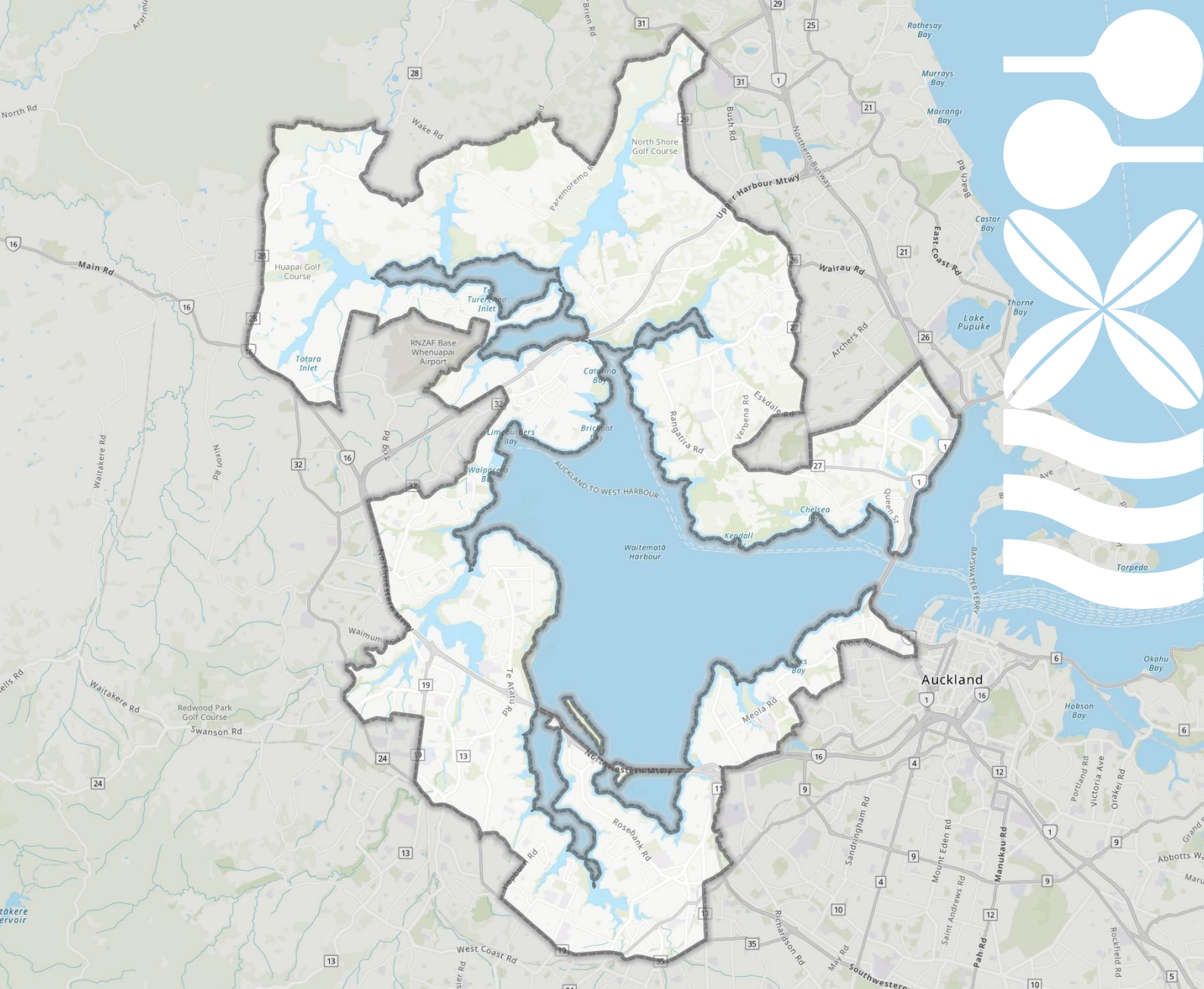




Ngā mahere whakaurutau mō te takutai

Shoreline Adaptation Plan

Waitematā Harbour West
Volume 3: Units 1 to 16

2025



Shoreline Adaptation Plan: Waitematā Harbour West

Volume 3 Units 1 to 16

May 2025

Auckland Council

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Recommended citation:

Auckland Council (2025). Shoreline Adaptation Plan: Waitematā Harbour West Volume 3 Units 1 to 16

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Front Cover

Shoreline Adaptations Plan area overview map for Waitematā Harbour West. Prepared for Auckland Council by Tonkin + Taylor 2023.

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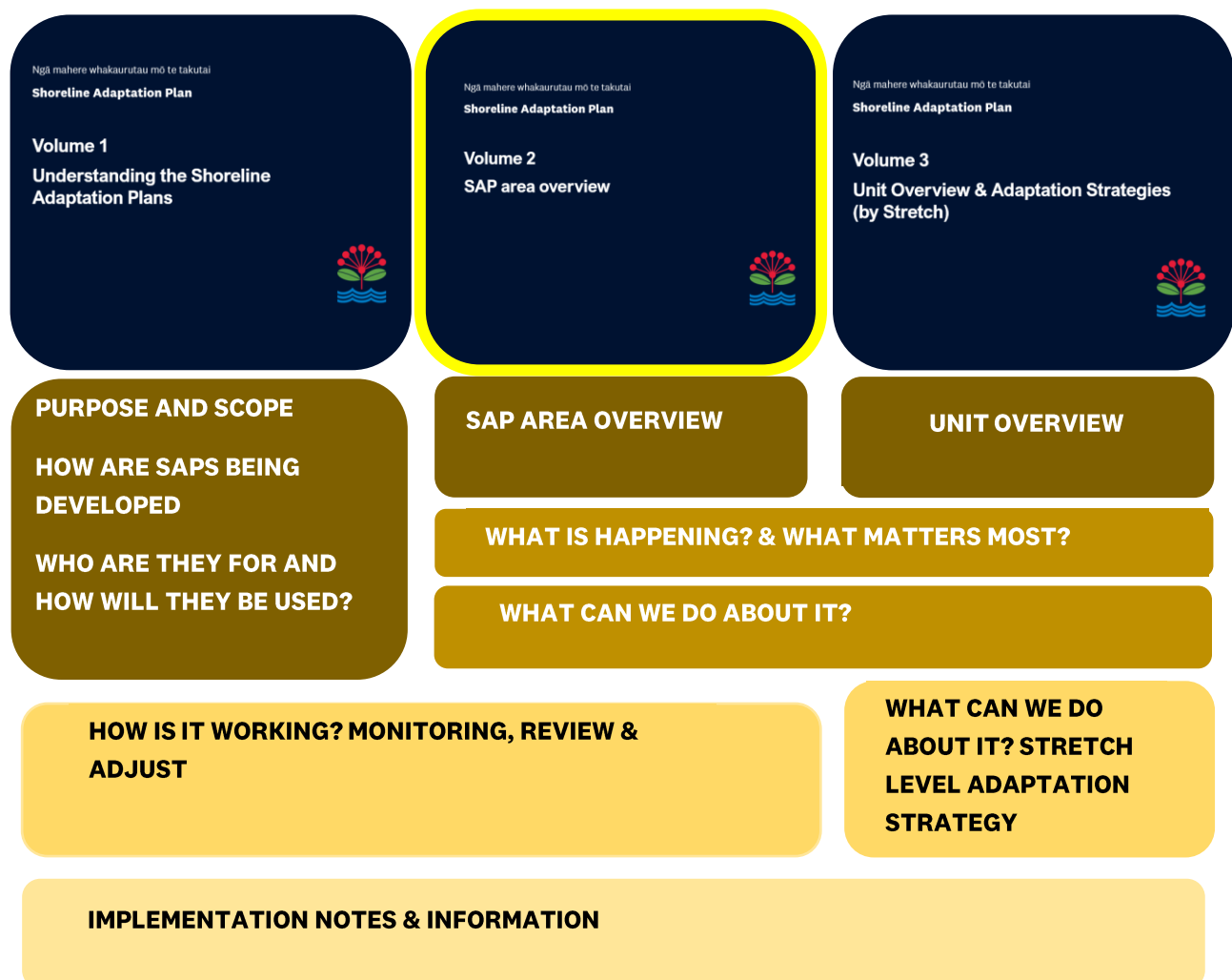
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Quick Reference

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

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

Term	Definition
Adaptive planning	Adaptive planning encompasses the hazard assessments, the values and objectives and the vulnerability and risk assessments that feed into the dynamic adaptive pathways planning approach, and the measures to implement them through the Resource Management Act 1991, Long-Term Plans, asset plans and other Auckland Council plans, along with the monitoring framework for review and adjustment (Ministry for the Environment, 2024).
Annual Exceedance Probability (AEP)	The probability of an event occurring in any given year. For example, the 1% AEP has a 1% chance of being met or exceeded in any given year.
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 Shoreline Adaptation Plans*. Twenty separate SAPs make up Auckland's ~3200 km of coast as follows (also see Figure 1):

