoing protection of safe access to and along the coast, in a manner which is responsive to the character and amenity of Takapuna Beach. Maintain confirms ongoing access while enabling increased flexibility in alignment, design and consideration of nature-based and eco-engineering solutions alongside hard protection options. Under a moderate and high climate scenario, increasing exposure of accessways, road ends and associated assets to coastal inundation and erosional processes identifies the need for adaptation priority. This will enable an integrated understanding of how Takapuna Beach may respond to climate change and sea-level rise impacts (including Stretch 10.3 to the north) and signals the need for engagement with third party land owners, assets owners, iwi and communities.					
Implementation notes					
• Maintain: Maintain and protect access to the coast (Takapuna Beach accessways) and support maintaining existing protection and coastal access structures, noting Takapuna beachfront itself is a dynamic environment and provides for a range of beach and water-based activities.					



Unit 11

Weiti Estuary to Devonport



Unit 11: St Leonards Beach

This unit, located within the Devonport – Takapuna Local Board area, commences at Hauraki Road end south of Takapuna Beach and concludes at 18A Hamana Street, Narrow Neck, encasing St Leonards Beach. The majority of this coastal stretch is made up of private property, fragmented by coastal Auckland Council reserves with assets set back from the coastal edge. Highly valued coastal walkways continue along the coastline in this unit.

What is happening? Coastal context and hazardscape

The coastline becomes more protected towards its southern end, due to the sheltering effects of Rangitoto Island. While this coastline is typically low energy, during significant events it receives moderate and on occasion, high wave energies.

Other than accessing the coastline within this unit at lower tides from Takapuna Beach, limited foreshore access is available to this section of coastline. A previous foreshore access staircase from Westwell Street Reserve failed in recent storm events. Aside from a short length of rock masonry seawall at the St Leonards Beach access point, there are no further Auckland Council-owned protection structures along the Unit 11 coastline. However, there are several private cliff retaining or seawall structures present.

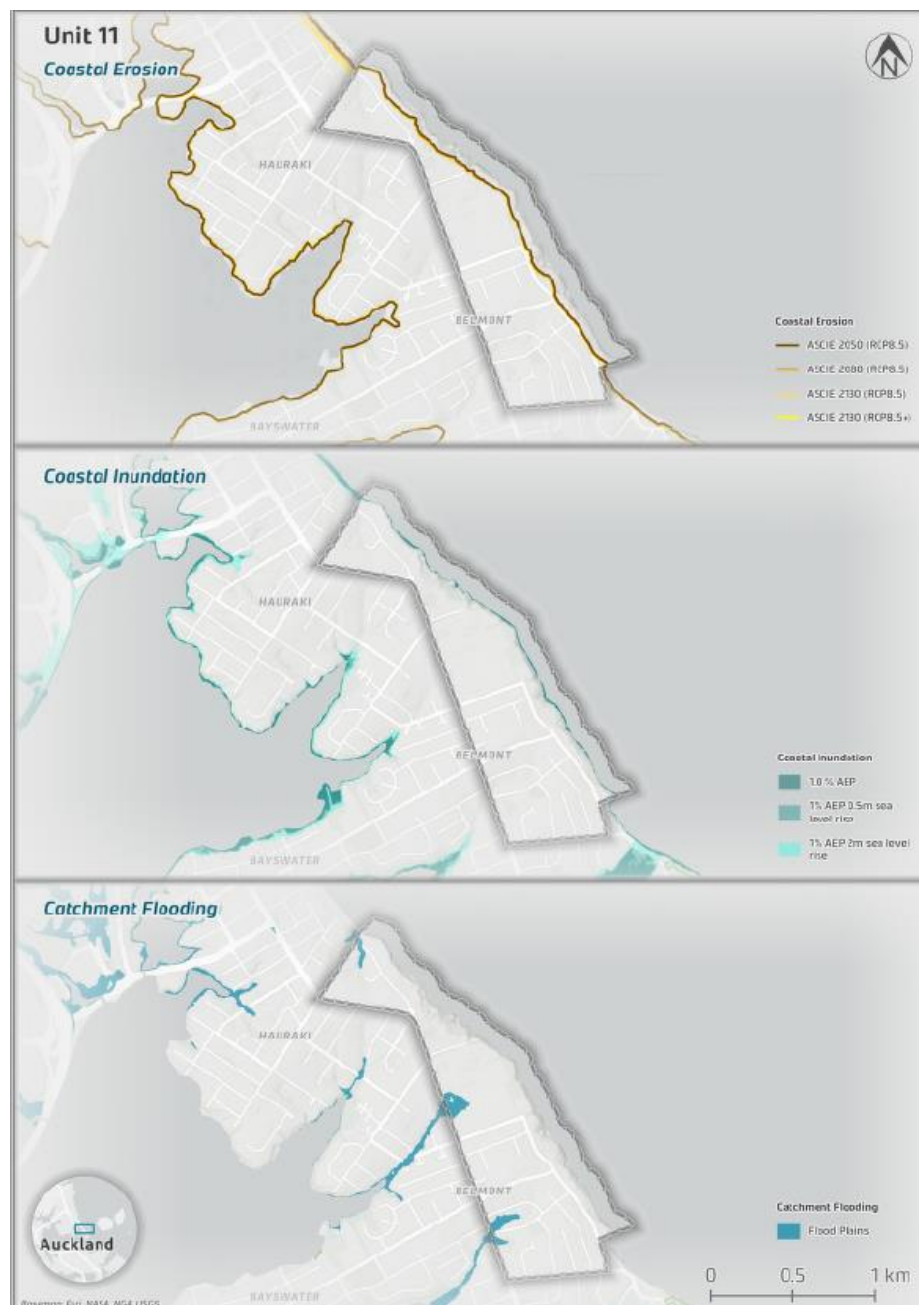


Figure 22: Coastal erosion susceptibility for 2050, 2080 and 2130 considering RCP4.5 and RCP8.5 emission scenarios, coastal inundation for 1%AEP storm surge for present day and with 0.5 m, 1 m and 2 m sea-level rise and the identification of flood plains.



Risk assessment

The table below summarises the risk levels for Auckland Council asset types in the short, medium, and long term and which relate to the use of the low, moderate and high climate change scenarios. At the unit level, Council land and water infrastructure are at a greater risk from coastal erosion and instability.

Unit 11 Council-owned land & assets metrics and associated risk scores (short, medium, long terms)											
Council-owned land			Council community facilities			Transport infrastructure			Water infrastructure		
Park and reserve land (5.0 ha) Buildings, wharves (8 No.)			Park amenity structures, carparks, accessways, buildings (0.2 ha)			AT roads (8.1 km) Bridges (0 m ²)			Water pipes (47.8 km)		
Short	Medium	Long	Short	Medium	Long	Short	Medium	Long	Short	Medium	Long
Coastal erosion and instability susceptibility											
Moderate	Moderate	Moderate	Low	Moderate	Moderate	Very low	Very low	Low	Moderate	Moderate	High
Coastal inundation											
Low	Low	Low	Very low	Very low	Very low	Very low	Very low	Very 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 stretch that may be impacted by coastal hazards (inclusive of catchment flooding) over changing climate scenarios.



- Gair Lookout
- R20 Winscombe Street
- St Leonards Beach
- Westwell Road Street Reserve
- Winscombe Cove



- Rose Centre Community Centre – Auckland Council-owned building



- Seacliffe pump station



Key connections:

- Seacliffe Avenue – providing coastal access through to St Leonards Beach

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.



- Ngā Mahanga – The Twins is a Māori Heritage Area in this unit. Specific cultural values and outcomes may be developed through ongoing involvement with local iwi. Guiding objectives and outcomes which have informed the development of adaptation strategies have been identified in Volume 2.
- Once a narrow sandspit causeway connecting Devonport to the adjoining peninsula, the pākehā name of this unit (Narrow Neck) accurately reflects the now all but forgotten underlying geology. The former shallow bay to the west was reclaimed and is now home to the Waitematā Golf Club, Lake Road, Ngataranga and Dacre Parks. This area is of high cultural significance to local iwi.
- Specific cultural values and outcomes for this unit will be developed through ongoing involvement with local iwi identified in Volume 2. Guiding objectives and outcomes which have informed the development of adaptation strategies have been identified in Volume 2.



- Unit 11 encompasses the land surrounding the southern end of Takapuna Beach and St Leonard's Beach. The main community within this unit is Belmont which provides access to several key amenities including local shops, cafes, schools, and various recreational facilities.
- Open space areas within this unit are limited; however, a notable open space is the Gair Lookout, located off Wiscombe Street. The Gair Lookout offers panoramic views over the Hauraki Gulf and the surrounding coastline and is a popular spot for sightseeing and photography due to its elevated position. The lookout is accessible via walking trails and provides benches for visitors.
- St Leonards Beach, a small beach, is used for swimming as well as dog walking. The only foreshore access point to this section of coastline is via a public stairway to St Leonards Beach (although other sections of coastline can be accessed at low tide from Takapuna Beach. A public foreshore access stairway off Westwell Road failed in 2023 and has been removed entirely (Auckland Council, 2024b).



- The main ecological features of note within Unit 11 are the coastal cliffs, which are in line with pōhutukawa-dominated forest (WF4)(Singers et al., 2017). The rocky reef system within this unit supports an array of marine fauna and flora, including a large number of sponges.



- Feedback related to this stretch supported the maintenance of coastal accessways through to St Leonards Beach and walking tracks in Gair Lookout. St Leonards Beach itself is highly valued for dog walking and scenic viewpoints.
- Commentary on coastal hazards and impacts to coastal accessways was noted.

What can we do about it? Adaptation Strategy Unit 11 St Leonards Beach

11.1: St Leonards North

Stretch 11.1 covers the area from Hauraki Road, Takapuna, through to St Leonards Road. This stretch encompasses Belmont community which is a residential area with a small village centre on Lake Road, and includes one Auckland Council-owned building – the Rose Centre Community Centre.

Scenarios for change		
Low	Moderate	High
No action 	No action 	No action 
Explanation No action as the coastal edge along this stretch is composed solely of private properties. There are no known Auckland Council-owned assets or land present within hazard-prone areas.		
Implementation notes N/A as all properties are private.		

11.2: St Leonards Beach and Accessways

Stretch 11.2 covers the area from St Leonards Road through to WestWell Road, encasing St Leonards Beach and associated coastal accessways connecting through to St Leonards Beach. There are a number of small parks and reserves along this section of coastline, providing access to the coast in some places (St Leonards Beach) and views to the sea in others (Gair Lookout). Assets within Gair Lookout are set far enough back from the hazardzone.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation Maintain due to the highly valued coastal connections and reserves, providing access through to St Leonards Beach. Adaptation strategies may also need to consider exposure of the pump station to coastal erosion under a low to high climate change scenario, with exposure to Seacliffe Avenue. Targeted interventions for these two assets may be required.		
Implementation notes Cultural: Ngā Mahanga – The Twins is a Māori Heritage Area in this stretch. Engagement with mana whenua is recommended to further understand the cultural values associated with this site and how this may impact adaptation strategies. Ecological: The coastline of Stretch 11.2 comprises coastal cliffs lined with pōhutukawa-dominated forest (WF4). Potential impacts of adaptation strategies on ecological values, and how these may need to be managed should be considered across all climate change scenarios.		

11.3: St Leonards Beach South

Stretch 11.3 covers the area from WestWell Road through to 18A Hamana Street, Narrow Neck (the stretch ends adjacent to Hamana Street).

Scenarios for change		
Low	Moderate	High
No action 	No action 	No action 
Explanation The coastal edge along this stretch is composed solely of private properties. There are no known Auckland Council-owned assets or land located within hazard prone areas, making no action an appropriate strategy.		
Implementation notes • Management: Seacliffe Avenue is exposed to coastal erosion under a high climate change scenario. Targeted interventions for Seacliffe Avenue may be required.		

Unit 12

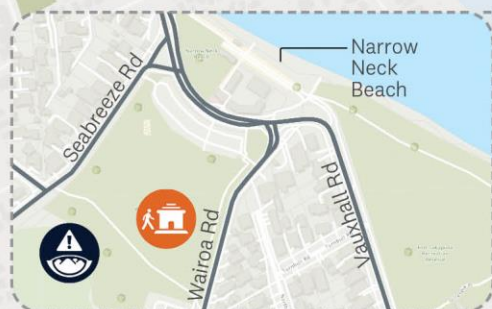
Weiti Estuary to Devonport



Narrow Neck Beach is well connected to and from the water and surrounding communities. It provides for a range of activities including cycling and dog walking and is home to the Waitakere Boating Club.

Woodall Park located opposite Narrow Neck Beach has a range of community facilities. This stretch is exposed to ongoing erosion and inundation which is likely to be exacerbated by sea level rise.

Community advocacy for proactive management of road networks and stormwater drainage and coastal accessways to the beach.



Fort Takapuna Reserve
Culturally and historically significant area. Sections of this stretch sit with the NZ Defense Force

Community concerns around flooding and the management of stormwater ponds in the golf course

Local community groups (i.e. Restoring Takarunga Hauraki) are involved in restoring ecological corridors within and along this stretch of coast

Narrow Neck to Devonport Village cycle path is a highly valued coastal connection for cyclists.