- 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

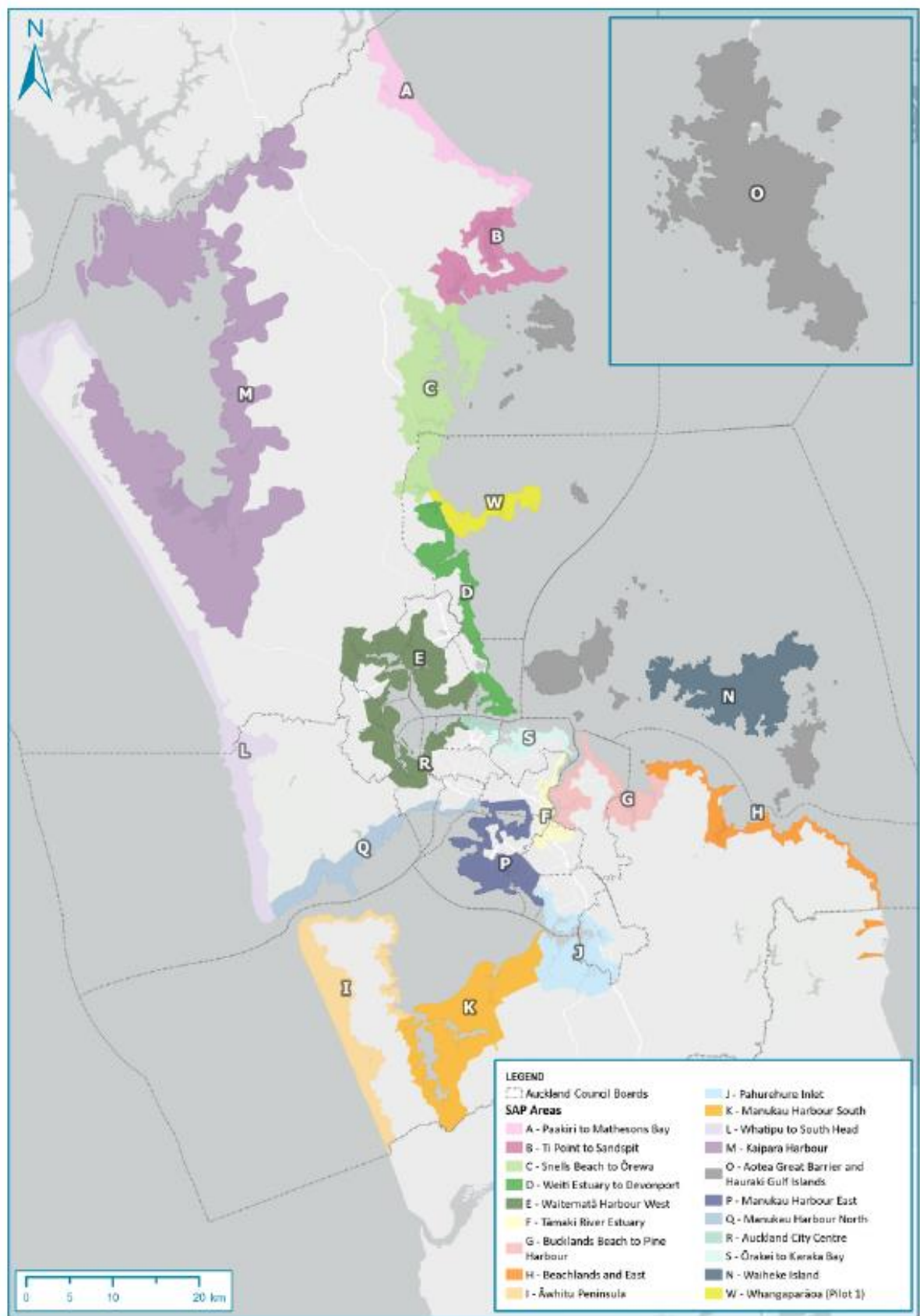
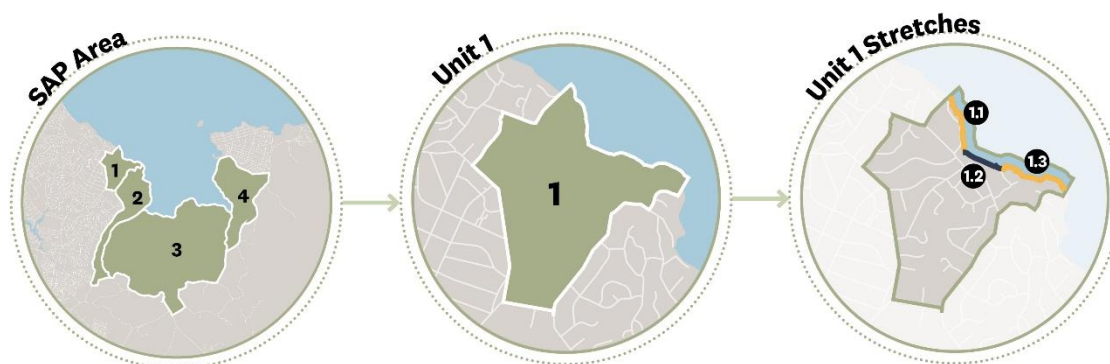


Figure 1: Shoreline Adaptation Plans (regional)

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.



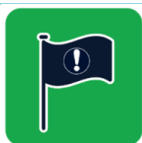
Maintain

- 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

Waitematā Harbour West



Key transport connection and busway



Auckland University of Technology (AUT)

Te Ara o Matakamokamo / Tuff Crater Reserve



Mangrove forest and saltmarsh provide important habitat for a range of avifauna



Onepoto Domain

Highly valued and utilised recreational area

Gold Hole Reserve and Sulphur Beach



Key coastal access, community boating and water access

Onewa Pā / Stokes Point Path



Onewa Domain

Ngā Kōrari Reserve
Kōkō Reserve

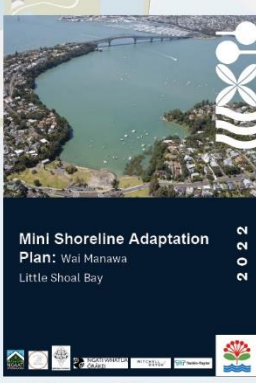
Te Kaitaka Reserve
Papa ki Awataha Reserve

Kauri Glen Reserve

Highbury Bypass

Wai Manawa Le Roys Bush Reserve

Needles Eye Reserve



Mini Shoreline Adaptation Plan: Wai Manawa Little Shoal Bay



- Unit boundary
 - Stretch 1.1 1.2
 - Informal recreation park
 - Auckland Council owned land
- 0 0.5km 1km

Unit 1: Northcote

This unit is located within the Kaipātiki Local Board area and adjoins the Weiti Estuary to Devonport Peninsular SAP area to the east. It includes the shoreline of Shoal Bay, where the State Highway meets the coast and includes Onepoto Domain, Tuff Crater, Sulphur Beach & Gold Hole, continuing around Northcote Point, Stokes Point, Halls Beach and Wai Manawa (Little Shoal Bay). The unit finishes to the east of Birkenhead Wharf Reserve and includes Needles Eye Point.

This Northcote unit includes the area that is the subject of the Wai Manawa (Little Shoal Bay) mini SAP, which is generally adopted as Stretch 1.7 within this parent SAP report. The ‘mini’ SAP is considered the more detailed plan for this stretch of coast.

The coastline includes nationally significant infrastructure and locally and regionally important coastal accesses. The identified strategies reflect the need to maintain significant infrastructure and reflect the areas of shoreline which remain predominantly in private ownership.

What is happening

Unit 1’s coastline is low energy, being exposed to only short fetch distances for local wind wave generation. The area is characterised by extensive shallow intertidal flats. Established mangrove stands and shell banks fringe the southeast-facing shoreline indicating a low energy environment. The cliff coastline along Stokes Point is exposed to occasional higher wave energy from the southwest due to the greater fetch across central Waitematā Harbour.

Coastal erosion and instability

The Waitematā sandstone cliffs of this coastline are subject to slow, ongoing weathering and erosion, and occasional episodic failures or slips. Much of the Shoal Bay shoreline has been modified with reclamation and rock armouring. Landslides have also been recorded during storm events along the Motorway Buffer Reserve, landward of the motorway area. Where coastal areas are armoured and protected, coastal erosion susceptibility may not be identified, however unprotected areas of the coast whether cliff coast (such as Stretches 1.6 and 1.8) or low-lying areas (Stretch 1.4) may be impacted by increasing sea levels exposing coastal edges to wetting and drying with tidal fluctuations which may impact their stability overtime.

In some areas (within the wider Shoal Bay), mangrove forest provides a nature-based defence, decreasing wave energy before it reaches the coastal edge.



Coastal inundation

Coastal inundation poses the greater hazard risk to Unit 1, with flooding extent predicted to impact the low-lying boat landing reserves adjacent to the northern motorway and surrounds including Tank Farm explosion crater and the Hillcrest and Onepoto Stream catchments.

Wai Manawa, Little Shoal Bay is low-lying and inundation occurs frequently during high tide, king tides and storm events, resulting in overtopping damage and scour behind the seawall and ramp areas. In the future, different sea-level rise scenarios could see a landward change in mean high water springs in low-lying areas, and increasing landward extent, frequency and depth of coastal flooding inundation. This is of relevance to Stretches 1.3 Onepoto Domain, and 1.7 Wai Manawa, Little Shoal Bay.



There are multiple existing coastal protection structures along this section of coastline. Some of the key features are:

- Shoal Bay shoreline has been extensively modified by reclamation and construction of the Northern Motorway. The coastal edge is armoured with rock revetment.
- Onepoto Domain is a previously tidal volcanic crater that was reclaimed in 1975, creating the present-day sports fields.
- There are two boat landing areas (Sulphur Point Reserve and Gold Hold) developed on armoured reclamations that provide recreational boating access to Shoal Bay and nearby mooring management area.

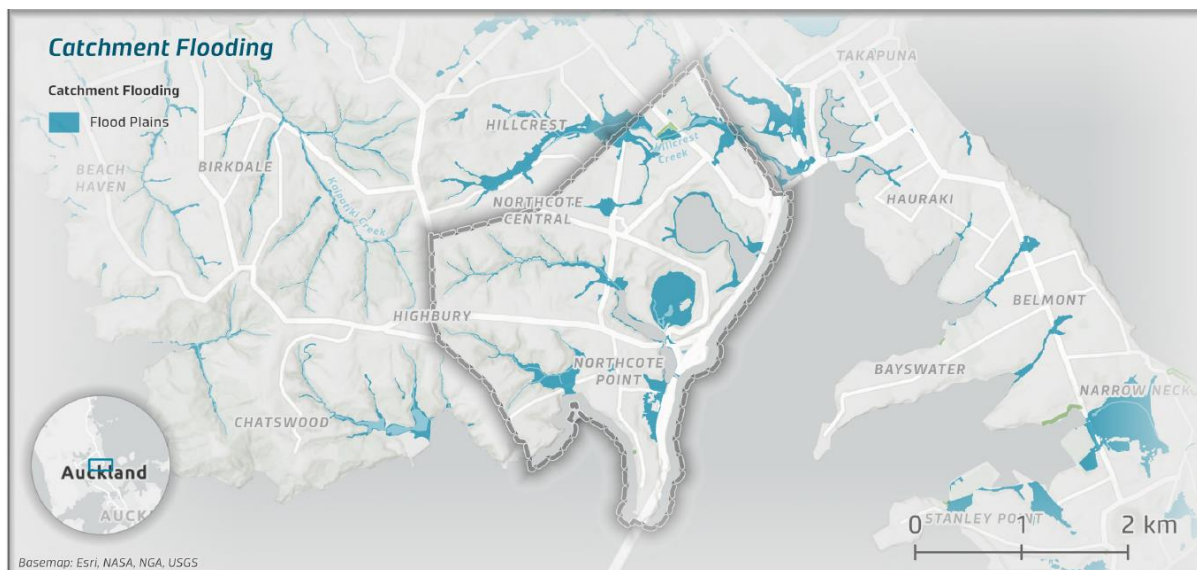
- Little Shoal Bay has been extensively modified by reclamation at the head of the embayment, and the construction of non-engineered seawalls, ramp and stream training groyne (wool bale). The seawalls are a combination of a sloped concrete wall with timber upstand along the crest and sloped grouted stone wall.



Spring tide, Little Shoal Bay (Source: Matthew McNeil)

- The Wai Manawa / Little Shoal Bay SAP provides high-level strategies for the management of coastal hazard risks to Auckland Council land and assets. As a more focussed, ‘mini’ SAP, this plan also includes a series of six current actions that can be undertaken within existing budgets to address current issues and support the development of future adaptation strategies.
- Results of the Wai Manawa/Little Shoal Bay ‘mini’ SAP have been embedded into the wider Waitematā Harbour SAP. Recognising the extensive engagement already undertaken for Wai Manawa/Little Shoal Bay, this area has not been revisited as part of the Waitematā Harbour SAP engagement process.
- There is a coastal renewal project developing erosion and inundation protection options that are consistent with the short-term strategy of the SAP, i.e. limited Intervention and ‘hold the line’ for the reserve edge and boat yard area. As part of this project, initial remediation of contaminated land in the boat yard has been undertaken.

Flooding



Flooding of areas of the Northern Motorway towards Esmonde Road is an identified issue with the 2023 storm events resulting in significant flooding of the motorway networks and local roading connections. Catchment flooding was also experienced in the Northcote area around Stafford Road and Stafford Park in the 2023 storm and other events.

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 are 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. The figure below shows the northern busway (looking north) in the 2023 Anniversary weekend flood events.



Source 1news

<https://www.1news.co.nz/2023/01/28/chaos-continues-with-motorway-road-closures-across-auckland/> Northern bus way looking north. 2023 anniversary weekend flood events. Source 1news <https://www.1news.co.nz/2023/01/28/chaos-continues-with-motorway-road-closures-across-auckland/>



Risk assessment

The risk table below represents key groups of assets (e.g. Auckland Council-owned land, buildings, road extents) which are supported by the regionally consistent data set. The risk assessment provides a regionally consistent method for comparing risk to Auckland Council-owned land and assets allowing for identification of areas with highest risk for potential future assessment (e.g. Series 2).

The table summarises the risk levels for Auckland Council asset types in the short, medium, and long term and which map to the use of the low, moderate and high climate scenarios.

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 (143.8 ha) Buildings, wharves (58 No.)			Park amenity structures, carparks, accessways, buildings (4.9 ha)			AT roads (41.1 km) Bridges (1,979.5 m ²)			Water pipes (266.6 km)		
Short	Medium	Long	Short	Medium	Long	Short	Medium	Long	Short	Medium	Long
Coastal erosion and instability susceptibility											
Moderate	Moderate	Moderate	High	High	High	High	High	High	High	High	High
Coastal inundation											
High	High	High	Very high	Very high	Very high	Very high	Very high	Very 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 unit that may be impacted by coastal hazards (inclusive of catchment flooding) over changing climate scenarios.



Reserves and parks

- Halls Beach Reserve
- Little Shoal Bay Waimanawa Foreshore Reserve
- Little Shoal Bay Waimanawa Reserve - Northcote Point
- Onepoto Domain
- Smiths Bush Scenic Reserve
- Tuff Crater Reserve (Te Kōpua a Matakamokamo)



- Northcote Lawn Tennis Club
- Shaolin Kempo building at Northcote Point
- Dinghy lockers at Sulphur Beach Reserve



Pump stations

- Arahia, Exmouth; Sylvan, Lake Road (Northcote), Sulphur Beach.



- Four walking tracks around the coast are within the unit:
 - Onepoto Path
 - Tuff Crater Path
 - Te Onewa Pā / Stokes Point Path
 - Le Roys Bush Path
- Key access to the coast is provided from Council Terrace and Queen Street.



- Coastal infrastructure includes boat ramps, wharfs and seawalls located at Sulphur Beach Reserve, Waimanawa Little Shoal Bay, and Stokes Point in Northcote 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 over changing climate scenarios.



- Awataha Marae is located within Stretch 1.1 and has no specific Iwi affiliations.
- Te Kōpua a Matakamokamo, Tuff Crater/Tank Farm, Northcote, (Schedule ID 086): Wāhi tapu (Unit 1).
- Te Onewa Pā is an area of key cultural significance located under the Harbour Bridge which historically included pā fortifications. The area was restored in 2018 to rejuvenate the site and reflect the significance of the area, including provision of walkways and planting (Boffa Miskell, 2024).
- Little Shoal Bay Reserve was historically used by Māori as a fishing ground and shellfish gathering. Refer also to the cultural context in mini SAP for Wai Manawa.
- 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 also been identified here.



- Unit 1 land use is predominantly residential, with areas of commercial use in the northern parts of the unit, along with the Auckland University of Technology Akoranga Campus. Unit 1 includes the village centre for Northcote and is traversed by significant transport infrastructure. Areas of open space provide for the numerous parks and reserves identified within this unit which serve the local community and wider catchment.
- The unit is traversed by significant transport infrastructure (subject to designations in the AUP) which historically has altered the coastal landscape. The development of further transport connections between the isthmus and North Shore have introduced potential for further connections in the future.
- Features within this unit include Onepoto explosion crater (geological site), identified as an outstanding natural feature and three Outstanding Natural Landscapes including the Tank Farm volcano, Shoal Bay chenier shell spits and Onepoto explosion crater.
- Waimanawa Little Shoal Bay is the home of Birkenhead Sea Scouts.
- The main beach areas in the unit are at Halls Beach and Wai Manawa Little Shoal Bay, which are primarily used for informal recreation such as swimming and walking. These beaches are known for their calm waters, suitable for swimming, kayaking, and paddleboarding; access activities can be dependent on tides.
- Water access and ability to access the harbour with watercraft is possible at several locations within the unit (Sulphur Beach Reserve, Gold Hole and Wai Manawa Little Shoal Bay Reserve).
- Access to mooring zones at Little Shoal Bay and to the east of Sulphur Beach within the wider Shoal Bay area, is facilitated by coastal infrastructure within the unit area.
- The unit is also close to SH1, with key connections to the motorway network at Northcote, Onewa Road and Barry's Point Road/Akoranga.
- Northcote Point Ferry Terminal (Stretch 1.6) provides transport connections to the central city area by sea.

- The unit includes shared cycling and walking routes popular for both recreational and connective purposes, including walkway networks around the Tank Farm (Stretch 1.2) and the Te Onewa Pā / Stokes Point Path that links reserve areas and Northcote Point.



- Tuff Crater (Tank Farm) Stretch 1.2, contains mangrove forest and saltmarsh that provide important habitat for a range of avifauna, including the red-billed gull, black shag, banded dotterel and banded rail.
- The City of Cork shellbank (adjacent to Stretch 1.1 and 1.2) supports a regionally significant sequence of Stipa-saltmarsh ribbonwood. This shellbank, as well as the adjacent constructed shellbank, are highly important high-tide bird roosts and nesting areas.
- Hillcrest Creek (Stretch 1.1) transitions into a small wetland system classified as raupō reedland bordering Smiths Bush and Akoranga Reserve that contain large fragments of pūriri forest, kahikatea forest and taraire, tawa, podocarp forest unique in this urbanised environment.
- Remnants of coastal broadleaved forest (WF4 – Regionally Endangered) border most of the coastline within this unit (Motorway Buffer Reserve, Stokes Point Reserve, Northcote Reserve, and surrounding Onepoto Domain).



Who have we heard from?

Feedback was received in relation to Unit 1 through survey responses, social pinpoint and submissions from Willow Bay/ Birkenhead Point Residents' community group. Noting the prior development of the mini SAP for Wai Manawa Little Shoal Bay, members of the community were particularly engaged in the discussions and other key areas for Local Board and community focus including Onepoto Domain, the Northcote Point area and coastal access points at Halls beach.

A drop-in event was held at Birkenhead library which included community attendance from the wider Northcote area. A community/Local Board-led event in Beach Haven also included feedback on Unit 1 areas and insights on the development of the mini SAP for Stretch 1.7.

What is happening?

Coastal erosion was identified as the hazard of greatest concern by those providing feedback. Additional concerns related to management of flood hazards within eastern areas (Stafford Park and Onepoto Domain) and more generally, the impact on transport infrastructure of the 2023 storm events.

Feedback identified the importance of transport connections both along the highway and associated busway and the functions of key local roads which provide access to these networks. Concerns were identified about the need for more infrastructure upgrading to ensure that these connections remain resilient.

What matters most? Community aspirations or outcomes

Key uses and activities included active recreation such as tennis, biking swimming and boating as well as passive recreation.

Key community uses and values included

- Halls Beach is popular for swimming and walking
- Sulphur Beach is popular for the boat ramp, mooring zone, and fishing
- Onepoto Domain is a popular destination (including playground, bike park, sports field).

What can we do about it? Community feedback and aspirations

Feedback revealed general support for the strategies identified in the consultation material. Support for the 'Hold the Line' (Protect) approach for Little Shoal Bay was expressed by some, while other community members questioned the feasibility of protection given the experience of the 2023 storm events and the frequency of recurrent flooding impacting the reserve.

Community submitters sought a more collaborative, forward-thinking approach to managing coastal risks, emphasizing the need for community involvement and practical solutions. All feedback highlighted the value of inner-harbour areas and advocates for consideration of appropriate and resilient infrastructure, and public spaces.

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



1.1: Busway, Barrys Point Road & Onewa

Commences on the western side of SH1 and concludes adjacent the intersection of Onewa and Sylvan Roads where Onepoto Stream discharges to the harbour. This stretch includes the upper reaches of Shoal Bay, Hillcrest Creek catchment and the modified coastal edge of Shoal Bay as far south as Onewa Road interchange. Tank Farm Tuff Crater Reserve and inlet area landward of SH1 is not included in this stretch and is covered in Stretch 1.2.