Hauraki Gulf / Tikapa Moana

Dinghy ramp

Balmain Reserve

Maungauika / North Head

Tūpuna Maunga (ancestral mountains)



Cheltenham Beach Reserve
- Valued for a range of water-based sports. Narrow Neck to Devonport Cycling path extends along this stretch of coast, along with the North Shore Coastal walkway, connecting through to Maungauika North Head

- Unit boundary
- 12.1 12.2 Stretch
- Informal recreation park
- Mooring management area
- Auckland Council owned land

0 250 500m

Unit 12: Narrow Neck & Cheltenham

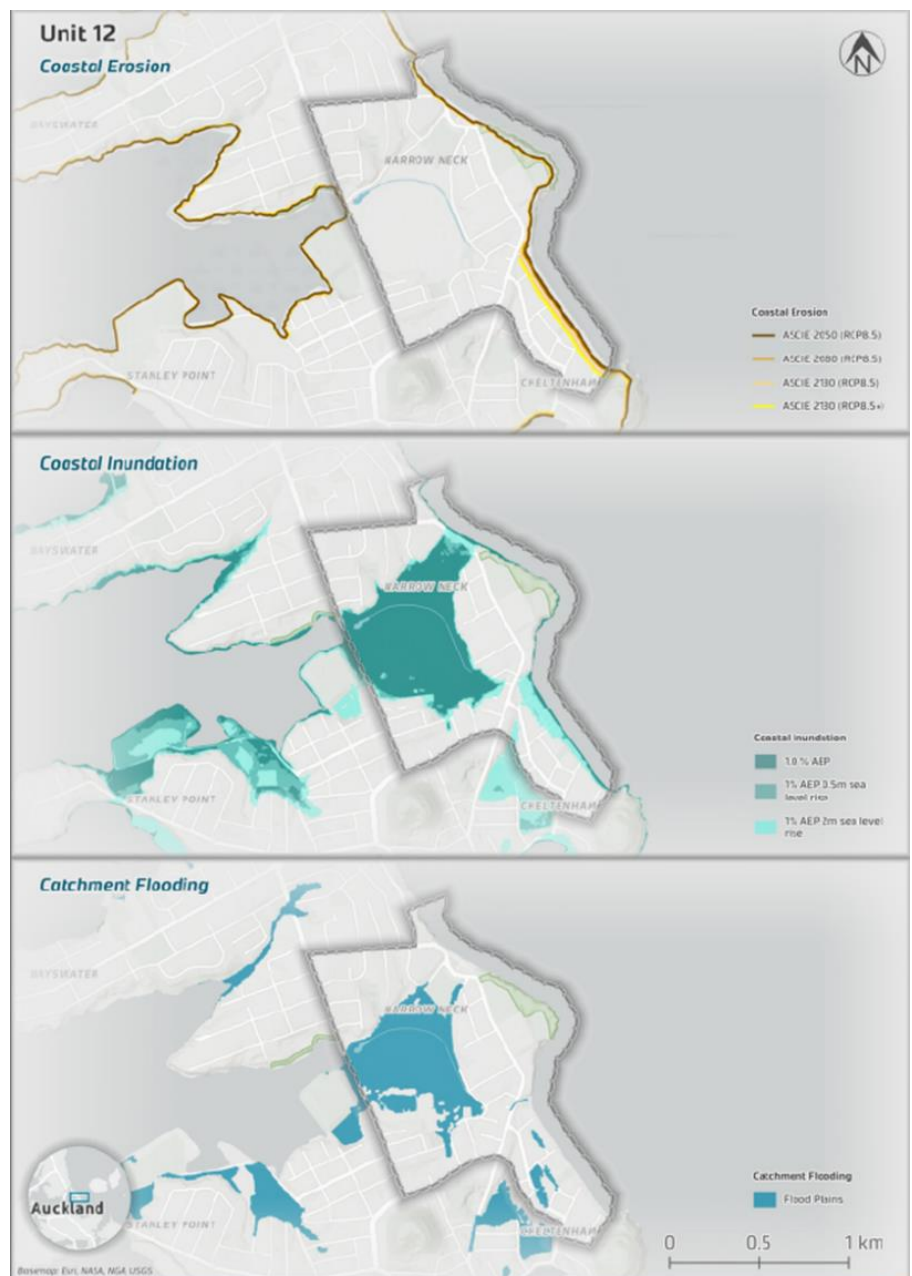
Unit 12, located within the Devonport – Takapuna Local Board area, commences at Hamana Street, Narrow Neck and concludes just short of North Head, covering the coastal suburbs of Narrow Neck and Cheltenham. Narrow Neck Beach, Fort Takapuna Historic Reserve and Cheltenham Beach are situated within this section of the coast and are highly valued by local residents and visitors alike for a range of recreational activities. Boat ramps are located at Narrow Neck and Cheltenham beaches. Critical road networks to Devonport are located within this section of the coast, along with highly valued historic heritage assets.

What is happening? Coastal context and hazardscape

While located along the more exposed eastern coastline, this coast is exposed to lower wave energies due to the sheltering effect of Rangitoto Island. Cheltenham Beach has a significantly flat intertidal profile, resulting in wave shoaling and reduced wave energies reaching the upper shoreline.

However, in extreme events from the north to northeast angles, moderate wave energies are able to propagate through the Rangitoto Channel to reach this coastline. Therefore, Narrow Neck and Cheltenham Beach remain dynamic sandy beaches subject to erosion and accretion. The seawall along Narrow Neck Beach was renewed in 2023. Cheltenham Beach is armoured with a mix of Auckland Council-owned and private seawalls.

Figure 23: Coastal Hazardscape for the Narrow Neck and Cheltenham 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 and which relate to the use of the low, moderate and high climate change scenarios. At the unit level, Council community facilities and council land are at a greater risk from coastal inundation, with highly valued coastal land and assets along the foreshore of Narrow Neck and Cheltenham Beach in close proximity to the coastal margin and prone to frequent coastal inundation and ongoing weathering. Transport groupings in this unit at high risk from inundation across all timeframes, with Lake Road providing key access into and from Devonport being prone to flooding.

Unit 12 Council-owned land & assets metrics and associated risk scores (short, medium, long terms)											
Council-owned land			Council community facilities			Transport infrastructure			Water infrastructure		
Park and reserve land (52.6 ha) Buildings, wharves (32 No.)			Park amenity structures, carparks, accessways, buildings (0.9 ha)			AT roads (10.5 km) Bridges (0 m ²)			Water pipes (64.0 km)		
Short	Medium	Long	Short	Medium	Long	Short	Medium	Long	Short	Medium	Long
Coastal erosion and instability susceptibility											
Moderate	Moderate	Moderate	Moderate	Moderate	High	Low	Low	Moderate	Moderate	Moderate	High
Coastal inundation											
High	High	Very high	Very high	Very high	Very high	High	High	High	High	High	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 stretch that may be impacted by coastal hazards (inclusive of catchment flooding) over changing climate scenarios.



- Fort Takapuna Reserve
- Woodall Park (closed landfill)
- Balmain Reserve
- Bath Street Reserve
- Cheltenham Beach Reserve
- Narrow Neck Beach



- Devonport Squash Club – Woodall Park



- Arawa pump station



Key connections

- The Narrow Neck to Devonport cycling path extends along this stretch.
- Road networks: Lake Road - provides the main road in and out of Devonport Peninsula.



Harbour access

- Narrow Neck Beach boat ramp (dingy launch)
- Cheltenham Beach Reserve boat ramp
- Dinghy ramp at Arawa Avenue and Bath Street 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 identified cultural features located within this unit. These are Ō Peretu and Ō Peretu - Te Ana o Kahumauroa. Specific cultural values and outcomes for this unit will be developed through ongoing involvement with local iwi. Guiding objectives and outcomes involved in the development of adaptation strategies have been identified in Volume 2.



- Notable open spaces within the unit include Woodall Park, The Fort Takapuna Reserve and Narrow Neck Reserve.
- Wakatere Boating Club, Narrow Neck Beach, is a highly valued community club.
- Waitemata Golf Club.
- Fort Takapuna Reserve - The reserve includes sections of Historic Reserve and has a complex management structure, with sections of the reserve managed by DOC, Auckland Council, and the Royal New Zealand Navy. Structures include but are not limited to NW Bunker; Fort Takapuna NE Bunker; Fort Takapuna NW Bunker; Fort Takapuna North Barracks A12; and Fort Takapuna South Barack.
- Woodall Park - The management plan prioritises the continuation of the park's various land uses, including open space, tennis courts and Devonport Squash Club.



- There are very small pockets of coastal broadleaved forest (WF4) scattered along the cliffs within this unit. A variety of avifauna have been recorded, including shorebirds, seabirds, and passerine species (eBird New Zealand, n.d.).



- Some respondents have observed erosion of land between the Narrow Neck and Cheltenham beaches and seen that erosion of the cliff has affected their access to the beaches.
- Concerns of rising sea levels and flooding from extreme weather events were highlighted.
- The community identified both Narrow Neck Beach and Cheltenham Beach as popular destinations within this unit. Scenic walkways featured a high number of responses, identifying them as of value and frequently used by residents and visitors alike for walking, hiking, cycling, and dog walking.
- Community aspirations included keeping the coastal margin as natural as possible whilst supporting existing community facilities and connections, along with improving catchment management, where possible, to reduce stormwater runoff and pollution entering the sea during heavy rainfall events.

What can we do about it? Adaptation Strategy Unit 12 Narrow Neck & Cheltenham

12.1: Hamana Street

Stretch 12.1 includes the area from 18A Hamana Street, Narrow Neck, through to Old Lake Road. It commences adjacent to Hamana Street and ends adjacent to Old Lake Road. It includes the area from 18A Hamana Street through to Old Lake Road and encompasses Belmont residential areas.

Scenarios for change		
Low	Moderate	High
No action 	No action 	No action 
Explanation		
No action was chosen because of the absence of Auckland Council land and assets within proximity to the coast.		
Implementation notes		
Ecology: The provision of ecological corridors may be still considered under this pathway approach.		

12.2: Narrow Neck Beach

Stretch 12.2 commences at Old Lake Road in the north and concludes just south of the boat ramp at Narrow Neck Beach. Parks and reserves in the stretch include Achilles Crescent, Hanlon and Hanlon Crescent Reserves; Woodall, Alison and Narrow Neck Parks.

Narrow Neck Beach is a popular coastal reserve with a sandy beach. It has picnic facilities, BBQ areas, a playground, a boat ramp, and shaded spots. Woodall Park contains a BMX pump track, a tennis court, netball courts, volleyball facilities, and an Auckland Council-owned building containing the Devonport Squash Club. Further inland are other community facilities including Plunket, Scouts and Girl Guides, and Waitematā Golf Club. Lake Road, set back from the coast, provides the main road in and out of Devonport Peninsula.

A concrete sheet piled seawall that armours the central area of Narrow Neck Beach was renewed in 2022, involving a new concrete facing. Rock masonry seawalls extend along the beach front either side of this concrete wall.

Scenarios for change		
Low	Moderate	High
Protect 	Protect 	Adaptation Priority 
Explanation		
Protect reflects ongoing management of risk to the highly valued community assets and roading connections providing key access to and from Devonport Peninsula. It provides for maintenance of existing protection structures associated with reserve areas in response to coastal erosion risk, to maintain a fixed coastal edge in this area. With increasing risk from coastal inundation in the long term (with sea-level rise), an adaptation priority area may be necessary to manage risk to existing assets and land uses and maintain the character and amenity of coastal areas.		
Implementation notes		

Scenarios for change		
Low	Moderate	High
• Management: Ongoing maintenance of the seawalls along the park edge at Narrow Neck Beach. The management plan for Woodall Park prioritizes continuation of the park's various land uses, including open space, tennis courts and Devonport Squash Club (North Shore City Council, 1997). There is a closed landfill at Woodall Park managed under the Closed Landfill Asset Management Plan. • Social: There are multiple community facilities (Wakatere Boating Club, Auckland Council-owned commercial facility at Narrow Neck, a building used by the New Zealand Society for The Intellectually Handicapped, Narrow Neck Playcentre, Devonport Squash Club, Northshore Croquet Club, RNZ Plunket Society, Wairoa Road Reserve Shed, Waitemata Golf Club) exposed from the short term in this stretch. Engagement with these organisations is recommended to understand how implementation of adaptation strategies may impact on their operation and how impacts could be managed.		

12.3: Fort Takapuna Historic Reserve

Stretch 12.3 commences at the southern end of Narrow Neck Beach and concludes at Bath Street Reserve, just shy of Cheltenham Beach. Fort Takapuna Reserve is a large area of green space at the southern end of Narrow Neck Beach. It includes sections of Historic Reserve, featuring WWII fortifications and emplacements which are under DOC control. Council-controlled parts of the reserve are primarily used for informal recreation (Auckland Council, 2010). Key management intentions for the reserve include integrated management and development of the reserve with DOC and the Royal New Zealand Navy. Protection of the site's heritage values for both Māori and Pākehā through relationships with tāngata whenua and the New Zealand Historic Places Trust, and improved accessibility and connectivity to the coastline and wider recreational and roading networks is signalled. Fort Takapuna Reserve is a Māori Heritage Area (Ō Peretu - Te Ana o Kahumauroa) and a site of significance to mana whenua. It includes wāhi tapu and urupa.

Scenarios for change		
Low	Moderate	High
No action 	No action 	Maintain 
Explanation This stretch includes highly valued assets and complex land and asset ownership. Council land and facilities are generally set back from areas exposed to coastal hazards under a low and moderate climate scenario. Maintain under a high climate change scenario signals the likely need for management of risk to landward assets. Strategies may be updated to reflect adaptation actions led by other parties involved with ownership of land and assets.		
Implementation notes • Cultural: Fort Takapuna Reserve is a Māori Heritage Area (Ō Peretu - Te Ana o Kahumauroa), a site of significance to mana whenua, and includes wāhi tapu and an urupa. Ongoing engagement with local iwi will be required to further understand the cultural values associated with this site and implementation of adaptation strategies. • Note: Fort Takapuna Reserve has multiple key stakeholders. Engagement in relation to adaptation pathways with these owner parties will be required and the strategies in this plan may be updated.		