Scenarios for change		
Low	Moderate	High
Protect 	Protect 	Protect 
Explanation This stretch includes highly modified coastal areas and key transport connections between the North Shore and the central city area including shared infrastructure providing for bus and cycleways alongside the State Highway (Waka Kotahi NZTA asset). Protection and maintenance of this modified coastline is anticipated over all climate scenarios. Options to manage risk associated with catchment flooding and coastal flooding under high climate change scenarios will be required in relation to both key transport corridors and local roads, such as Sylvan Avenue and Akoranga Road.		
Implementation notes • Protect confirms the fixed location of the coast in this area and maintenance of key transport activities. Management of impacts from catchment flooding (as experienced in 2023) will require further consideration to manage risk to acceptable levels of service. Engagement with key infrastructure providers, and third-party asset owners will be required to consider the function of key national transport connections in this stretch. • Mangroves fringing the rock armoured coastal edge may provide an opportunity for nature-based methods for 'protection' by reducing wave energy in combination with the shell bank system. • When addressing opportunities for the development of future path networks within Smiths Bush Scenic Reserve (the Kaipātiki Connections Network), the impacts of natural hazards and climate change will be considered.		

1.2: Te Kōpua a Matakamokamo Tank Farm/ Tuff Crater Reserve

The stretch commences adjacent to Tuff Crater Reserve in the east. It extends around the perimeter of Tuff Crater, culminating in the west at Exmouth Road. Tuff Crater Reserve has significant cultural, recreational, natural and heritage values. SH1 and associated transport connections are included in Stretches 1.1 and 1.3.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation		

Scenarios for change		
Low	Moderate	High
As assets and uses (primarily walkways) can be located and designed to respond to a changing hazardscape, a maintain strategy works well. It provides for consideration of ecological values within the stretch and consideration of the natural values of the geological formation and cultural context of Te Kōpua a Matakamokamo.		
Implementation notes		
Maintain provides for maintenance of walkway connections (Tuff Crater Path) using design and location within the reserve landholding to respond to coastal instability, erosion or inundation risks. Geology, cultural and ecological values support retention of a natural coastal edge; hard protection or armouring of land is not preferred. - Under a high climate scenario, assets and pathways may need to be located further landward from the coastal edge as they may be subject to increasing exposure to inundation. - Ecological values, including high-tide roosting and nesting areas, may need to be managed or supported to adapt to sea-level rise.		

1.3: Onepoto Domain & Onepoto Stream Catchment

This stretch commences south of Exmouth Road end including the coastal edge traversed by SH1, and Onepoto Stream catchment culminating south of Onepoto Domain, near Onewa Road (SH 27). Adjacent to the motorway and Northcote residential areas, it includes areas of privately-owned land along the coastline.

Scenarios for change		
Low	Moderate	High
Maintain 	Protect 	Protect 
Explanation		
The low-lying and highly modified nature of the 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. Under the low climate scenario, management of risk to roading connections may also be required. Under moderate and high climate scenarios, protect is identified to reflect the increased inundation risk from both coastal and catchment sources. This is driven by community feedback seeking the retention of sporting and recreational uses within the Domain along with a desire to increase the resilience of roading connections. Further exploration of the feasibility of options to achieve protection of uses and assets in their current locations will be required and may require consideration of alternative pathways in response to future moderate and high climate scenarios.		
Implementation notes		
Maintain provides for the continued management of assets and uses including operational management of stormwater quality treatment devices. The ponds located within the Domain were developed historically and have a limited function as a stormwater treatment device. - Subject to both maintain and protect under moderate and high climate scenarios, the development of new assets including pathway connections should consider design and location in relation to the management of risk over the life of the assets and how uses may be adapted. Protect under moderate and high climate scenarios reflects the highly valued uses and Domain assets identified by the community and local board. Key uses include the sporting and recreational facility, roading connections within the wider catchment and park facilities and uses within the upper catchment of Onepoto Stream. The low-lying nature of the land and potential for increasing exposure to catchment flooding, coastal inundation and		

Scenarios for change		
Low	Moderate	High
interface with groundwater levels (under moderate and high climate change scenarios) will require further analysis and development of options in order to explore the feasibility of protection options. Signals for the need to take further adaptive actions (including protection measures) will be required to be developed to inform future actions.		

1.4: Northcote East (Stafford Park)

Stretch 1.4 commences south of Onewa Road, and includes the coast south adjacent to SH1, culminating at the northern boundary of Sulphur Beach Reserve. This stretch includes the northern area of Northcote Point and Stafford Park. The coastal edge has been highly modified with existing seawall / rock armouring protecting portions of SH1.

Scenarios for change		
Low	Moderate	High
Maintain 	Adaptation priority 	Adaptation priority 
Explanation Strategies for this stretch are driven by exposure to inundation and catchment flooding. Under a low climate scenario, maintain is identified to reflect the potential to maintain current uses and assets, and the need to consider design and location to improve resilience when assets are renewed. Under moderate and high climate scenarios, acknowledging both the increased exposure to hazard risk and the concerns and experiences provided by the community, an adaptation priority strategy is identified. This is reflective of community values and the modified nature of the catchment presenting challenges for flood hazard management both from the coast and catchment.		
Implementation notes Maintain provides for the continued maintenance of assets such as pathways, Watercare services and pump stations. Maintain still allows for consideration of location and design to respond to increasing inundation risk (catchment and coastal) to ensure ongoing functionality when required. - SH1 runs along the coast and is a major part of Auckland's (and New Zealand's) transport network. Maintain supports the continued use of the State Highway. - 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 are 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.		

1.5: Sulphur Beach and Gold Hole

Stretch 1.5 commences at the northern end of Sulphur Beach Reserve and includes the coast south, culminating at the southern border of Gold Hole Reserve. Parts include private landholdings where there is no Council land located along the coastal edge. A seawall and rock armouring protect the coast adjacent to SH1 for parts of this stretch. As the highway climbs toward bridge areas, the coastal cliffed area is sheltered by the highway reclamation that provides protection from coastal processes.

Scenarios for change			
Low		Moderate	High
Protect		Protect	
			Adaptation Priority 
Explanation			
Protect under the low and moderate climate scenarios reflects the highly modified coastal edge for most of this stretch. Protect reflects the armouring of SH1 and areas of coastal reserves that provide key maritime access points and associated haul-out facilities that are highly valued by the boating community. Sulphur Beach Reserve and connecting road, and Gold Hole Reserve, parts of Te Onewa Pā / Stokes Point Path are exposed to inundation from the coast under all climate scenarios with inundation exposure increasing under the moderate to high climate scenarios. Adaptation priority is identified due to the complexity of land use and the highly valued coastal connections provided by these reserve landholdings.			
Implementation notes			
Protect applies to the maintenance of the existing armoured coastal edge. Ongoing inundation in the high change scenario will impact the current use of these areas. However, no coastal protection is envisaged for the unarmoured shoreline between Sulphur Beach and Gold Hole Reserve, or anticipated in relation to areas of private landholdings in this stretch Adaptation priority has been identified due to the importance of marine activities/ facilities in coastal locations, such as Sulphur Beach and Gold Hole Reserve, both of which are used for boat launching, maintenance and storage. A strategic assessment providing for suitable long term facilities will be required.			

1.6: Te Onewa Pā / Stokes Point and Halls Beach

Stretch 1.6 commences at the southern extent of Gold Hole Reserve and continues around Stokes Point / Northcote Reserve before culminating south of Little Shoal Bay Reserve. The stretch encompasses residential areas of Northcote Point and a small portion of SH1 at the northern side of the Harbour Bridge. Parks and reserves include Stokes Point Reserve, Fisherman's Wharf Reserve (and ferry terminal), Halls Beach Reserve, King Street Reserve which provide access to the coast within the northwestern areas of this stretch. Te Onewa Pā/ Stokes Point Path is a popular local pathways connection.

Scenarios for change			
Low		Moderate	
High			
Maintain		Maintain	
Maintain			
Explanation			
Maintain provides for the maintenance of existing protection structures in areas where the coastline is fixed, such as Fisherman's wharf and the ferry infrastructure, and also where public access to the coast is enabled (Kings and Halls Beach access). The strategies do not apply where coastal land is privately owned. Under a moderate to high climate scenario, areas further landward may be exposed to erosion processes, this may result in further consideration of options to maintain access to Northcote Point. Strategies may need to be updated based on coastal change (erosion) over time.			
Implementation notes			
• Maintain provides for management of existing access points to the coast where Auckland Council-owned land facilitates access, and maintenance of connections and uses within reserve areas such as Stokes Point / Northcote Reserve. Coastal erosion risk will require the landward relocation of assets when they are replaced and renewed to reduce future risk to Auckland Council assets. • Northcote Point Ferry Terminal provides a critical link in the public transport network. The wharf is currently protected by existing coastal defences. A maintain approach for the stretch does not preclude the potential need for maintenance of existing structures in their current location, specifically around the ferry terminal to provide for its continued safe access and use. • Cultural: Te Onewa Pā is an area of cultural significance. Further engagement with mana whenua regarding this site will continue. • Uncertainty remains in relation to major infrastructure (harbour crossing) which may impact the land uses and coastal areas within this stretch. Adaptation pathways may need to be considered and updated following any development in this regard.			

1.7: Wai Manawa / Little Shoal Bay

This stretch is subject to the Wai Manawa Mini-SAP. A mini SAP was previously developed for this area due its value to iwi and local communities and its exposure to coastal hazards (Auckland Council, 2024d). Please refer to *Wai Manawa / Little Shoal Bay Mini-Shoreline Adaptation Plan* for more detail.

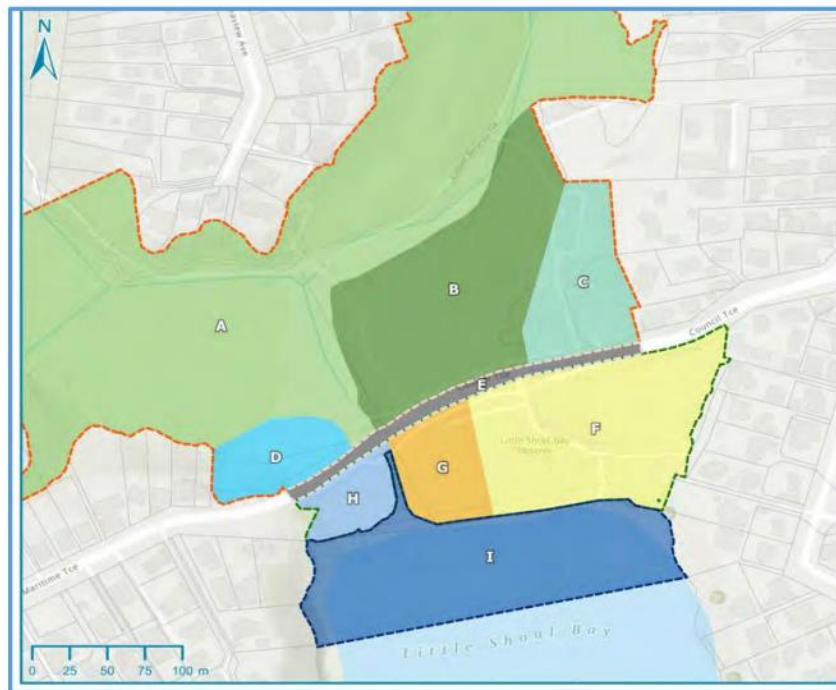


Figure 15: Eight units representing Wai Manawa/Little Shoal Bay reserve and environs

The details included below are directly adopted from the Wai Manawa / Little Shoal Bay Mini-Shoreline Adaptation Plan and included to ensure key details are noted in this full Waitematā Harbour West SAP report.

Scenarios for change		
Low	Moderate	High
Protect 	Protect 	Protect 
Explanation This is our preferred pathway as identified in Section 11.1 of the Wai Manawa / Little Shoal Bay Mini-Shoreline Adaptation Plan report: <i>“For consistency with the broader SAP Work Programme, results of the Wai Manawa/Little Shoal Bay ‘mini’ SAP will be embedded into the wider Waitemata Harbour SAP when it is developed. Recognising the extensive engagement already undertaken for Wai Manawa/Little Shoal Bay, this area will not be revisited as part of this process”</i>		
Implementation notes This stretch was subject to a pilot ‘mini’ SAP development, which resulted in the creation of the Wai Manawa / Little Shoal Bay mini SAP. This document represented a more detailed adaptation plan for this stretch. Protect over all timeframes/climate scenarios reflects the outcome of the 2022 mini SAP process.		

1.8: Needles Eye Point

Stretch 1.8 commences west of Wai Manawa / Little Shoal Bay and continues south culminating at the southeastern border of Hinemoa Park (the end of this unit). Needles Eye Point (and the wider coastal area within this stretch) is exposed to erosion and inundation, with natural coastal processes acting on the exposed cliff coast within this stretch. Small sections of Awanui Street and Hinemoa Terrace, landward from the coast, are identified as potentially susceptible to coastal erosion and inundation. Their roading areas serve the Birkenhead wharf area and are bordered on the landward side by private residential uses.

Scenarios for change		
Low	Moderate	High
No action 	No action 	No action 
Explanation There is a limited presence of Council land and assets in close proximity to the coast. Natural coastal processes have influenced coastal change along this coast and so no action is reflective of the continued approach to enabling a natural shoreline. This does not preclude advocacy and support for documentation of cultural and historic features, management of risk and access within the road reserve and reserve areas and advocacy for management of the Point's ecological values. Community concerns, including that of private landowners with land immediately adjoining the coast, have been raised through consultation processes.		
Implementation notes No action does not apply to private land located within this stretch. Consideration of available interventions, including taking an adaptive approach to manage perceived risk to private land may be sought by community and residents' groups. - Consideration of the impact of ongoing coastal processes on the coastal edge, including the impact to cultural features, sites and historic heritage values will require further engagement with iwi, including Te Kawerau aa Maki.		



Unit 2

Waitematā Harbour West



Unit 2: Birkenhead to Kauri Point

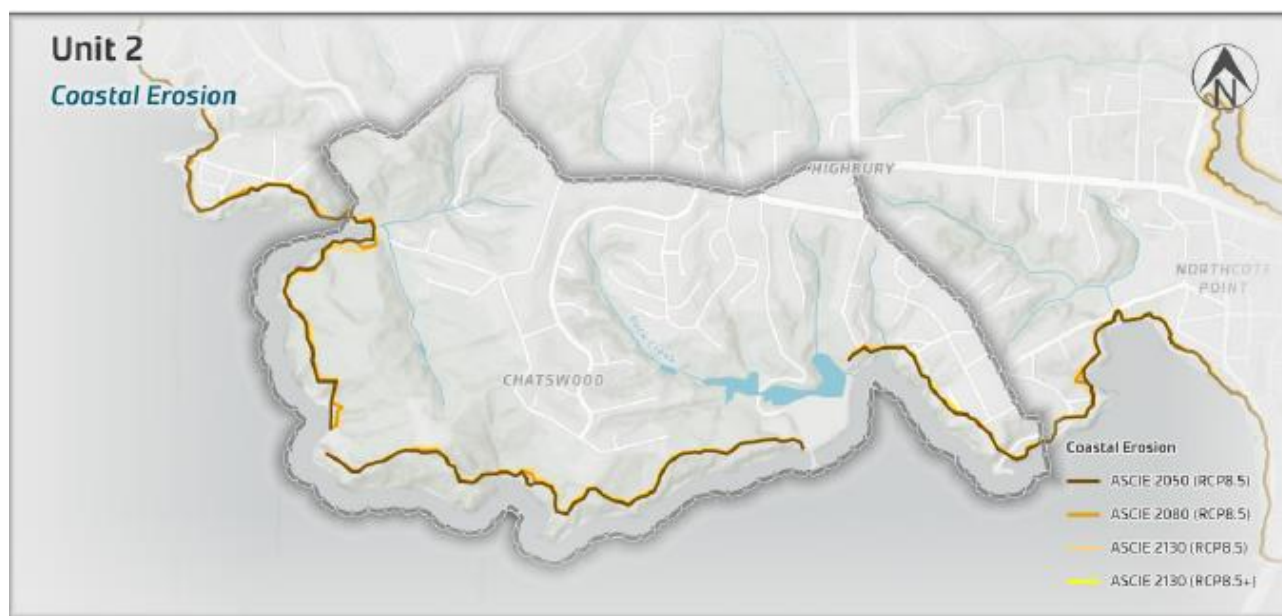
Unit 2 is located within the Kaipātiki Local Board area. It commences at the western extent of the Birkenhead wharf area (Hinemoa Reserve) at Hinemoa Street, includes the coastline of Birkenhead, Chelsea and Kauri Point, and culminates in the west at Soldiers Bay. Birkenhead wharf, Chelsea Sugar Refinery heritage, Kauri Park and Domain are part of this stretch. It is rich with cultural and historic heritage and includes numerous ecological values, walking tracks and important community coastal access points.

What is happening

Birkenhead shoreline is generally a sheltered environment due to the restricted fetch across the central harbour, however the cliffed shoreline is subject to strong prevailing winds from the south and west that can generate a moderate wind wave climate. The shoreline comprises mainly well-vegetated cliffs with only two small beach areas at the head of shallow embayments at Chelsea Bay and Kendall Bay, west of Kauri Point.

Coastal erosion and instability

As with the other cliff areas around Waitematā Harbour, the sandstone cliffs are subject to slow ongoing weathering and erosion, and occasional episodic failures or slips. Erosion and landslides were experienced during the 2023 storm events, including damage to accessways to the Telephone Reserve area.



Coastal Inundation

This unit's landform is generally elevated with coastal inundation limited to the lower slope around the fringe. Most impact on Auckland Council assets occurs at Hinemoa Reserve (parking, boat launching) and Auckland Transport Birkenhead ferry terminal and infrastructure. The Telephone Reserve (from the coast and catchment) has experienced inundation and is shown as exposed in the

figure below. Inundation may also be experienced in relation to walkway connections to the Chelsea heritage area.



There are multiple existing coastal protection structures along this section of coastline. Some of the key features are as follows:

- Hinemoa Reserve is armoured with a sloped masonry seawall that wraps around the carparking area and has a wide boat ramp for recreational users.

Reserve boat ramp and sloped masonry seawall armouring carparking area. (Source: Auckland Council)



- Birkenhead ferry terminal is located at the end of Hinemoa Road. Auckland Transport holds coastal consents for ferry terminal facilities.
- The wastewater pumping station located on reclamation land at the end of Brassey Road Reserve is armoured with a rock seawall.
- Telephone Road Reserve in Chelsea Bay is armoured with a rock seawall.
- Kauri Point Centennial Park and Kauri Point Domain are large bush reserves with a network of walkways, including access to Kendall Bay, set adequately landward of the coastal edge.

Catchment flooding

Catchment flooding is primarily identified in relation to the Chelsea heritage area. Upper areas of the catchment are included within highly vegetated reserve areas (Chatswood Reserve and the Heritage Park). Flood plain areas in the west of the unit are in relation to the Kauri Park area toward Soldiers Bay.



Risk assessment

The risk table represents key groups of assets (e.g. Auckland Council-owned land, buildings, road extents) which are supported by the regionally consistent data set. The risk assessment provides a regionally consistent method for comparing risk to Auckland Council-owned land and assets allowing for identification of areas with highest risk for potential future assessment (e.g. Series 2).

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

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 (125.4ha) Buildings, wharves (26 No.)			Park amenity structures, carparks, accessways, buildings (0.9 ha)			AT roads (19.6 km) Bridges (532.1 m ²)			Water pipes (135.2 km)		
Short	Medium	Long	Short	Medium	Long	Short	Medium	Long	Short	Medium	Long
Coastal erosion and instability susceptibility											
High	High	High	Moderate	High	High	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
Coastal inundation											
Low	Low	Moderate	Moderate	Moderate	High	Very high	Very high	Very high	Low	Low	Low
Key											
Very Low		Low		Moderate		High		Very High			

What matters most



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



- Chelsea Estate Heritage Park (closed landfill), Hinemoa Park, Brassey Road Reserve
- Kauri Point Centennial Park, Kauri Park and Kauri Point Domain
- Telephone Road
- Muriel Fisher Reserve



- Chelsea Estate Heritage Park; park roads
- Park amenities and boardwalk structures
- Extensive walking track networks



Wastewater:

- Hinemoa Pump Station, Maunganui Pump Station (at Brassey Road)



Local roads:

- Hinemoa and Colonial Road

Walking tracks:

- Chelsea Heritage Path, Kauri Point Centennial Path, Kauri Point Domain Path



- Hinemoa Street (Hinemoa Park) – dinghy boat ramp and 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.
- Kauri Point is an identified statutory acknowledgement for Ngāti Whātua Ōrākei.
- This unit includes Te Matarae a Mana Pā.



- Both Chelsea Heritage Park and Kauri Point Centennial Park include numerous heritage buildings and associated features.
- Walking tracks are identified as highly valued in this area.
- Hinemoa wharf and reserve areas form historic water connections and numerous historic heritage features are included (generally back from the coastal edge) within this unit.