12.4: Cheltenham Beach

Commences at Bath Street Reserve and concludes just short of North Head, encasing the entirety of Cheltenham Beach, Balmain Reserve and Bath Street Reserve. Cheltenham Beach is a long narrow beach that features safe swimming conditions for beachgoers to enjoy various activities such as kayaking and paddleboarding (Auckland Council, 2024j).

Scenarios for change					
Low		Moderate		High	
Maintain		Maintain		Maintain	
Explanation The presence of highly valued community reserves and associated assets (boat ramp and roads), brings a maintain approach under all climate scenarios. This strategy provides for maintenance of existing coastal defence structures at Cheltenham Beach and Balmain Reserve.					
Implementation notes • Management: The Narrow Neck to Devonport cycling path extends along the stretch. Access to Cheltenham Beach is available from several road ends and reserves, including Balmain Reserve which is a large, open grassed area providing an important complementary recreation area to the beach. • Management: Rata Road and Cheltenham Road are exposed to both coastal erosion and coastal inundation under a high climate change scenario. These roads form part of the transport network. Ongoing proactive collaboration with Auckland Transport, manager of these assets, will be required for their continued operation. • Ecology: The coastline of Stretch 12.3 is mapped as terrestrial SEA and is largely classified as coastal broadleaved forest (WF4).					



Unit 13

Weiti Estuary to Devonport



Ngataringa and Dacre Parks are co-located and contain several football fields including the North Shore United Football Club clubhouse. Other community facilities include Devonport Recycling Centre, the Community Garden Green House, and Community Garden Toolshed. Lake Devonport Pump Station is also located within Dacre Park. Walking tracks around these parks are of high value to the local community.



Ngataringa Bay contains a mosaic of mangrove forest (SA1.2) and a small area of shellbanks (SA1.5). This intertidal area provides important feeding ground for shorebirds



Ngataringa Bay

Blair Park (Stanley Point)

First Ave Second Ave



Stanley Bay Park

Ngataringa Bay Access Rd

Jim Titchener Parade

Ngataringa Park

Dacre Park

Abbotsford Tce

Victoria Rd

Patuone Ave

Church St

Kerr St

King Edward Parade

Torpedo Bay

Tūpuna Maunga (ancestral mountains)

Queens Parade Reserve

Stanley Bay

Calliope Rd

Stanley Point Rd

First Ave

Second Ave

Stanley Bay Park

Ngataringa Bay

Ngataringa Bay Access Rd

Jim Titchener Parade

Ngataringa Park

Dacre Park

Abbotsford Tce

Victoria Rd

Patuone Ave

Church St

Kerr St

King Edward Parade

Torpedo Bay

Tūpuna Maunga (ancestral mountains)

Queens Parade Reserve

Stanley Bay

Calliope Rd

Stanley Point Rd

First Ave

Second Ave

Stanley Bay Park

Ngataringa Bay

Ngataringa Bay Access Rd

Jim Titchener Parade

Ngataringa Park

Dacre Park

Abbotsford Tce

Victoria Rd

Patuone Ave

Church St

Kerr St

King Edward Parade

Torpedo Bay

Tūpuna Maunga (ancestral mountains)

Queens Parade Reserve

Stanley Bay

Calliope Rd

Stanley Point Rd

First Ave

Second Ave

Stanley Bay Park

Ngataringa Bay

Ngataringa Bay Access Rd

Jim Titchener Parade

Ngataringa Park

Dacre Park

Abbotsford Tce

Victoria Rd

Patuone Ave

Church St

Kerr St

King Edward Parade

Torpedo Bay

Tūpuna Maunga (ancestral mountains)

Queens Parade Reserve

Stanley Bay

Calliope Rd

Stanley Point Rd

First Ave

Second Ave

Stanley Bay Park

Ngataringa Bay

Ngataringa Bay Access Rd

Jim Titchener Parade

Ngataringa Park

Dacre Park

Abbotsford Tce

Victoria Rd

Patuone Ave

Church St

Kerr St

King Edward Parade

Torpedo Bay

Tūpuna Maunga (ancestral mountains)

Queens Parade Reserve

Stanley Bay

Calliope Rd

Stanley Point Rd

First Ave

Second Ave

Stanley Bay Park

Ngataringa Bay

Ngataringa Bay Access Rd

Jim Titchener Parade

Ngataringa Park

Dacre Park

Abbotsford Tce

Victoria Rd

Patuone Ave

Church St

Kerr St

King Edward Parade

Torpedo Bay

Tūpuna Maunga (ancestral mountains)

Queens Parade Reserve

Stanley Bay

Calliope Rd

Stanley Point Rd

First Ave

Second Ave

Stanley Bay Park

Ngataringa Bay

Ngataringa Bay Access Rd

Jim Titchener Parade

Ngataringa Park

Dacre Park

Abbotsford Tce

Victoria Rd

Patuone Ave

Church St

Kerr St

King Edward Parade

Torpedo Bay

Tūpuna Maunga (ancestral mountains)

Queens Parade Reserve

Stanley Bay

Calliope Rd

Stanley Point Rd

First Ave

Second Ave

Stanley Bay Park

Ngataringa Bay

Ngataringa Bay Access Rd

Jim Titchener Parade

Ngataringa Park

Dacre Park

Abbotsford Tce

Victoria Rd

Patuone Ave

Church St

Kerr St

King Edward Parade

Torpedo Bay

Tūpuna Maunga (ancestral mountains)

Queens Parade Reserve

Stanley Bay

Calliope Rd

Stanley Point Rd

First Ave

Second Ave

Stanley Bay Park

Ngataringa Bay

Ngataringa Bay Access Rd

Jim Titchener Parade

Ngataringa Park

Dacre Park

Abbotsford Tce

Victoria Rd

Patuone Ave

Church St

Kerr St

King Edward Parade

Torpedo Bay

Tūpuna Maunga (ancestral mountains)

Queens Parade Reserve

Stanley Bay

Calliope Rd

Stanley Point Rd

First Ave

Second Ave

Stanley Bay Park

Ngataringa Bay

Ngataringa Bay Access Rd

Jim Titchener Parade

Ngataringa Park

Dacre Park

Abbotsford Tce

Victoria Rd

Patuone Ave

Church St

Kerr St

King Edward Parade

Torpedo Bay

Tūpuna Maunga (ancestral mountains)

Queens Parade Reserve

Stanley Bay

Calliope Rd

Stanley Point Rd

First Ave

Second Ave

Stanley Bay Park

Ngataringa Bay

Ngataringa Bay Access Rd

Jim Titchener Parade

Ngataringa Park

Dacre Park

Abbotsford Tce

Victoria Rd

Patuone Ave

Church St

Kerr St

King Edward Parade

Torpedo Bay

Tūpuna Maunga (ancestral mountains)

Queens Parade Reserve

Stanley Bay

Calliope Rd

Stanley Point Rd

First Ave

Second Ave

Stanley Bay Park

Ngataringa Bay

Ngataringa Bay Access Rd

Jim Titchener Parade

Ngataringa Park

Dacre Park

Abbotsford Tce

Victoria Rd

Patuone Ave

Church St

Kerr St

King Edward Parade

Torpedo Bay

Tūpuna Maunga (ancestral mountains)

Queens Parade Reserve

Stanley Bay

Calliope Rd

Stanley Point Rd

First Ave

Second Ave

Stanley Bay Park

Ngataringa Bay

Ngataringa Bay Access Rd

Jim Titchener Parade

Ngataringa Park

Dacre Park

Abbotsford Tce

Victoria Rd

Patuone Ave

Church St

Kerr St

King Edward Parade

Torpedo Bay

Tūpuna Maunga (ancestral mountains)

Queens Parade Reserve

Stanley Bay

Calliope Rd

Stanley Point Rd

First Ave

Second Ave

Stanley Bay Park

Ngataringa Bay

Ngataringa Bay Access Rd

Jim Titchener Parade

Ngataringa Park

Dacre Park

Abbotsford Tce

Victoria Rd

Patuone Ave

Church St

Kerr St

King Edward Parade

Torpedo Bay

Tūpuna Maunga (ancestral mountains)

Queens Parade Reserve

Stanley Bay

Calliope Rd

Stanley Point Rd

First Ave

Second Ave

Stanley Bay Park

Ngataringa Bay

Ngataringa Bay Access Rd

Jim Titchener Parade

Ngataringa Park

Dacre Park

Abbotsford Tce

Victoria Rd

Patuone Ave

Church St

Kerr St

King Edward Parade

Torpedo Bay

Tūpuna Maunga (ancestral mountains)

Queens Parade Reserve

Stanley Bay

Calliope Rd

Stanley Point Rd

First Ave

Second Ave

Stanley Bay Park

Ngataringa Bay

Ngataringa Bay Access Rd

Jim Titchener Parade

Ngataringa Park

Dacre Park

Abbotsford Tce

Unit 13: Devonport and Stanley Point

This unit, located within the Devonport – Takapuna Local Board area, commences at Maungauika/ North Head and concludes where Ngataranga Park connects to Lake Road in the west. It covers the coastal suburbs of Devonport, Torpedo Bay and Stanley Point. This section of the coast is highly valued by local residents and visitors, featuring a wide array of historic landmarks, community facilities and coastal services, from ferry terminals to recreational water access. The Devonport Naval Base (not Auckland Council-owned) is noted as significant infrastructure also located within this unit.

What is happening? Coastal context and hazardscape

This coastline is exposed to frequent vessel wake, predominantly from passing ferries. This longer period wave energy can entrain and transport beach sediments, and over time, impact seawalls and structures along this coastline. The northern-facing coastline of Unit 13, within Ngataranga Bay, is significantly low energy only being exposed to short fetch distances, with extensive shallow intertidal flats. Established mangrove stands along the inner Ngataranga Bay coastline reflect the low energy environment.

The coastline from Torpedo Bay to Stanley Bay is armoured with seawalls. Small pocket beaches are present adjacent Windsor Reserve, and at Duders Beach adjacent to King Edward Parade. Beach replenishment has occurred at Torpedo Bay, contained within rock groyne control structures. Additional to enhancing recreational amenity values, this replenishment was to provide a buffer to waves, particularly ferry wake, that enter



Figure 24: Torpedo Bay and Maungauika/ North Head

Torpedo Bay and previously overtopped the seawall. While this replenished beach has successfully retained the imported sand, 'top ups' are provided for under the associated resource consent. Rock revetment armours reclaimed land and landfill on the southern coastline of Ngataranga Bay. Key roading connections and coastal reserves situated along the foreshore of Devonport (Queens Parade) are highly susceptible to ongoing erosion and inundation, with sea-level rise under a moderate to high climate change scenario anticipated to increase inundation significantly (as shown in Figure 25)

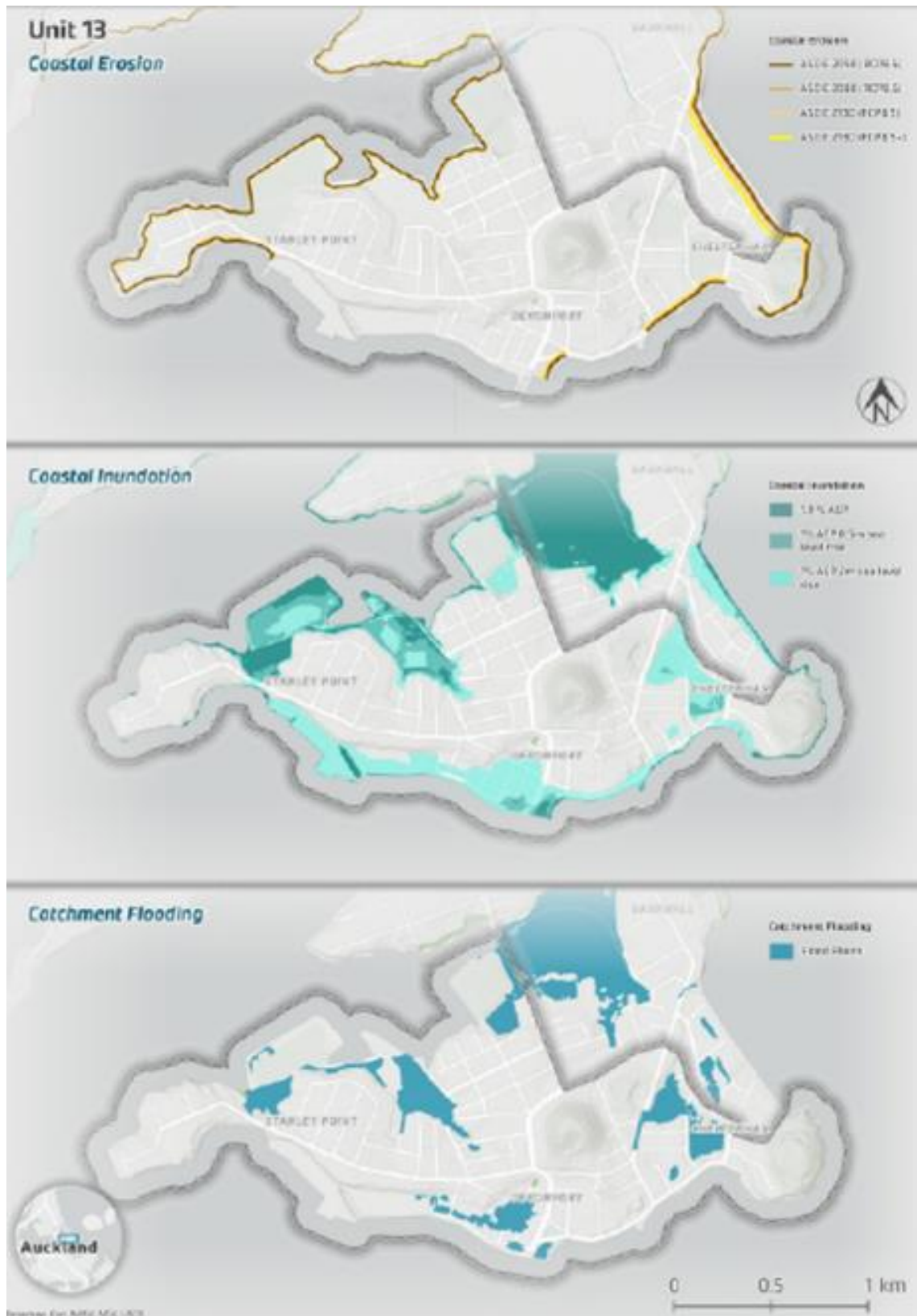


Figure 25: Coastal Hazardscape for the Devonport and Stanley Point Unit reflecting coastal erosion susceptibility for 2050, 2080 and 2130 considering RCP4.5 and RCP8.5 emission scenarios, coastal inundation for 1% AEP storm surge for present day and with 0.5 m, 1 m and 2 m sea-level rise and the identification of flood plains.