- This unit contains a regionally important remnant of kauri, podocarp, broadleaved forest while other surrounding parks comprise areas of raupō reedland wetland, threatened and rare plants and intact ecological sequence of mangroves, saline wetland through to freshwater habitat to mature native forest.

- Soldiers Bay has the only intact ecological sequence of mangroves, saline wetland through to freshwater habitat to mature native forest in the Tāmaki Ecological District (ED). Banded rail has been recorded in this area.
- Muriel Fisher Reserve, Kauri Point Reserve and other surrounding parks comprise a mosaic of taraire, tawa, podocarp forest and areas of raupō reedland wetland. There are several threatened and rare vascular plants found within Kauri Point Reserve. Forest gecko have also been recorded within this forested area (Department of Conservation, n.d.).
- Kauri Point Centennial Park contains a regionally important remnant of kauri, podocarp, broadleaved forest (WF11 – Regionally Endangered) and a small area of Machaerina sedgeland
- Chelsea Heritage Park contains a small area of Kauri forest and kauri, podocarp, broadleaved, beech forest). Forest gecko ornate skink have been recorded utilising this forested area (Department of Conservation, n.d.).



Who did we hear from

- There was a reasonable level of engagement and feedback via Social Pinpoint, AK Have Your Say, and the Birkenhead Library event.

What is happening?

- Feedback at in-person events identified concerns and experience of coastal erosion (landslides) and damage to key walking tracks and Telephone Road Reserve connections.
- Respondents via ‘AK Have your say’ identified a range of concerns, mostly around coastal erosion (69%), sea-level rise (50%) and rainfall / extreme events causing flooding (44%).
- Attendees to events shared images of flooding and impacts of the 2023 storm events including Telephone Reserve, which was observed to be inundated multiple times a year.
- Residents and resident groups for the Hinemoa Terrace area have raised concerns regarding a perceived risk from coastal erosion and instability for that area.
- Landslips and fallen trees, land instability and erosion were identified at Willow Bay.

Key community uses and values included:

- Locals enjoy a range of activities in the Birkenhead to Kauri Point area. Nature-watching is highly popular (76%), others are walking or running on the beach or roadways (65%) and passive recreation, e.g. sitting, relaxing, picnicking (53%). Activities also include swimming, fishing, walking or boating/jet skiing in the harbour.
- Access to the coast at key coastal locations including water access at Hinemoa boat ramp and park area were seen as important.
- Walking tracks and connection with nature were enjoyed; aspirations included further and extended connections throughout the unit area.
- Identification of community-led planting, a desire to plant more native species and to remove pines and other large (non-native) trees from coastal areas.

What can we do about it? Community feedback and aspirations

- Residents sought community-led adaptation planning, involving Council and other key asset owners.
- A desire was expressed for nature-based solutions to extend stormwater outfall to allow sand accretion alongside further enhancement and protection of natural areas.
- 78% of respondents support the proposed adaptation strategies in the Birkenhead to Kauri Point area, with 15% saying they are unsure or “other”. Only 8% say they do NOT support any

of the strategies. Within the Birkenhead to Kauri Point area, Birkenhead Wharf and Hinemoa Reserve has the highest level of support for the 'hold the line' (protect) strategy.

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



2.1: Birkenhead Wharf & Hinemoa Reserve

This stretch commences in the east at Hinemoa Reserve and culminates at the western side of the ferry terminal area and associated armouring. It encompasses residential areas of Northcote / Birkenhead and Hinemoa Park.

Scenarios for change		
Low	Moderate	High
Protect 	Protect 	Protect 
Explanation Protect over all timeframes reflects the modified nature of this area and the presence of critical transport assets (including Birkenhead Wharf and ferry terminal) providing important services for the community. Protect provides for the continued maintenance of coastal protection structures to allow for their continued use. Coastal inundation hazard risks will need to be considered in asset design in the mid to long term.		
Implementation notes Protect reflects the transport assets and high usage of the area's land and assets as well as the location's armoured nature. Coastal inundation hazard risks will need to be considered in asset design in the mid to long term. Engagement with key community users and leaseholders (communities and clubs) will be required. This is supported by local board and community feedback seeking further development of local signals, triggers and thresholds through implementation.		

2.2: Birkenhead West

Stretch 2.2 commences at the western side of the Birkenhead wharf area and includes the coastal area northwest to Brassey Reserve, culminating south of the reserve.

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.		
Implementation notes No action regarding coastal protection structures to fortify the coastal edge is reflective of Council landholdings and assets in this area.		

2.3: Chelsea Bay (Brassey Reserve, Telephone Road and Chelsea)

Commencing at Brassey Reserve, including the wastewater assets and associated protection structures and continuing around Chelsea Bay, culminating at the end of Chelsea Estate Heritage Park. This stretch includes a network of highly valued public accessways. Closed landfill assets are identified within the heritage park areas.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation Maintain provides for the maintenance of assets and landholdings exposed to coastal hazards. The complex nature of values in this area may require strategies to be revised to respond to climate change impacts. This includes areas of closed landfill (subject to the Closed Landfill Asset Management Plan) and numerous cultural and historic heritage landscapes, sites and features, including private wharves. Modification of the coastal and estuarine areas in this stretch have been undertaken as a result of historic land use.		
Implementation notes • Maintain provides for the management of risk to wastewater assets and the protection of structures and modifications associated with these uses. Maintain does not apply to private land located within this stretch. • Maintain also provides for the management of risk to key connections, such as the highly valued walking connections along this section of the coast. Management of risk through design and location of uses is preferred. • Closed landfill assets are subject to the Closed Landfill Asset Management Plan.		

2.4: Kauri Point

This stretch commences in the east at Kauri Point Centennial Park and includes the coastline of Onetaunga Bay, Fitzpatrick Bay culminating at Soldiers Bay. The area is also known as Rongohau, Kendall Bay or Shark Bay.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation Maintain provides for the management of risk to coastal walkways within the areas of Auckland Council-owned/managed reserve. The natural unmodified nature of much of the coastline attracts management of risk through relocation or realignment of assets (away from hazard risk). No coastal defences are anticipated within this stretch.		
Implementation notes • Maintain provides for the management of risk through design and location of assets. • Engagement with iwi and communities will be essential when considering the management of risk and development of future assets within areas exposed to coastal hazards. • Maintain supports the consideration of risk to natural environmental values and the opportunity to retain and maintain vegetated coastal areas within this area of the harbour.		



Unit 3

Waitematā Harbour West



Tui Park



Community uses



Highly valued local park

Important local walking and coastal connections

Hellyers Creek

Hellyers Creek Reserve

Local connections

Key sport and recreational areas

Beach Haven Rd

Beach Haven Rd

Plantation Reserve Accessway

Sunnyhaven Reserve

Local access to coastal spaces

Sispara Place Reserve

Aeroview Esplanade Reserve

Amelia Esplanade Reserve

Alan Tanner Reserve

Keith Smith Ave

Oruamo Pl

Dakota Ave

Neptune Ave

Cronin Pl

Rosecamp Foreshore Reserve

Rosecamp Rd

Charcoal Bay

Jarcaranda Reserve

Hadfield St

Odin Scenic Reserve

Hadfield Reserve

Island Bay Rd

Soldiers Bay Reserve

Soldiers Bay

Island Bay

Beach Haven Wharf, Hilders Reserve & Sea Scouts



Unit boundary

3.1 3.2 Stretch

Informal recreation park

Mooring management area

Auckland Council owned land

0 0.5km 1km

Unit 3: Beach Haven

This unit is located within the Kaipātiki Local Board Area and commences in the south at Soldiers Bay and includes the coastline north to Kaipātiki Creek inlet. It includes a predominantly privately-owned coastline with key access points and reserves interspersed with established private residential development. Key wharf and harbour access facilities are located at Island Bay and Beach Haven Wharf and several highly valued-walkways and small harbour beaches are located within the unit's coastline, such as Hadfields Beach and Rosecamp Reserve (Charcoal Bay).

Well-utilised coastal parks are located in the northern areas of the unit (Tui and Shepherds Park). Numerous stormwater outfalls discharge to the coast and water quality associated with these is identified in policy documents. The unit's coastline is traversed by wastewater infrastructure with several pump stations located in proximity to the coast. The coastline contains many cultural heritage sites, including pā, and has highly vegetated coastal cliffs with identified ecological values.

What is happening

This unit includes the shoreline from Soldiers Bay extending north to Beach Haven, including the southern shoreline of Hellyers Creek. The inner harbour is generally a sheltered environment due to the restricted fetch across central harbour, however the cliffed shoreline is subject to strong prevailing winds from the south and west that can generate a moderate wind wave climate.

The vegetated cliffs are fronted by a narrow muddy sandstone shelf with wider intertidal areas in smaller embayments along the indented shoreline. Mangroves are well established in Hellyers Creek and around the fringe and head of small embayments reflecting the low energy in more sheltered environments. Several boat launching ramps and jetties are located at headland reserves to access the main Waitematā Harbour channel that flows closer to this shoreline through the central harbour. Ferry wakes have been noted to impact pontoon and wharf structures.

Coastal erosion

The coastal erosion hazard risk is greater along the cliff shoreline, with wider ASCIE predicted at the headlands. As with the other cliff areas around Waitematā Harbour, the cliffs are subject to slow, ongoing weathering and erosion, and occasional episodic failures or slips such as the large landslide in 2022 that impacted private property at Beach Haven.



Coastal inundation

Coastal inundation flooding is generally a low risk in this unit due to the elevated cliff shoreline, however localised areas predicted to be impacted include low-lying land at the head of embayments and landings at Island Bay and Larkings Landing (Hilders Park).



There are multiple existing coastal protection structures along this section of coastline. Some of the key features include:

Island Bay Reserve has a masonry rock seawall armouring the footpath that leads to the wharf and pontoon. Along the reserve's northern shoreline there is a dinghy ramp and consented rock rip rap revetment adjacent to the carpark area. There is a smaller length of masonry seawall and ramp on the southern shoreline.



*Island Bay dinghy ramp and rock revetment armouring edge of car park.
(Source: Auckland Council)*

Hadfield Street Reserve Beach is currently unarmoured with a narrow dry, high-tide beach fronting the northern end of the reserve. Undermining of the path accessway and associated critical water assets has resulted in localised protection works being undertaken at this reserve. The grass reserve (pictured) is low lying and unarmoured.



Hadfield Street Reserve Beach (Source: Auckland Council)

Rosecamp Road Reserve rock revetment was constructed in 2019 at the northern end of the beach to replace a gabion basket seawall. Trial spinifex planting was undertaken in 2019 to create two cells at the southern end of the beach. The plants are well established despite the lack of windblown sand supply in the harbour location, and a small beach area has accreted.



Trial spinifex planting at the southern end of Rosecamp Road Reserve after 3 years of growth. (Source: Auckland Council).



Rosecamp Road Reserve rock revetment armoring at northern end of the reserve. (Source: Auckland Council)

There are two wharf structures at Beach Haven Point. Beach Haven ferry terminal including a covered pontoon, and Hilders Wharf, south of the ferry terminal.

The coastal edge of Hilders Park and the reclamation forming Larkings Landing is armoured with a sloping masonry seawall. A dinghy ramp and boat ramp provide recreational access from the reserve.



Hilders Wharf and Beach Haven ferry terminal. (Source: Auckland Council)

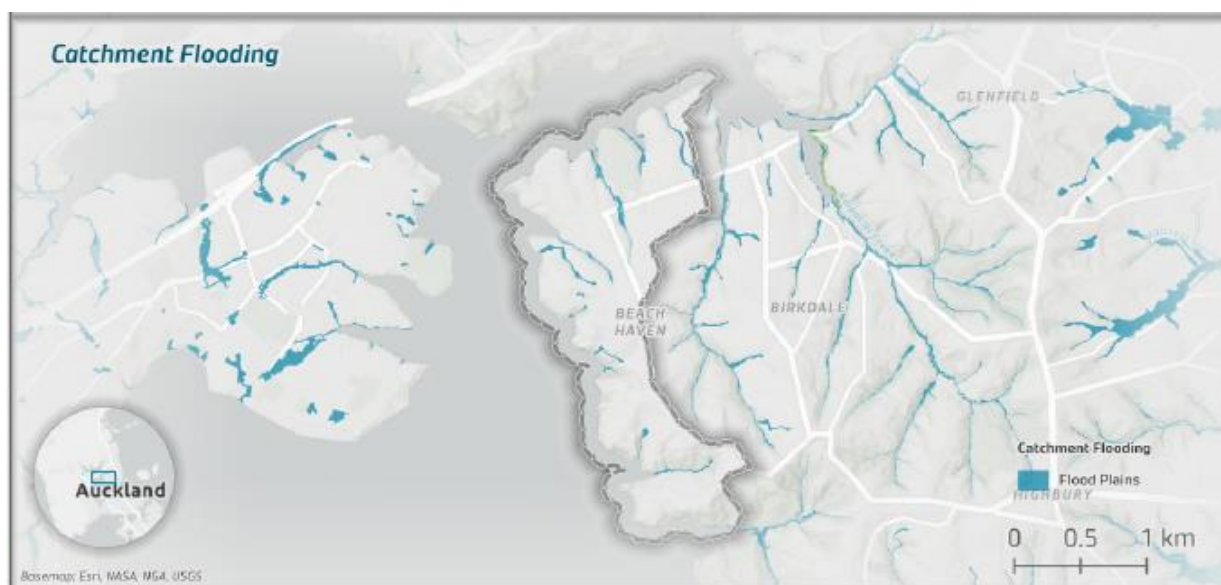
- Tui Park is a coastal bush reserve with a short 25 m length of grouted rock seawall.
- Shepherds Park is a bush reserve with walking tracks and a section of boardwalk on the southern shore of Hellyers Creek. There is no coastal armoring along the densely vegetated margin of this reserve. An isolated landslip north of the clifftop look-out platform has been fenced.



- The small dinghy ramp and landing on Hellyers Creek Reserve (near the Paragon Road accessway) is armoured with a seawall and steps.

Catchment flooding

Catchments discharge to the coast in several locations within this unit. These are typically well vegetated in proximity to the coastal areas at Island Bay, Charcoal Bay and in the northern areas through a range of smaller catchments and tributaries.



Risk assessment

The risk table represents key groups of assets (e.g. Auckland Council-owned land, buildings, road extents) which are supported by the regionally consistent data set. The risk assessment provides a regionally consistent method for comparing risk to Auckland Council-owned land and assets allowing for identification of areas with highest risk for potential future assessment (e.g. Series 2).

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

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 (36.1 ha) Buildings, wharves (68 No.)			Park amenity structures, carparks, accessways, buildings (1.0 ha)			AT roads (16.5 km) Bridges (0 m ²)			Water pipes (115.6 km)			
Short	Medium	Long	Short	Medium	Long	Short	Medium	Long	Short	Medium	Long	
Coastal erosion and instability susceptibility												
Moderate	Moderate	Moderate	High	High	High	Moderate	Moderate	Moderate	High	High	High	
Coastal inundation												
Low	Low	Low	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 unit that may be impacted by coastal hazards (inclusive of catchment flooding) over changing climate scenarios.



- Auckland Council-owned land within Unit 3 includes 21 notable reserves and parks.
- Larger park areas providing for a range of recreational and sport activities include Shepherds Park, Tui Park.
- Coastal reserves providing access to coastal areas include the reserves of Cresta Avenue Esplanade, Island Bay, Muriel Fisher, Shepherds Park, Soldiers Bay Accessway, Hellyers Creek, Hadfield Street, Jacaranda Avenue Esplanade, Rosecamp Road Foreshore, Aeroview Drive Esplanade, connections through Plantation Reserve - Beach Haven, Sispara Place Reserve and Hilders Park and Larkings Landing.



- Auckland Council-owned buildings include Beach Haven Sea Scouts, Beach Haven Bowling Club and Beach Haven Sports Centre.



- The unit has nine wastewater pumpstations; Valkyria; Hadfield 1; Hadfield 2; Island Bay; Mariners View; Rosecamp; Cronin; Neptune; and Beachaven.
- Piped networks are generally set back from coastal areas where they serve residential land uses.



- Hellyers Creek Path and Shepherds Park Path provide walking tracks near the coast within the unit which can be accessed by key roads including Island Bay Road, Beach Haven Road, and Cresta Avenue.
- Local roads exposed to coastal hazards include where road service coastal connections, such as Island Bay and where roads are located along coastal areas; such as Keith Smith Avenue, Cresta Avenue and Gazelle Avenue.



- Coastal infrastructure including boat ramps, rock rip rap, boat ramps and wharfs are located within this unit. Many key structures were identified under the current management responses in 'what is happening'.

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.
- At Island Bay Reserve, wāhi tūpuna is recorded; the Te Wai Iti o Toro Pā.



- Shepherds Park is a significant area of recreational open space located in Beach Haven.
- Community uses include Beach Haven Sea Scouts, Beach Haven Bowling Club and Beach Haven Sports Centre.
- Key beaches identified include Shepherds Park, Tui Park, Hilders Park, Charcoal Bay Beach, Island Bay and Hadfields.



Unit 3 contains a wide range of indigenous terrestrial ecosystems, such as:

- Pōhutukawa-dominated coastal forest (WF4) bordering the coastal cliffs.
- Kahikatea, pukatea forest (WF8 – Regionally Critically Endangered), Kauri forests (WF10, and WF11 – regionally Endangered) making up Odin Place Reserve and Hadfield Street Reserve.
- Ecological sequences from saline vegetation to terrestrial vegetation along Hellyers Creek. A variety of native avifauna, including passerine, coastal and seabird species have been recorded at this creek – most notably, white-fronted tern (*Sterna striata*, At Risk – Declining) and New Zealand pipit (*Anthus novaeseelandiae*, At Risk – Naturally Uncommon).



Who did we hear from

- This unit had a very high level of engagement (highest of all units within the Kaipātiki Local Board and wider SAP area) via Social Pinpoint and via the 'AK Have Your Say' Feedback form.
- Additionally, a drop-in session at Glenfield Library, along with a presentation (facilitated with support from Kaipaitiki Local Board) at the Beachhaven & Birkdale Ratepayers & Residents' Association aided in gathering feedback for this area (attended by members of volunteer groups, such as Pest Free Kaipātiki, Paragon Avenue Boat Ramp Community Group and Friends of Shepherds Park).
- An in-person event in Takapuna also aided in gathering feedback for this area, facilitated with the support of the Kaipātiki and Devonport – Takapuna Local Board.

What is happening?