Risk assessment

The table below summarises the risk levels for Auckland Council asset types in the short, medium, and long term and which relate to the use of the low, moderate and high climate change scenarios. At the unit level, Council community facilities are at a greater risk from coastal inundation and coastal erosion, with highly valued coastal land and assets along Queens Parade and King Edward Parade in close proximity to the coastal margin. Transport groupings in this unit at high risk from erosion across all timeframes.

Unit 13 Council-owned land & assets metrics and associated risk scores (short, medium, long terms)											
Council-owned land			Council community facilities			Transport infrastructure			Water infrastructure		
Park and reserve land (53.8 ha) Buildings, wharves (149 No.)			Park amenity structures, carparks, accessways, buildings (2.2 ha)			AT roads (21.8 km) Bridges (158.9 m ²)			Water pipes (115.9 km)		
Short	Medium	Long	Short	Medium	Long	Short	Medium	Long	Short	Medium	Long
Coastal erosion and instability susceptibility											
Moderate	Moderate	Moderate	Very high	Very high	Very high	Moderate	Moderate	High	Moderate	High	High
Coastal inundation											
Moderate	High	High	Very 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 stretch that may be impacted by coastal hazards (inclusive of catchment flooding) over changing climate scenarios.



- Abbotsford Way
- Blair Park (Stanley Point)
- Cheltenham Beach Reserve
- Calliope Reserve
- Dacre Park (Closed Landfill)
- Devonport Domain
- King Edward Parade
- King Edward Parade Res
- Maungauika/North Head Ngataranga Bay Reserve
- Ngataranga Park (closed landfill)
- Queens Parade Reserve
- Secret Cove
- Stanley Bay Park
- Stanley Bay Beach Reserve
- Stanley Point / Cyril Bassett Lookout
- Stanley Point Esplanade Reserve
- Torpedo Bay Reserve
- Victoria Wharf – Devonport
- Windsor Reserve
- Wynyard Street



- Devonport Recycling Centres



Wastewater

- Jim Titchener pump station
- King Edward pump station
- Lake Devonport pump station
- Stanley Point 1 pump station
- Stanley Point 2 pump station



Key connections

- Devonport to Navy Base Path
- Devonport to Stanley Bay Path
- Devonport Waterfront Path
- Maungauika / North Head Path
- Narrow Neck to Devonport Path
- Takapuna to Devonport Path
- Takarunga / Mt Victoria Path

**Harbour Access:**

- Blair Park boat ramp
- King Edward Parade Reserve
- Queens Parade Reserve
- Secret Cove wharf
- Stanley Bay Beach Reserve wharf
- Torpedo Bay boat ramp
- Victora Wharf 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 over changing climate scenarios.



- There are three identified cultural features within Stretch 13.1. There is also one co-governed/co-managed area within the unit (Maungauika/North Head) overseen by Tupuna Taonga O Tāmaki Makaurau Trust Ltd. This area extends over three Stretches: 13.1, 13.2, and 13.3. Te Taua Moana Marae is also located in Stretch 13.11.
- Specific cultural values and outcomes for this unit will be developed through ongoing involvement with local iwi identified in Volume 2. Guiding objectives and outcomes which have informed the development of adaptation strategies have been identified in Volume 2.



- Devonport Ferry Terminal, Devonport Naval Base and Naval sports fields are located along the coast. Community uses include the Devonport Yacht Club and Calliope Sea Scout Group.
- Takarunga / Mount Victoria is one of the Auckland region's 14 Tūpuna Maunga (ancestral mountains) and stands as the highest volcano on the North Shore. It is popular with visitors from the local and wider community and provides views across Devonport and Hauraki Gulf.
- Managed in partnership with Tangata Whenua under co-governance arrangements, Maungauika / North Head serves both as a significant cultural site for Māori and as a popular destination for locals and visitors. Maungauika has scenic trails and historic fortifications including WWII bunkers and tunnels, and educational displays.
- The New Zealand Defence Force operates the Devonport Naval Base, a significant asset within Unit 13. Situated at the southernmost part of this unit, near Queens Parade and Calliope Road, the base functions as a vital operational hub for the Royal New Zealand Navy.



- Maungauika / North Head Historic Reserve and the surrounding coastline, provides habitat for a range of avifauna. There are also bird hotspots located at the Devonport Ferry Terminal and Takarunga / Mount Victoria.
- Ngataranga Bay contains a mosaic of mangrove forest (SA1.2) and a small area of shellbanks (SA1.5). This intertidal area provides important feeding grounds for shorebirds.
- There is a small area of seagrass (*Zostera* sp.) recorded in the marine area to the east of Maungauika. Seagrass meadows are experiencing a worldwide decline and are important natural habitats.



- Respondents specifically noted having experienced inundation/overtopping of the Queen's Parade coastal path, cliffside instability, and disruption to ferry services and other boating activities as a result of storm events.
- Community engagement identified the most popular activities within the Devonport and Stanley Point coastal area: beach walking and running, nature watching and passive water-based activities. Cycling (on coastal walkways and roads) and passive land-based recreation were also commended. A high proportion of those who provided comments frequently visit Torpedo Bay.
- Marine activities, i.e. boating and the yacht club, community spaces which support people and culture were in demand. Devonport ferry was seen as essential transport and historical features of the area including old bunkers and tunnels, were also highly valued.
- Advocacy that the current status of coastal areas should be at least maintained and ideally improved upon, with a focus on retaining coastal access points and supporting existing natural areas or ecosystems (i.e. Ngataranga Bay).
- Vital access corridors and roads into and out of the area are highly susceptible to sea-level rise and should be protected accordingly.

What can we do about it? Adaptation Strategy Unit 13 Devonport and Stanley Point

13.1: Maungauika/ North Head

Commences at the north-eastern end of Maungauika / North Head and culminates at Jubilee Avenue Road on the western edge. The stretch encompasses Maungauika Headland. Maungauika is a very popular attraction which includes walkways and a network of publicly accessible WWII tunnels, bunkers, and gun emplacements. There are several DOC-controlled service buildings around Maungauika, as well as an office at the headland. There is one seawall at the northeast boundary of the headland and a SEA around the coastal boundary of Maungauika / North Head.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation A maintain-based approach across all climate scenarios provides for the management of land uses and assets, and maintenance of cultural and historic heritage structures in accordance with the Tūpuna Maunga Authority and DOC's management intentions. This strategy enables management of risk from coastal hazard risks (cliff instability and erosion) responding to the values of the area.		
Implementation notes • Management: DOC service buildings exist around North Head. Ongoing engagement with DOC will be required through implementation. • Cultural: Maungauika includes a small cultural heritage area, Te Ana o Kahumauroa, on the north-eastern side of the headland. Te Ana o Kahumauroa is a site of significance to mana whenua and is listed in the Cultural Heritage Inventory. In January 2019, the administration of Maungauika was transferred from DOC to the Tūpuna Maunga Authority. This transition aims to focus efforts on restoring, protecting, and managing these taonga tuku iho (treasures handed down through generations). Ongoing engagement with the Tūpuna Maunga Authority is recommended to further understand the cultural values associated with this site and how this may impact adaptation strategies. • Ecological: The edges of Maungauika / North Head Historic Reserve are mapped as terrestrial SEA. The wider coastline of Stretch 13.1 provides habitat for a range of avifauna. There is a small area of seagrass (<i>Zostera</i> sp.) recorded in the marine area to the east of Maungauika. Any potential impacts of adaptation strategies on ecological values, and how these may need to be managed, should be factored into decision making.		

13.2: Torpedo Bay East

Stretch 13.2 commences at Jubilee Avenue and concludes at the eastern end of King Edward Parade. The stretch encompasses a small area of residential properties at the base of Maungauika, Torpedo Bay Wharf, a boat ramp and the Torpedo Bay Navy Museum as well as a small section of the Devonport waterfront path, which runs along a long strip of the Devonport coastline.

Scenarios for change		
Low	Moderate	High
No action 	No action 	No action 
Explanation		
No action is reflective of the absence of Auckland Council assets in this stretch.		
Implementation notes		
Ecology: There is a small SEA within the stretch.		

13.3: Cambridge Terrace & the Domain

Stretch 13.3 commences at the eastern end of King Edward Parade and concludes at Cambridge Terrace Road end. King Edward Parade runs parallel to the shoreline for the length of this stretch, as does the Devonport waterfront path. There is a buried seawall and groynes retaining sand at the coast. Torpedo Bay is used for swimming and informal recreation by the local community who have previously raised concerns about the impacts of vessel wake.

The stretch encompasses Devonport Domain, which is a large, well-used open space containing several Council-owned buildings, including North Shore Cricket Club, and Devonport Bowling Club and club house. There is also a playground, public parking for boat trailers and sports fields.

Scenarios for change		
Low	Moderate	High
Protect 	Protect 	Adaptation Priority 
Explanation		
Protect supports the existing coastal defence structures and investments at Torpedo Bay Beach (groynes and renourishment). Adaptation priority under a high climate change scenario may be required to manage hazard risk to assets and activities within the Devonport Domain in response to ongoing flood and coastal inundation hazards.		
Implementation notes		
• Social: Sports organisations operating from Vauxhall Park and Devonport Domain should be engaged to understand their current operations and needs, and how this may impact on adaptation strategies. • Management: King Edward Parade is exposed from the low change scenario. This road forms a critical part of the transport network for the local community, providing for access along the coast. Ongoing engagement with Auckland Transport, will be required. • Cultural: The stretch of coast between Stretches 13.3 and 13.4 was believed to be the initial landing place of the Tainui Waka upon its arrival in Tāmaki Makaurau in 1350.		

13.4: Torpedo Bay Reserve and Duders Beach

Commences adjacent to Cambridge Terrace and concludes at Buchanan Street intersection with King Edward Parade. The stretch encompasses residential areas of Devonport and part of Torpedo Bay. King Edward Parade Reserve runs along the coastline between the beach and King Edward Parade for most of this stretch, with residential housing on the inland side.

Devonport waterfront path continues through this stretch. King Edward Reserve contains a public toilet block, boat ramp, jetty, and an Auckland Council-owned building used by Devonport Yacht Club. There is a boat ramp at Torpedo Bay. Coastal protection structures include a concrete seawall along King Edward Parade and a groyne adjacent to Devonport Yacht Club which is built upon a concrete seawall.

Scenarios for change			
Low		Moderate	
Protect		Protect	
High			
Protect			
			
Explanation			
Protect across all time frames recognises the existing coastal defences protecting Auckland Council-owned land and infrastructure (e.g. boat ramps, toilets, and Devonport Yacht Club) and roading connections from coastal erosion risk. Inundation hazards and sea-level rise may require further consideration through design and management of uses in the long term.			
Implementation notes			
• Cultural: Takāraro, in this stretch is listed as a site in the Cultural Heritage Inventory. Ongoing local iwi engagement will be required in relation to management of this cultural landscape. Additionally through local iwi engagement, the understanding is that Takamaiwaho once stood where Duders Beach Reserves sits, reinforcing the significance of this coastal stretch to local iwi. Local iwi engagement will be required across all climate scenarios. • Social: Devonport Yacht Club is exposed from the low change scenario and ongoing engagement through implementation is required. • Management: King Edward Parade is exposed to coastal erosion from the short term. This road forms a critical part of the transport network for the local community. Ongoing engagement with Auckland Transport will be required.			

13.5: Devonport Beach and Queens Parade Reserve

Commences at Buchanan Street and concludes where Spring Street intersects with Queens Parade (the western edge of Queens Parade Reserve). Devonport waterfront path extends along the length of the stretch as does Queens Parade, an important local road providing access to Devonport Naval Base. In the eastern part, Windsor Reserve is an area of open space bordering a small, sheltered beach. It includes a wastewater pump station, toilet block, playground and Devonport Library as well as a seawall. There is on-street parking around the edges of the reserve. There is another boat ramp at the western end of Queens Parade and an Auckland Council-owned commercial building.

In the western part, Queens Parade Reserve provides a buffer of green space between the coastline (which is protected by a long seawall) and Queens Parade. Residential housing is located on the inland side of Queens Parade. There is parking along Queens Parade, and the road terminates at the end of the stretch where the Devonport Naval Base begins. A boat ramp is located off Queens Parade. In the centre of the stretch is the Devonport Ferry Terminal on Victoria Wharf. This is an important part of Auckland's public transport network, providing ferry services to and from Auckland CBD as well as to other locations around Auckland including the Hauraki Gulf Islands (Fullers360, n.d.).

Scenarios for change					
Low		Moderate		High	
Protect		Protect		Adaptation Priority	
Explanation					
Protect reflects the need to maintain a modified coastal edge and existing coastal defence structures. Protect is identified reflective of the social value of this coastal stretch, and the continued need to consider the management of inundation and catchment flooding risk. This includes lifeline infrastructure (Queen Victoria Wharf Terminal, Queens Parade), roading infrastructure, boat ramp and car parking. Under a moderate climate change scenario, the use of existing coastal defence structures may continue to manage risks from erosion. However inundation (wave overtopping) and more frequent storm events may require further design considerations. The management of risk to assets and uses through design and localised realignment of assets in response to coastal inundation exposure may still be required. Adaptation priority under a high climate change scenario enables consideration of risks to existing uses, assets and infrastructure and enables further discussion around the location of key facilities and uses within local area while responding to risk.					
Implementation notes					
• Management: Victoria Road, Queens Parade, Wynard Street, Marine Square, Ame Street, Clarence Street, Garden Terrace and Kapai Road are exposed to coastal inundation from the short term. These roads form a critical part of the transport network for the local community. Additionally, it is strongly recommended that the New Zealand Defence Force is also engaged to understand how adaptation strategies may impact access to Devonport Naval Base. • Management: Devonport Ferry Terminal (Auckland Transport asset) is exposed in this stretch. Ongoing collaboration with Auckland Transport to understand how implementation of adaptation strategies may impact on its operation, and how impacts could be managed will be required. Engagement with ferry operators may also be required.					

13.6: Devonport Naval Base

Stretch 13.6 commences west of Queens Parade Reserve. It encompasses Devonport Naval Base and associated infrastructure, culminating at the southern end of Stanley Bay Beach Reserve. There is no Auckland Council-owned land, infrastructure, and assets within the stretch.

Scenarios for change		
Low	Moderate	High
No action 	No action 	No action 
Explanation		
No action is preferred as there are no Auckland Council-owned land, infrastructure and assets within this stretch.		
Implementation notes		
• Management: The Devonport Naval Base (including Ngataranga Bay and Narrow Neck) is managed by the New Zealand Defence Force. • Heritage: Stretch 13.6 includes a significant number of heritage features under the AUP (Auckland Council, 2016). A notable heritage feature at the coast is the Calliope Graving Dock and Pump House (A).		

13.7: Stanley Bay Wharf and Ferry Terminal

Stretch 13.7 commences at Stanley Bay wharf and concludes at the eastern edge of Stanley Bay Beach Reserve. It encompasses Stanley Bay wharf, a boat shed, boat ramp and small carparking area. Coastal protection structures include rock revetments. Until 2020, Stanley Bay wharf was used as a ferry terminal for services around the Waitematā Harbour but ceased to operate in 2020 (The Devonport Flagstaff, 2020).

Scenarios for change		
Low	Moderate	High
Protect 	Protect 	Protect 
Explanation		
Protect supports the continued management of coastal erosional hazards through existing coastal defence structures and responds to the amenity value and important infrastructure located landward of the coastal edge.		
Implementation notes		
• Management: Continued maintenance and renewal of existing coast protection structures. • Management: Ongoing engagement with Auckland Transport will take place to ensure advice is sought on future plans for this wharf and whether there is any intention to resume ferry services in the future.		

13.8: Stanley Bay Beach Reserve

Starts at the eastern edge of Stanley Bay Beach and concludes at the western edge, including Stanley Bay Beach Reserve. This is a small, sheltered beach in the Devonport community located adjacent to the naval base. The beach has a toilet block and there are several historic structures in this area.

Calliope Road runs parallel to the shoreline, as does the Devonport to Stanley Bay Path and Calliope Road shared path. There are revetments bordering Stanley Bay Beach Reserve. On the other side of Calliope Road, Stanley Bay Park includes several sports facilities (Auckland Council-owned) servicing the Devonport community including football fields, a scout hall and tennis club. Stanley Point pump station is also located within the park.

Scenarios for change			
Low	Moderate		High
Protect		Protect	
Adaptation Priority			
			
Explanation			
Protect is reflective of the current armoured coastal edge at Stanley Bay Beach and its amenity value. Coastal inundation risk under a high climate change scenario triggers the need for adaptation priority to allow activities and assets to be proactively managed while retaining coastal character.			
Implementation notes			
Management: The risk presented to the Stanley Bay Park and Stanley Point pump station has been assessed as part of the adaptation strategy for Stretch 13.10, as they are at risk of coastal inundation from this location and not from the Stretch 13.8 coastline.			

13.9: Stanley Point

Commences at the eastern edge of Stanley Bay Beach and concludes at the northern entrance to Stanley Point headland. Parks and reserves include Stanley Point Esplanade Reserve, Stanley Point/Cyril Bassett Lookout, and Blair Park (Stanley Point), all of which are small areas of green space. There is a boat/dinghy ramp adjacent to Blair Park (Stanley Point), along with dinghy lockers (Council-owned), and a pump station. The coastline of Stretch 13.9 is mapped as terrestrial SEA and is expected to provide habitat for a range of Introduced and Not Threatened birds.

The stretch includes the heritage features of residences 1251 (B), 1252 (B), 1253 (B), and 1250 (B); Juriss House (B), Gittos residence (former) (B), Ngataranga Bay careening area (A), and Stanley Bay Bowling Club (B), under the Auckland Unitary Plan (AUP) (Auckland Council, 2016).

Scenarios for change			
Low	Moderate		High
No action		No action	
No action			
			
Explanation			
No action reflects the predominantly private land ownership of the coastal areas within the stretch. This does not preclude ongoing maintenance of safe public coastal accessways to the coast.			

Scenarios for change		
Low	Moderate	High
Implementation Notes		
Ecology: This coastline is mapped as terrestrial SEA and is expected to provide habitat for a range of Introduced and Not Threatened birds.		

13.10: Stanley Bay sports fields

Stretch 13.10 commences at Stanley Bay Park (166A Calliope Road Stanley Point) and concludes just short of Ngataranga sports fields, covering the coastal edge of Stanley Bay sports fields. Stanley Bay Park includes several sports facilities (Auckland Council-owned) servicing the Devonport community including football fields, scout hall and tennis club, along with a playground and pump station.

Scenarios for change		
Low	Moderate	High
Maintain 	Adaptation priority 	Adaptation priority 
Explanation		
Maintain as the low-lying reserve areas are susceptible to coastal inundation and catchment flooding under all climate scenarios. A maintain approach in the first instance allows for maintenance and/or localised relocation of facilities, e.g. storage sheds and reserve land. Under a moderate to high climate change scenario there is a need to consider proactive relocation of key community facilities away from hazard areas, with a shift to adaptation priority to reflect this.		
Implementation Notes		
Social: The tennis clubrooms and the Old Scout Hall are exposed from the short term. Further engagement with these organisations is recommended throughout implementation .		

13.11: Ngataranga (private) sports fields

Commences at the western boundary of Ngataranga sports fields and concludes at the carpark at Jim Titchener Parade. The stretch encompasses part of Devonport Naval Base and associated Ngataranga sports fields and Te Taua Moana Marae. Devonport Naval Base (private assets) backs onto areas of residential housing (part of the Devonport community). Jim Titchener Parade runs parallel to the coast, and there is a pump station adjacent to the road.

Ngataranga Bay contains a mosaic of mangrove forest (SA1.2) and a small area of shellbanks (SA1.5). This intertidal area provides important feeding grounds for shorebirds.

Scenarios for change		
Low	Moderate	High
No action 	No action 	No action 
Explanation As there is limited Auckland Council land and assets within this stretch, no action has been selected. This does not preclude management of risk to the roading network and maintenance of existing access to the coast.		
Implementation Notes • Management: The Devonport Naval Base (including Ngataranga Bay and Narrow Neck) is managed by the New Zealand Defence Force.		

13.12: Jim Titchener Parade/ Ngataranga Bay Reserves

Commences east of the carpark (associated with the Devonport Naval Base) and concludes south at Mozeley Avenue. The only Auckland Council-owned land along the coast is Ngataranga Bay Reserve, which is a small area of green space between Jim Titchener Parade and the coast. Further inland, Melrose Reserve includes an area of open space, volleyball courts and a pump station. Parts of the Devonport Naval Base are located in this stretch.

Scenarios for change		
Low	Moderate	High
Protect 	Protect 	Adaptation Priority 
Explanation Protect under a low climate change scenario recognises the critical roading connections along this stretch and the need to manage coastal hazard risk to this connection. Risk under a moderate to high climate change scenario (with increased inundation risk) requires a transition to adaptation priority to allow assets and infrastructure functions to be maintained to acceptable levels of service and risk to land uses managed appropriately through location or design.		
Implementation Notes • Management: Jim Titchener Parade, Patuone Place, Shoal Bay Road, Ewen Alison Avenue and Roslyn Terrace are exposed to coastal erosion and coastal inundation from the short term. These roads form a critical part of the local community's transport network. Auckland Transport, manager of these assets, will need to be engaged to understand how adaptation strategies may impact on their operation. • Management: The Devonport Naval Base (including Ngataranga Bay and Narrow Neck) is managed by the New Zealand Defence Force. • Ecological: Ngataranga Bay contains a mosaic of mangrove forest (SA1.2) and a small area of shellbanks (SA1.5). This intertidal area provides important feeding grounds for shorebirds. Potential impacts of adaptation strategies on ecological values, and how these may need to be managed will be required.		

13.13: Ngataringa Bay

Commences in the west at Mozeley Avenue and includes the coastal area and road ends, culminating at Victoria Road end. It extends along the coast, culminating at the southern end of Ngataringa and Dacre Park. The stretch encompasses the residential areas of Devonport / Stanley Point, including waterfront properties. Aside from Ngataringa Bay Reserves, which form a thin buffer between residential properties and the coast in several places, there is no other Auckland Council-owned land, infrastructure, or assets within the stretch.

Scenarios for change		
Low	Moderate	High
No action 	No action 	No action 
Explanation		
There is limited Auckland Council land and assets within this stretch resulting in a no action strategy. This does not preclude management of risk to the road network and maintenance of existing access to the coast.		
Implementation Notes		
Ecological: Ngataringa Bay contains a mosaic of mangrove forest (SA1.2) and a small area of shellbanks (SA1.5). This intertidal area provides important feeding grounds for shorebirds. Potential impacts of adaptation strategies on ecological values, and how these may need to be managed will be required.		

13.14: Ngataringa Park

Stretch 13.14 commences at Ngataringa Park / Dacre Park and concludes where Ngataringa Park abuts Lake Road. Lake Road runs parallel to the parkland and separates Ngataringa and Dacre Parks from the Waitematā Golf Course on the eastern side of the road. Lake Road also provides the main access to and from the Devonport Peninsula and is prone to inundation.

Ngataringa and Dacre Parks make up one large park containing a range of community facilities which are well-used by both the local and wider communities. The parks are a closed landfill. Sports and recreation facilities include football fields, the North Shore United Football Club clubhouse (Auckland Council-owned), a walking track and a skatepark. Other community facilities include Devonport Recycling Centre, the Community Garden Green House, and Community Garden Toolshed. Lake Devonport pump station is also located within Dacre Park. Walking tracks around these parks are of high value to the local community.

Scenarios for change			
Low		Moderate	High
Protect		Protect	
		Adaptation Priority	
Explanation			
Protect reflects the nature of land use and the need for management of land areas and highly valued assets and coastal connections and uses in Ngataringa Park. Continued defence from the existing concrete seawall will maintain a fixed coastal edge along the edge of Lake Road, which is a critical part of the transport network. Adaptation priority is identified for a high climate change scenario, reflecting increasing risks from coastal hazards and the need to manage risk to parks uses and the roading network. It is a long-term strategy in response to increasing risks from coastal hazards and the need to manage risk to parks uses and the roading network.			
Implementation Notes			
• Closed Landfill: Dacre Park and Ngataringa Park are closed landfills which will 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: Local iwi (namely Te Akitai Waihoua) expressed an interest in understanding the impacts of APA on closed landfill assets. Ongoing engagement with local iwi will be required to ensure collaboration and engagement across all scenarios. • Management: This stretch is to be considered in parallel to Stretch 14.1 because the roading assets located within this stretch are flooded via Stretch 14.1. • Management: This stretch contains the main entry road (Lake Road) into Devonport. These roads are exposed to coastal erosion and inundation from the short term and are a critical part of the transport network for the local community. Auckland Transport, will need to be engaged to understand how adaptation strategies may impact on operation of their assets. • Ecological: Ngataringa Bay contains a mosaic of mangrove forest (SA1.2) and a small area of shellbanks (SA1.5). This intertidal area provides important feeding grounds for shorebirds. Potential impacts of adaptation strategies on ecological values, and how these may need to be managed will be required.			



Unit 14

Weiti Estuary to Devonport



Unit 14: Bayswater and Belmont

This unit, located within the Devonport – Takapuna Local Board area, commences at Lake Road / Alison Park in the west and concludes at Northboro Reserve (Eversleigh Road end). It covers the coastal suburbs of Bayswater, Belmont and Ngataranga Bay. Numerous reserves and parks line the coastal edge of this unit, providing a range of services including coastal walkways, water access and boat ramps.

What is happening? Coastal context and hazardscape

Ngataranga Bay and Shoal Bay are low-energy coastal environments exposed to short inner harbour fetch distances characterised by extensive shallow intertidal flats. Established mangrove stands along the inner sections of this coastline reflect the low energy environment. Seawalls armour reclaimed land at Bayswater Point, Marine Parade Reserve, and Lansdowne Reserve. Remaining sections of reserve are unarmoured.

Coastal inundation and erosion present the biggest risk to the coastal margin of Plymouth Reserve, Kawerau (Oliver Reserve), O' Neils Cemetery Park, and Philomel, Sandy Bay, Landsdowne, and Marine Parade reserves. However, these sections of coastline are fronted by extensive shallow intertidal areas and established mangroves in places, functioning as a natural buffer from ongoing weathering and inundation. The main entry road (Lake Road) into Devonport is located within this unit, vulnerable exposed to coastal erosion and coastal inundation from the low change scenario onwards, with inundation from either side of the peninsula.

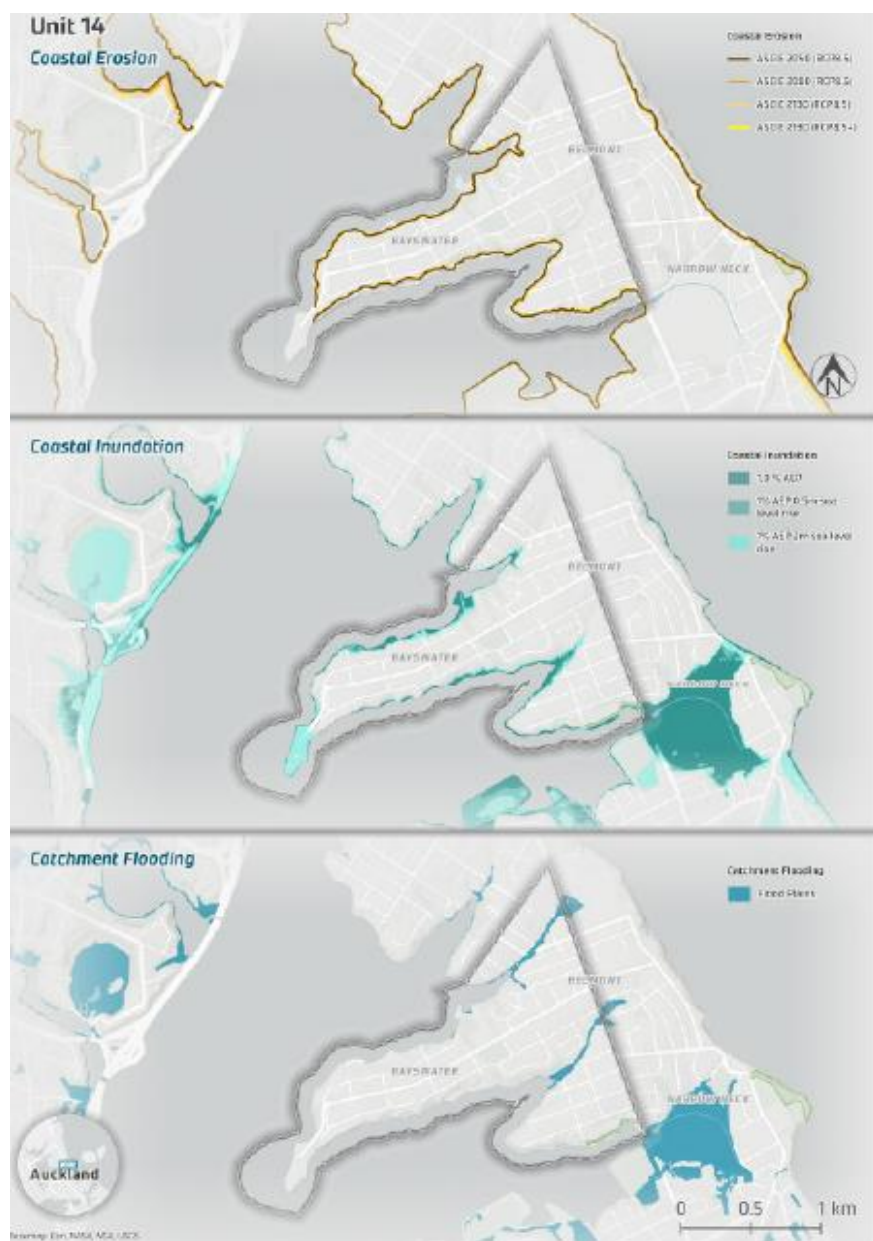


Figure 26: Coastal Hardscape for the Bayswater and Belmont Unit, reflecting coastal erosion susceptibility for 2050, 2080 and 2130 considering RCP4.5 and RCP8.5 emission scenarios, coastal inundation for 1% AEP storm surge for present day and with 0.5 m, 1 m and 2 m sea-level rise and the identification of flood plains.



Risk assessment

The table below summarises the risk levels for Auckland Council asset types in the short, medium, and long term and which relate to the use of the low, moderate and high climate change scenarios. At the unit level, transport groupings are at a greater risk from coastal inundation in the short to medium term due to the low-lying, coastal nature of critical transport corridors (i.e. Lake Road) and water based infrastructure (Bayswater Ferry Terminal) serving as lifeline infrastructure as well as key transport utilities.

Unit 14 Council-owned land & assets metrics and associated risk scores (short, medium, long terms)											
Council-owned land			Council community facilities			Transport infrastructure			Water infrastructure		
Park and reserve land (21.3 ha) Buildings, wharves (38 No.)			Park amenity structures, carparks, accessways, buildings (0.6 ha)			AT roads (17.2 km) Bridges (462.3 m ²)			Water pipes (96.3 km)		
Short	Medium	Long	Short	Medium	Long	Short	Medium	Long	Short	Medium	Long
Coastal erosion and instability susceptibility											
Moderate	Moderate	Moderate	Moderate	High	High	High	High	High	High	High	High
Coastal inundation											
Moderate	Moderate	Moderate	High	High	High	Very high	Very high	Very high	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 stretch that may be impacted by coastal hazards (inclusive of catchment flooding) over changing climate scenarios.



- Bardia Esplanade Reserve
- Bayswater Park
- Bayswater Esplanade Reserve
- Garden Court Grounds
- Guiniven Reserve
- Hill Park
- Holloway Reserve
- Marine Parade Reserve
- Ngataranga Bay Reserves
- Northboro Reserve Oliver Reserve
- Norwood Road Esplanade Reserve
- Norwood Road Stormwater Reserve Lansdowne Reserve
- ONeill's Park
- O'Neill's Point Cemetery
- Philomel Reserve
- Plymouth Reserve (closed landfill)
- Preston Court grounds
- Quinton Park
- Sandy Bay Reserve
- Sir Peter Blake Reserve



- Bayswater Ferry Terminal



- Bayswater pump station
- Kawerau pump station
- Norwood pump station
- Regent pump station



Key connections:

- Takapuna to Devonport Path
- The road network includes Lake Road, providing direct access to the North Shore/ beyond. The unit is also supported by active transport with pedestrian pathways and cycling routes.

**Harbour access:**

- Hill Park boat ramp
- Holloway Reserve boat ramp
- Marine Parade Reserve boat ramp
- Landsdowne Reserve boat ramp
- Sandy Bay Reserve 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 over changing climate scenarios.



- Specific cultural values and outcomes for this unit will be developed through ongoing involvement with local iwi identified in Volume 2. Guiding objectives and outcomes which have informed the development of adaptation strategies have been identified in Volume 2.



- Bayswater Park is bordered by established trees including sports fields and fitness equipment. A footpath connects Bayswater and Roberts Avenues and provides easy access to the toilets and playground.
- Holloway Reserve – private boat ramps providing highly valued coastal access.
- O'Neill's Point Cemetery on the coastal edge near Bayswater Park is a historically significant burial ground for many residents, Māori and Pacific Island soldiers from the First World War.
- Bayswater Marina Reserve, located adjacent to Bayswater Marina, offers a variety of recreational amenities and serves as a hub for water-based activities, boating and fishing.
- Te Bayswater Marina facility provides mooring and services for various vessels, including yachts and smaller boats. It features secure berthing, refuelling stations, and maintenance services. The marina has a ferry terminal connecting Bayswater to Auckland's CBD.



- Coastal broadleaved forest dominated by pōhutukawa (WF4) along the cliffs of the peninsula, which transitions into patches of mangrove forest (SA1.2) further inland (Singers et al., 2017).
- A small area of wetland at O'Neills Point Cemetery is identified as Tāmaki ED Wetlands and also classified as a BFA.
- The estuarine inlets of Oneoneroa / Shoal Bay and Ngataranga Bay are classified as marine SEAs and are dominated by mangrove forests that are likely utilised by wetland birds.
- A large number of avifauna have been recorded utilising Sandy Bay Reserve.



- Feedback placed walking on the beach and nature watching as the most important activities. People also valued cycling and water-based activities such as boating and sailing.
- Aspirations for strategies to incorporate ecological restoration and pest control, including the monitoring and management of shorebirds and mangrove ecosystems.
- Aspirations for recognition of the Plymouth Reserve Chenier shell banks under the SEA Marine 1 overlay of the Auckland Unitary Plan, given the role this feature plays as an important roosting and nesting area for 'At Risk' shorebird species.

What Can we do about it? Adaptation Strategy Unit 14 Bayswater and Belmont

14.1: Lake Road

Stretch 14.1 commences at Lake Road and includes the northern connection of Lake Road, culminating at Wakakura Crescent. The Takapuna to Devonport Path runs along the stretch and there is a pump station on the eastern side of Lake Road (Seabreeze pump station). The path, pump station and section of Lake Road are the only infrastructure within this stretch (noting infrastructure located just inland from this stretch is listed in the table below but has been considered separately as part of Stretch 12.2).

Scenarios for change					
Low		Moderate		High	
Protect		Maintain		Adaptation Priority	
Explanation					
Protect under a low climate change scenario reflects the continued management of risk to the roading connections, whilst supporting existing activities and land uses within this stretch. A maintain approach under a moderate climate change scenario recognises increasing risk from coastal inundation. The transition between these strategies is recommended to begin as assets are renewed or when maintaining coastal protection is no longer feasible. Adaptation priority is identified under a high climate change scenario in response to increasing hazard risks (i.e. inundation and rainfall flooding) to roading connections and landward land uses.					
Implementation Notes					
Management: - There is a historic closed landfill within Woodall Park which is managed under the Closed Landfill Asset Management Plan. Ongoing collaboration with the Closed Landfill Team will be required. - Consider this stretch in parallel to Stretch 12.2 noting the assets can be flooded from both sides of the coast. - This stretch contains the main entry road (Lake Road) into Devonport and is a critical part of the transport network. The road is exposed to coastal erosion and coastal inundation from the low change scenario onwards. Ongoing collaboration with Auckland Transport will be required to implement adaptation strategies.					

14.2: Wakakura Crescent (Mary Barrett Glade)

Commences at the eastern edge of Wakakura Crescent and concludes just short of Holloway Reserve. The stretch encompasses residential areas near Belmont. The Wakakura/Mary Barrett Glade is situated in the stretch, as well as small sections of Ngataranga Bay Reserves.

Scenarios for change					
Low		Moderate		High	
No action		No action		No action	
Explanation					
No action reflects the location of Auckland Council land and assets in relation to hazard areas within this stretch.					
Implementation Notes					
N/A					

14.3: Duders Point North

Commences at Holloway Reserve and concludes at Merwood Lane, just past Kawerau Reserve. The stretch encompasses residential areas near Belmont, along with Kawerau Reserve (Oliver Reserve), Hill Park, and Holloway Reserve which includes a playground and a dinghy/boat ramp. There is also a private dinghy/boat ramp adjacent to Hill Park within this stretch.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Adaptation priority 
Explanation Maintain under both low and moderate climate change scenarios allows for the continued upkeep of existing protective infrastructure (e.g. the seawall safeguarding reserve land at Holloway Reserve) and the preservation of highly valued community assets. It also enables the strategic, localised realignment of certain assets where necessary. Under a high climate change scenario, transitioning the area to adaptation priority highlights the need to reassess risks to land uses and assets to ensure that asset functionality can be maintained at acceptable service levels (e.g. potential localised realignment of the playground may be required).		
Implementation Notes Management: - Maintenance of key coastal connections needs to be factored into decision making across all climate scenarios (including the boardwalk along foreshore in Hall Park). Localised realignment to minimise the need for coastal protection structures should be considered. - Kawerau Reserve (Oliver Reserve) contains a wastewater pump station which may be exposed to coastal inundation under a low climate change scenario. - Kawerau Avenue is exposed to coastal inundation under a low – high climate change scenario and is part of the transport network for the local community. Ongoing collaboration with Auckland Transport may be required. Ecology: - Community feedback advocated for supporting the natural environment, acknowledging this area as an important environmental hotspot (breeding ground for a range of marine organisms within the inlet/ mangroves).		

14.4: Plymouth Reserve and West

Commences at Merwood Lane (at the Kawerau Reserve (Oliver Reserve) boardwalk/ bridge) and concludes at Norwood Road Stormwater Reserve and accessway. Plymouth Reserve is located along the eastern portion this coastal stretch, adjacent to the shoreline, while the remainder of the area is bordered by private properties. Bayswater Park and Belmont Park Bowling Club are located inland.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation Coastal reserves (specifically Plymouth Reserve) and associated assets are vulnerable to both coastal erosion and inundation under all climate change scenarios. A maintain approach acknowledges the necessity of continuous maintenance for existing assets and land uses, while allowing for the localised realignment of assets when needed to address hazard risks.		
Implementation Notes • Management: Highly valued coastal connection (boardwalk) between Kawerau Reserve (Oliver Reserve) to Plymouth Reserve is to be maintained. • Ecological: Important ecological features including mangrove forest, marine and terrestrial SEA. Maintain a natural coastal edge to support ecological outcomes. • Community: Viewpoints over Ngataranga Bay and walkways through mangroves/ bush are highly valued by the local community. • Management: Plymouth Reserve is situated on a closed landfill site and is managed under the Closed Landfill Asset Management Plan. Ongoing engagement with the Closed Landfill Team to ensure alignment in management approaches.		

14.5: Bayswater Southern Coastline

Commences at Norwood Road Stormwater Reserve and accessway and concludes at Sir Peter Blake Reserve, just shy of Bayswater Marina.

Scenarios for change		
Low	Moderate	High
No action 	No action 	No action 
Explanation No action as there is limited Auckland Council infrastructure. This does not preclude management of risk to coastal accessways, if required over time, via localised realignment.		
Implementation Notes • Ecology: Important ecological features include a marine and terrestrial SEA. This strategy does not preclude advocacy and support for ecological corridors within this stretch.		

14.6: Bayswater Transport / Ferry Connection

Commences at Sir Peter Blake Reserve and concludes at Marine Parade Reserve. This stretch is intended to reflect the importance of the Bayswater Ferry connection and the landward road network which serves this. This coastal edge is highly modified including rock revetments that surround the carpark adjacent to Marine Parade Reserve. Council assets identified within this stretch also include toilet facilities, and water infrastructure.

Scenarios for change		
Low	Moderate	High
Protect 	Protect 	Protect 
Explanation Bayswater Marine (a privately owned and operated marina) owns land and assets which are associated with the provision of this ferry access facility. The adaptation strategy of protect only relates to the intended protection of roading connections to and maintenance of a ferry /water transport connection from this coastal stretch and does not apply to private land holdings. Bayswater Ferry Terminal is an important transport connection with maintenance of existing coastal protection structures supporting this. Management of risk to roading connections and other transport related activities in the long term in response to increasing inundation risk will be required.		
Implementation Notes • Collaboration: Bayswater Ferry services are currently managed by Auckland Transport. Ongoing engagement with Bayswater Marina as a critical stakeholder in implementing adaptation strategies for this stretch. The strategy of protect only relates to council land and assets located within this stretch (Bayswater Marina is privately owned). • Sir Peter Blake Parade provides access to Bayswater Marina and is exposed to coastal inundation under all climate change scenario. Protect provides for the proactive management of risk for this roading connection.		

14.7: Marine Parade Reserve

Stretch 14.7 covers the entirety of Marine Parade Reserve, concluding at the Marine Parade Reserve boat ramp. It encompasses residential areas of Bayswater, a dinghy/boat ramp, a carpark area, and part of Marine Parade Reserve. Marine Terrace runs parallel to the reserve within the stretch. There are rock revetments at the coast, adjacent to parkland.

Scenarios for change		
Low	Moderate	High
Protect 	Protect 	Adaptation Priority 
Explanation Protect recognises the existing armoured coastal edge and important provision for harbour access under a low-moderate climate change scenario. Under a high climate change scenario there may be increasing weathering of the coastal margin of the reserve and more frequent coastal inundation of car parking facilities. Adaptation priority will facilitate the safe use and location and design of assets as risks increases with sea-level rise.		
Implementation Notes • Protect under a low – moderate climate scenario will allow for continued use of this area for parking and boat launching. This aligns with community values for this stretch of coast.		

14.8: Quinton Park

Stretch 14.8 commences at the northern boundary of Marine Parade Reserve (just past the boat ramp) and concludes at 1 Beresford Street Bayswater, encasing the entirety of Quinton Park.

Scenarios for change					
Low		Moderate		High	
Maintain		Maintain		Adaptation priority	
Explanation					
Maintain provides for the maintenance of key accessways and facilities, under a low to moderate climate change scenario. Acknowledging increasing erosion of the coastal margin, managing risk through relocation and design of assets within current Auckland Council-owned land areas under a high climate change scenario may require a transition to adaptation priority.					
Implementation Notes					
• Management: The Pétanque court is highly valued and engagement with local communities may be required under a high climate change scenario to ensure this asset is appropriately managed.					

14.9: Bayswater Esplanade Reserve

Commences near Marine Terrace and concludes just short of Lansdowne Reserve. The stretch encompasses residential areas of Bayswater, with Beresford Street and Bayswater Esplanade Reserve. Most of the stretch comprises coastal private properties, except for several small areas of reserve land allowing for coastal access.

Scenarios for change					
Low		Moderate		High	
No action		No action		No action	
Explanation					
This stretch is composed predominantly of private properties with limited patches of reserve land allowing for coastal access.					
Implementation Notes					
• A no action strategy does not preclude management of risk to Council-owned coastal accessways, if required. Realignment and design of access structures are preferred methods, minimising the need for coastal protection structures.					

14.10: Lansdowne Reserve

Commences at the western boundary of Lansdowne Reserve and concludes at its eastern edge. The reserve contains a carpark, a boat ramp/ coastal access, and a playground. The stretch encompasses residential areas of Bayswater, Lansdowne Street and Beresford Street. There is a seawall and revetments bordering the parkland at Lansdowne Reserve.

Scenarios for change					
Low	Moderate		High		
Protect		Maintain		Adaptation Priority	
Explanation					
Protect and maintain under a low to moderate climate change scenario to manage coastal erosion risk through existing coastal defence structures, plus allowing for carparking and coastal access to be maintained in their current location. Adaptation priority under a high climate change scenario recognises the significant inundation risk with sea-level rise to existing services, assets and facilitates appropriate management of hazard risk.					
Implementation Notes					
Management: • Landsdowne Street is exposed to coastal erosion and inundation under a low – high climate change scenario. Ongoing engagement and collaboration with Auckland Transport will be required. • Under the high change scenario, consider the proactive relocation of facilities away from hazard areas.					

14.11: Lansdowne Reserve to Sandy Bay Reserve

Commences at the eastern edge of Lansdowne Reserve and concludes at Sandy Bay Road end, just short of Sandy Bay Reserve. The stretch encompasses residential areas of Bayswater and sections of Bayswater Esplanade Reserve. There is no other Auckland Council-owned land, assets, or infrastructure in the stretch.

Scenarios for change					
Low		Moderate		High	
No action		No action		No action	
Explanation					
No action is reflective of an absence of Auckland Council assets within this stretch exposed to coastal hazard risk.					
Implementation Notes					
N/A – predominantly private coastal properties					

14.12: Sandy Bay Reserve

Commences at the western edge of Sandy Bay Reserve and concludes at the Beresford Street accessway. There is a boat ramp located at this reserve, along with park amenities. There are limited Auckland Council-owned assets within the stretch, however the boat ramp provides important access into the harbour. Sandy Bay Reserve has records of a range of avifauna utilising the habitat and the estuarine area of Oneoneroa / Shoal Bay is mapped as a marine SEA.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation		
Maintain provides for the maintenance of existing assets and land uses (services) to manage coastal hazard risks with localised realignment of assets (i.e. boat ramp) within Sandy Bay Reserve.		
Implementation Notes		
Ecology: Important ecological features include a marine SEA and Sandy Bay Reserve. Consideration of ecological corridors may be possible across all climate change scenarios.		

14.13: O'Neill's Point Cemetery

Commences at the Beresford Street accessway to Sandy Bay Reserve and concludes just shy of Philomel Reserve. O'Neill's Point Cemetery is of high value to the local community. Adjacent are residential areas of Bayswater. There are a number of heritage features are listed under the AUP.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Adaptation priority 
Explanation		
Maintain under a low to moderate climate change scenario reflects the importance of valued cycleway connections in this stretch (Takapuna to Devonport Path) and the risk to associated accessways. Appropriate design of access structures and coastal connections, and localised realignments (where required), can be considered whilst supporting the retention of a natural coastal edge in alignment with community values. Coastal inundation under a high climate change scenario requires proactive management and planning for existing land uses, coastal connections and services via a transition to adaptation priority. While only small coastal sections of O'Neill's Point Cemetery will be exposed under a high climate change scenario, this is an important community and cultural asset (multiple heritage features, midden), hence signalling the need to think proactively about its future use.		

Scenarios for change		
Low	Moderate	High
Implementation Notes		
• Management: The Takapuna to Devonport Path passes over a section of the inlet near Shoal Bay via a boardwalk. Ongoing maintenance and retention of this highly valued coastal connection. • Ecology: Important ecological features include several mapped and a BFA. Consideration of nature-based solutions to support this ecological asset in alignment with community values.		

14.14: Philomel Reserve

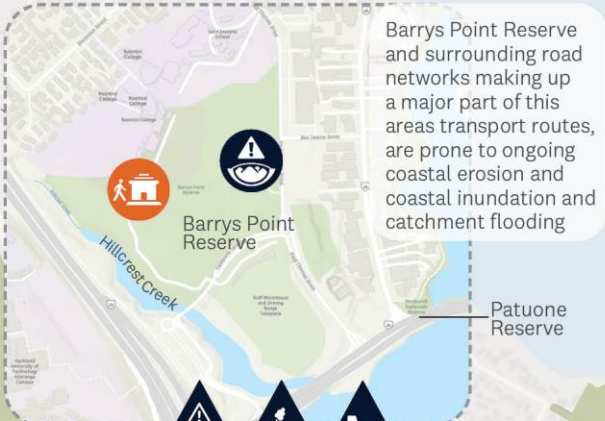
Commences at the eastern edge of O'Neill's Point Cemetery and concludes at Northboro Reserve / Eversleigh Road with Bayswater residential areas. Parks and reserves include Philomel Reserve, Bardia Esplanade Reserve, Preston Courts grounds, and Garden Court grounds, most of which are thin esplanade reserves along the coastline. Auckland Council-owned buildings include Garden Court community buildings.

Scenarios for change		
Low	Moderate	High
No action 	No action 	No action 
Explanation		
No action reflects the lack of Auckland Council-owned infrastructure in this stretch. This does not preclude management of risk to coastal accessways, if required. Realignment and design of access structures are preferred methods for the management of risk, minimising the need for coastal protection structures.		
Implementation Notes		
• Ecology: Consideration of ecological corridors may be possible across all climate change scenarios.		



Unit 15

Weiti Estuary to Devonport



Barrys Point Reserve and surrounding road networks making up a major part of this areas transport routes, are prone to ongoing coastal erosion and coastal inundation and catchment flooding



Barrys Point Reserve

Patuone Reserve



Northcroft Reserve is a high valued place and connection around the Inlet. The Takapuna to Devonport Cycling Path extends along this stretch. Ongoing coastal erosion and inundation is an issue for reserves and connections in this location.

Auburn Reserve - Highly valued connection through Patuone Reserve, linking Auburn Street Reserve and Northcroft Esplanade Reserve

Esmonde Road - Key roading connection

Large shellbank recognized as a important high - tide bird roost for several species of avifauna while providing a buffer to wave energies



Northboro Reserve - This long narrow reserve is highly valued by the local community for its path networks, diversity of assets and ecological values, providing a coastal connection across the inlet to Jutland Reserve



- Unit boundary
- 15.1 15.2 Stretch
- Informal recreation park
- Mooring management area
- Auckland Council owned land

0 0.5 1km

Unit 15: Barrys Point

This unit, located within the Devonport – Takapuna Local Board area, commences at the eastern edge of Northboro Reserve (Eversleigh Road end) and concludes in the west at Esmonde Road. Critical roading infrastructure and networks transverse this coastal stretch (i.e. Esmonde Road), whilst the shoreline itself is lined with coastal reserves fragmented by private properties, coastal walkways and vegetation.

What is happening? Coastal context and hazardscape

Shoal Bay coastline of Unit 15 is a low-energy environment exposed to short inner harbour fetch distances and characterised by extensive shallow intertidal flats. Established mangrove stands along the inner sections of this coastline reflect the low-energy environment. An extensive raised shell bank extending parallel to the inner Shoal Bay's eastern coastline also provides a buffer to wave energies. The Waitematā sandstone cliffs of this coastline are subject to slow, ongoing weathering and erosion, and occasional episodic failures or slips. There are no seawalls armouring the reserves along Unit 15's coastline, whilst a rock revetment armour parts of Esmonde Road.

Coastal inundation flooding is predicted to impact the fringe of coastal parks and esplanade reserves along the coastal margin of Barrys Point, in particular at Northboro Reserve, Auburn Street Reserve and Patuone Reserve, impacting the functionality of assets (i.e. highly valued walkways). Critical lifeline infrastructure (Esmonde Road) will be increasingly exposed with future sea-level rise impacting key transport corridors. Catchment flooding is an identified hazard for this unit, particularly for the western side of this unit's catchment, impacting transport connections, (i.e. Akoranga bus station and Esmonde Road, both of which are critical transport connections).

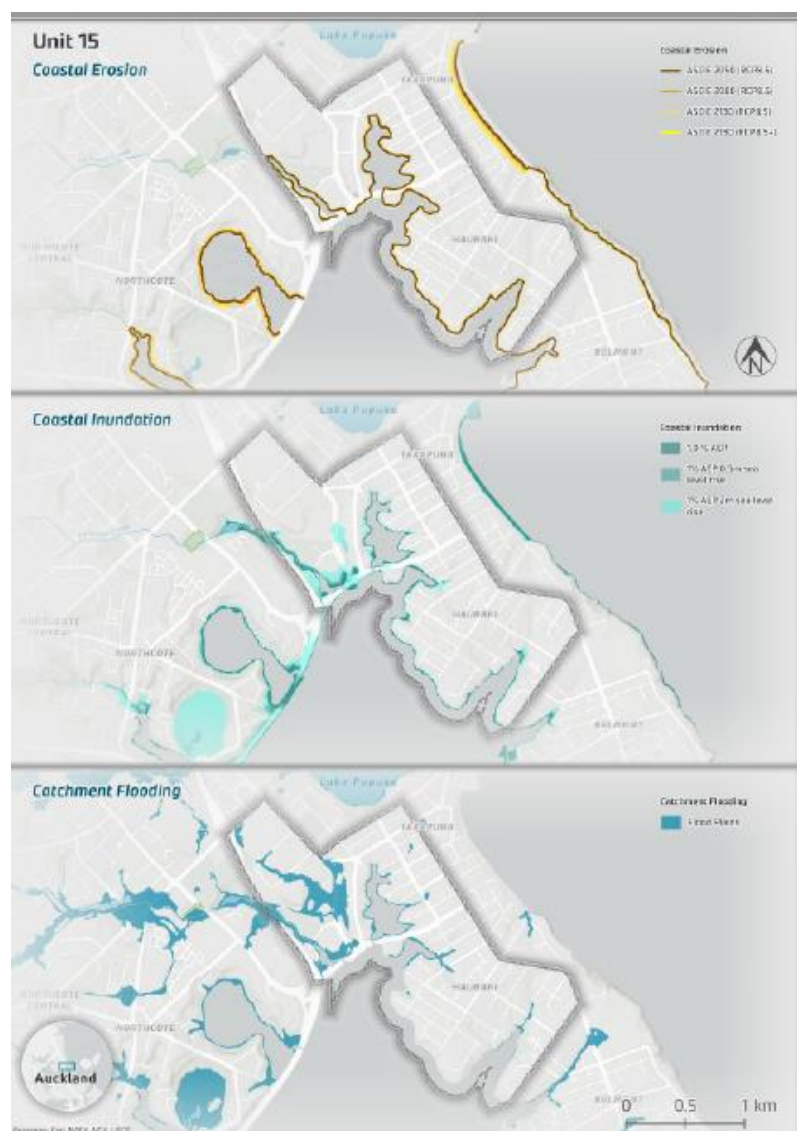


Figure 27: Coastal Hazardscape for the Barrys Point Unit showing coastal erosion susceptibility for 2050, 2080 and 2130 considering RCP4.5 and RCP8.5 emission scenarios, coastal inundation for 1% AEP storm surge for present day and with 0.5 m, 1 m and 2 m sea-level rise and the identification of flood plains.



Risk assessment

The table below summarises the risk levels for Auckland Council asset types in the short, medium, and long term and which relate to the use of the low, moderate and high climate change scenarios. At the unit level, transport groupings are at a greater risk from coastal erosion susceptibility and coastal inundation in the short to medium term due to the low-lying, coastal nature of critical transport corridors in and around Barrys Point, providing key access to and from Hauraki, Takapuna and Devonport.

Unit 15 Council-owned land & assets metrics and associated risk scores (short, medium, long terms)											
Council-owned land			Council community facilities			Transport infrastructure			Water infrastructure		
Park and reserve land (34.1 ha) Buildings, wharves (22 No.)			Park amenity structures, carparks, accessways, buildings (1.9 ha)			AT roads (25.7 km) Bridges (2,248.3 m ²)			Water pipes (151.8 km)		
Short	Medium	Long	Short	Medium	Long	Short	Medium	Long	Short	Medium	Long
Coastal erosion and instability susceptibility											
Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Very high	Very high	Very high	High	High	High
Coastal inundation											
Moderate	Moderate	Moderate	Low	Low	Low	Very high	Very high	Very high	Moderate	Moderate	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 stretch that may be impacted by coastal hazards (inclusive of catchment flooding) over changing climate scenarios.



Reserves:

- Auburn Street Reserve
- Barrys Point Reserve (Closed Landfill)
- Charles Reserve
- Esmonde Road Reserve
- Jutland Reserve
- Napier - Harley Reserve
- Northboro Reserve
- Northcroft Esplanade Reserve
- Patuone Park
- Patuone Reserve
- Spencer Esplanade Reserve



- Auburn Street Reserve - Girl Guide Association of NZ
- Takapuna PHAB (Physically disabled & Able bodied) Office
- Takapuna Croquet Club



Pump stations:

- Barrys Point Wastewater pump station
- Fred Thomas Drive pump station
- Northboro pump station



Walking tracks:

- Jutland Bridge (walking tracks connecting Northboro Reserve to Jutland Road)
- Patuone walkway
- Takapuna to Devonport 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 over changing climate scenarios.



- Specific cultural values and outcomes for this unit will be developed through ongoing involvement with local iwi identified in Volume 2. Objectives and outcomes which have informed the development of adaptation strategies have been identified in Volume 2.



- Barrys Point Reserve is a popular open space area located on the western edge of Takapuna, offering a mix of recreational activities and natural landscapes.
- Lakehouse Trust and Art Centre (located in Barrys Point Reserve).
- Golf Warehouse Golf Range of Takapuna Landing is a popular driving range for golf practice.
- Northboro Reserve is an open space located in Hauraki. It is a long narrow reserve that runs along the water's edge and offers coastal views, walking paths, and open grassy areas suitable for outdoor activities.
- Transport options in this unit include SH1. The Northern Busway and Akoranga Bus Station also serve this area.
- Pumphouse residence (former).



- Unit 15 includes Shoal Bay East which forms a large marine SEA that covers the entire estuarine area of Shoal Bay. This area is important for a variety of avifauna.
- There is a large intertidal shellbank (SA1.5) which grades to mangrove forest (SA1.2) and patches of coastal broadleaved forest (WF4) and pūriri forest (WF7 – Regionally Critically Endangered) (Singers et al., 2017). The shellbank is recognised as an important high-tide bird roost.



- Nature and wildlife observation - particularly birdwatching - was identified as the most valued activity within the Barry's Point unit area.
- Emphasis was placed on native planting along Northboro Reserve (advocacy for protection).
- Respondents also expressed enjoyment of walking and running along the beach.
- Highly valued coastal connections (boardwalks) along Northboro Reserve and Jutland Reserve, connecting around to Hauraki.

What can we do about it? Adaptation Strategy Unit 15 Barrys Point

15.1: Northboro Reserve to Jutland Road

Stretch 15.1 commences at the eastern end of Northboro Reserve and concludes at Jutland Road. The stretch encompasses residential areas around Bayswater/Belmont and the Takapuna to Devonport cycling path extends along the stretch. Northboro Reserve contains a playground and a wastewater pump station, with walking tracks connecting Northboro and Jutland Reserve via Reserve Bridge (key connection).

Scenarios for change					
Low		Moderate		High	
Maintain		Maintain		Adaptation Priority	
Explanation					
Maintain enables the ongoing operational maintenance and management of risk to assets (including key walking connections, bridges and water networks). Assets located along the coastal margin of Northboro Reserve are exposed to both erosion and inundation under a low climate scenario. Adaptation priority in the high change scenario signals the need to respond to increasing inundation risk from sea-level rise and the location of different asset classes in an area which is ecologically sensitive and which includes transport networks highly valued by the community.					
Implementation Notes					
Maintain provides for the management of risk through design and location of assets. Maintain reflects the natural coastal edge, including mangrove forests in the intertidal area.					

5.2: Hauraki South

Stretch 15.2 commences at Jutland Road concluding at Napier Avenue. Reserves include Charles, Spencer Esplanade (owned but not maintained) and sections of Napier-Harley.

Scenarios for change					
Low		Moderate		High	
No action		No action		No action	
Explanation					
There are limited assets near to the coast, noting that coastal reserves in this stretch are predominantly owned but not actively maintained (aside from Charles Reserve – no physical assets). No action supports the preservation of a natural shoreline.					
Implementation Notes					
Ecology: Important ecological features including shellbanks and SEAs. This strategy does not preclude advocacy and support for ecological corridors within this stretch.					

15.3: Esmonde Road

Stretch 15.3 commences at Napier Avenue and concludes at 46 Esmonde Road Takapuna, encasing the exposed coastal edge of Esmonde Road.

Scenarios for change		
Low	Moderate	High
Protect 	Protect 	Protect 
Explanation Protect is the chosen strategy across all climate scenarios due to coastal inundation risk to Esmonde Road edge. This reflects the need to protect this roading connection as a critical transport asset and lifeline infrastructure. Coastal inundation hazard risks will need to be considered in future asset design.		
Implementation Notes • Management: Protect confirms the fixed location of the coast in this area and maintenance of key transport activities. Collaboration with Auckland Transport to proactively manage Esmonde Road will be required. • Social: Community aspirations of a Francis Street to Esmond Cycleway, which would connect the Hauraki community directly with the Akoranga Bus Station (creating an underpass access for cyclists and pedestrians so they have a safe route to get to Takapuna). • Cultural: Local iwi (namely Te Ākitai Waiohū) expressed an interest in what the implementation of protection across all timeframes would look like. Ongoing engagement with local iwi across all timeframes will be required.		

15.4: Takapuna 2 Precinct (48 Esmonde road Private landholding)

Stretch 15.4 commences on the eastern side of 46 Esmonde Road Takapuna and concludes at the western end of 46 Esmonde Road Takapuna, encasing the entirety of this private landholding.

Scenarios for change		
Low	Moderate	High
No action 	No action 	No action 
Explanation No council-owned land or assets in this stretch (privately owned infrastructure/ property – Amaia Development Complex).		
Implementation Notes N/A – private landholding		

15.5: Esmonde North

Stretch 15.5 covers the northern extent of Esmonde Road, encasing the northern section of Esmonde Road exposed to coastal hazards.

Scenarios for change		
Low	Moderate	High
Protect 	Protect 	Protect 
Explanation Protect due to coastal inundation risk to the northern edge of Esmonde Road. This strategy acknowledges the need to protect this roading connection as a critical transport asset and lifeline infrastructure. Coastal inundation hazard risks will need to be considered in future asset design (the same as Stretch 15. 3).		
Implementation Notes • Management: Protect confirms the fixed location of the coast in this area and maintenance of key transport activities. • Collaboration with Auckland Transport to proactively manage Esmonde Road will be required.		

15.6: Takapuna West

Stretch 15.6 commences from approx. 45 Esmonde Road and concludes at Huron Street. This stretch encases sections of Esmonde Road Reserve, Northcroft Esplanade Reserve and Auburn Street Reserve.

Scenarios for change		
Low	Moderate	High
No action 	No action 	No action 
Explanation No action is the result of limited Auckland Council-owned land and assets within this stretch which are exposed to coastal hazards across all climate scenarios. Northcroft Esplanade Reserve contains a playground, however this is set back and out of the hazard zone, along with the pathway connecting Byron Avenue to Northcroft Reserve and Northcroft Street.		
Implementation Notes • Ecology: Important ecological features include a shellbank and SEA. Maintain a natural coastal edge to support ecological outcomes.		

15.7: Auburn Street Reserve to Esmonde Road

Stretch 15.7 commences from Auburn Street Reserve and extends along the western side of the inlet, covering Auckland Council land and assets within Auburn Street Reserve and Patuone Reserve.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation		
Maintain will manage the risk to Council assets and uses across all climate scenarios through location and design, noting walkways and reserves in this stretch are highly valued by the local community.		
Implementation Notes		
• Management: Auburn Street Reserve is a large recreation / sports facility, including numerous sports fields. Auckland Council-owned buildings at Auburn Street Reserve include the Girl Guide Association, Takapuna PHAB Office, and Takapuna Croquet Club. Engagement with key community groups may be required to manage risks to community facilities under a moderate to high climate scenario. • Management: Patuone Reserve walkway is a highly valued coastal connection funded and developed by the Devonport-Takapuna Local Board and Auckland Council. Walkway design has been future-proofed to accommodate plans to improve nearby stormwater infrastructure. Ongoing maintenance of this walkway across all climate scenarios is supported by this strategy.		

15.8: Barrys Point Reserve and Northern Busway

Stretch 15.8 commences at Esmonde Road and concludes just short of the Northern Busway. The stretch of road at the coast provides crucial connectivity between Auckland Central and East Coast Bays. Barrys Point Reserve is a large area of open space on the northern side of Esmonde Road which contains a closed landfill and two Auckland Council-owned buildings; one is a commercial building, and the other is The Lake House Trust which is primarily used as a community arts centre.

Scenarios for change					
Low		Moderate		High	
Protect		Protect		Protect	
Explanation					
Protect covers need for ongoing maintenance of an engineered coastal edge which accommodates key transport connections (Esmonde Road and Akoranga bus station) and landward reserve areas, including water infrastructure and closed landfill assets. Management of inundation from the coast, including sea-level rise, and catchment flooding will be required and will increase in the moderate to high change scenario.					
Implementation Notes					
Management: - Existing rock revetments around Esmonde Road will require ongoing maintenance and renewal. - There is a closed landfill within Barrys Point Reserve, managed under the Closed Landfill Asset Management Plan. Ongoing collaboration with the Closed Landfill Team will be required across all climate scenarios. - Akoranga bus station is a critical transport connection and is exposed to coastal inundation in the moderate to high change scenario. Auckland Transport will need to consider future implementation of this strategy.					