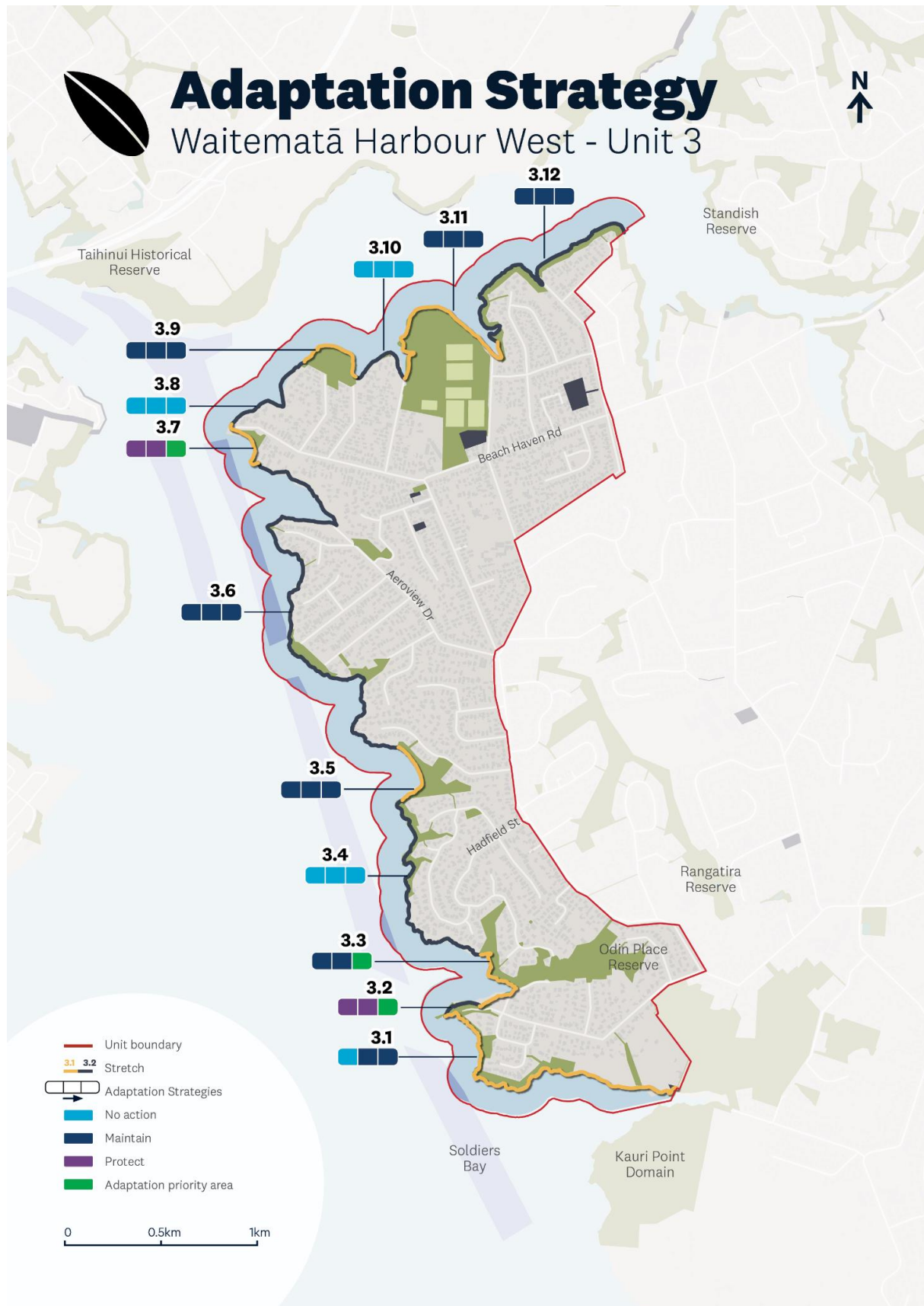
- The major concern for respondents in the Beach Haven area is coastal erosion with 75% citing this issue. Other relatively high concerns are flooding from extreme and coastal storm events and coastal accretion / sediment build-up.
- Damage to assets, as a result of hazard events was mentioned in several areas:
 - Paragon Avenue Boat Ramp and walkway, where the gravel path has been washed away during heavy rain events and sediment is causing the ramp and surrounding areas to be slippery.
 - Many concerns were identified regarding Hadfield Beach, involving erosion and instability, the path and associated water infrastructure. Community concerns relate to a loss of access to the coast and the walking connections along the coast in this area. Observed increasing inundation was also mentioned for Hadfields Beach, associated with the grassed reserve area.
 - Community feedback also identified concerns around sand disappearance and the increased prominence of the sewer pipe that runs across Beach Haven Bay (just south of the Island Bay Boat ramp).

Key community uses and values included:

- Asset management and maintenance were identified as Important through feedback, followed by uses and activities.
- Locals enjoy a range of activities in the Beach Haven area. Walking or running on the beach is highly popular (79%); other popular activities are passive recreation, e.g. sitting, relaxing, picnicking; nature watching, e.g. watching birds; and passive water-based activities, e.g. swimming, playing in the water. Tui Park Beach is highly valued for its amenities, swimming, and dog exercise. Rosecamp Road, Hadfields Beach and Paragon Avenue were all identified as highly valued water connections and coastal areas.
- The coastal parks and beaches are valued for recreation, however, there is significant concern about erosion around Hadfield Beach and Reserve, access to the beach and maintenance of the boat ramp.
- Coastal walkways were highly valued and responses sought further coastal connections to the north and south and within the unit area. Specifically, Tui Park to be linked to Shepherds Park; new boardwalks/bridge along coastal areas and having more connections to the coast providing access to the water and views.
- Ecological interests included having a well-resourced re-vegetation and environmental management plan to ensure that native coastal forest and wetland ecosystems are established with continued protection of biodiversity and coastal habitat.

What can we do about it? Community feedback and aspirations

- Community concerns and aspirations for improvement included storm events impacts on water quality and wastewater infrastructure.
- Overall, 67% of respondents support the proposed adaptation strategies in the Beach Haven area unit. Within the Beach Haven area, Tui Park has the highest level of support.
- Identification of a great level of protection of accessways (and piped networks) at Hadfield's Reserve/Beach area were noted.

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

3.1 Soldiers Bay

This stretch commences at Soldiers Bay north of Unit 2 and includes the coastline to Island Bay where it culminates. It includes Soldiers Bay accessway, Fred Andersen Reserve and part of Murial Fisher Reserve.

Scenarios for change		
Low	Moderate	High
No action 	Maintain 	Maintain 
Explanation No action under a low climate change scenario reflects the generally unmanaged nature of the esplanade reserve area and otherwise private ownership of coastal areas. Under a moderate to high climate change scenario, erosion risk to these areas may impact other assets within the park, noting that portions of the catchment are prone to slips. A transition to maintain acknowledges this risk, being identified specifically in relation to the management of risk to park assets (particularly the pump station); however, maintain does not indicate defence of the coastal edge.		
Implementation notes - A no action approach under a low climate change scenario does not preclude the maintenance of access to the coast through the Soldiers Bay accessway and Fred Anderson Reserve, with the provision of coastal access identified as a key priority for the area. No action does not preclude actions to manage risk to Valkyria Pump Station as required. Maintain is identified specifically in relation to management of risk to park assets under moderate and high climate scenarios; it does not indicate defence of the coastal edge.		

3.2: Island Bay

This stretch commences at Island Bay Wharf and includes Island Bay Road Reserve and Crown land located within the northern area of this stretch, culminating where the coastline turns north adjacent to Island Bay Road.

Scenarios for change		
Low	Moderate	High
Protect 	Protect 	Adaptation Priority 
Explanation A protect approach under a low to moderate climate change is reflective of the maintenance of the reclaimed areas at Island Bay Reserve, boat-launching facilities and supporting key community assets that facilitate use of the coast, such as the boat ramp, wharf and carpark. Under a high climate change scenario, inundation risk and sea-level rise will require reassessment of the safe and functional accommodation of all uses within their existing footprint. Reflective of this changing coastal hazard risk, a transition to adaptation priority is identified to enable planning for management of risk and highly valued coastal connections, supporting proactive management and relocation of important community assets at Island Bay Reserve.		

Scenarios for change		
Low	Moderate	High
Implementation notes		
• Collaboration between asset owners, iwi and community groups will be required in the implementation of all strategies. • Cultural: Te Wai Iti o Toro Pā can be found at Island Bay Reserve, which is a wāhi tupuna. Ongoing engagement with local iwi identified in Volume 2 of the Waitemata Harbour is recommended to further understand the cultural values associated with this site and how this may impact adaptation strategies.		

3.3: Hadfield Beach (Reserve & wider embayment)

This stretch includes the embayment of Hadfield Beach. It includes a Watercare utility area (Island Bay pump station defended by retaining/protection structures), Hadfield Reserve, Miller & Poaka Streets, and areas of privately owned coastline. Reserves and parkland in the area include Hadfield Street Reserve, bordering Hadfield Beach and the landward Odin Place Reserve. Hadfield Street Reserve contains wāhi tupuna. There are multiple wastewater assets located at Hadfield Street Reserve.

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 maintenance of wastewater infrastructure and maintenance of the (highly valued) existing public pathways networks which traverse the area. Identification of adaptation priority under a high climate change scenario signals the increasing risk from coastal hazards and catchment flooding, which will limit the feasibility of maintaining all existing uses within this stretch. Adaptation priority allows for proactive engagement and consideration of adaptation options, noting that this does not preclude protection and continued use and location of assets and access to the coast under a high climate scenario.		
Implementation notes		
• Collaboration between asset owners, iwi and community groups will be required in implementation of all strategies. • Cultural: Hadfield Street Reserve contains wāhi tupuna. Ongoing engagement with local iwi identified in Volume 2 of Waitemata Harbour is recommended to further understand the cultural values associated with this site and how this may impact adaptation strategies. • Ecological: Non-symptomatic kauri, kauri seedlings and a significant ecological area are found within or adjacent to the parkland at Hadfield Street Reserve. Consideration of supporting ecological corridors along this stretch may be factored into decision making for strategy implementation.		

3.4 Beach Haven South

Stretch 3.4 commences to the north of Hadfield Reserve, and includes the coastline north of this, culminating at Charcoal Bay (Rosecamp Reserve) in the north. The stretch encompasses residential areas of Beach Haven, with coastal properties bordering the cliff. It encompasses one reserve, Jacaranda Avenue Esplanade Reserve. This reserve is mostly riparian / bushland bordering the coast, with a playground set back from the coast.

Scenarios for change		
Low	Moderate	High
No action 	No action 	No action 
Explanation		
A no action approach reflects the lack of Auckland Council-owned assets within this stretch of coast exposed to coastal hazards over all climate change scenarios.		
Implementation notes		
While no action is identified across all climate scenarios, erosional rates, and the impact of sea-level rise may require revision of strategies should a great erosion risk present.		

3.5: Charcoal Bay (Rosecamp)

Stretch 3.5 commences at the southern end of Charcoal Bay, near Rosecamp Road Foreshore. It ends at the northern end of Charcoal Bay, adjacent to Rosecamp Road Foreshore and Rosecamp Road. Rosecamp Road Foreshore Reserve is mostly bush covered with a network of paths and provides access to Charcoal Bay. These are crucial local connections providing access to the coast for the local community. The bay is a relatively secluded beach, offering swimming, picnicking and nature walks. Charcoal Bay Group undertakes voluntary work within the park (Auckland Council, 2024c). A wastewater pump station is located at the reserve and managed by Watercare

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation		
A maintain approach across all climate change scenarios relates to the need for ongoing maintenance of wastewater assets (including Rosecamp pump station) to manage risk and the provision of coastal access within this stretch. Maintain provides for ongoing maintenance or localised relocation of the network of paths providing access to Charcoal Bay, noting the importance of these coastal connections to the local community.		
Implementation notes		

Scenarios for change		
Low	Moderate	High
• Cultural: This stretch (and wider coastal landscape) is known to be of high cultural significance to local iwi, with multiple midden located in close proximity to the coastal margin. Ongoing engagement with local iwi identified in Volume 2 of the Waitemata Harbour is recommended to further understand the cultural values associated with this site and how this may impact adaptation strategies.		

3.6: Beach Haven Central

This stretch commences to the north of Rosecamp Reserve and includes the coastline north, culminating south of Hilders Park south of the Beach Haven wharf area.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation A maintain approach over all climate scenarios relates to areas of Council-owned land within this stretch which are located in proximity to coastal and flood hazard extents in several locations. Repairs or maintenance of Auckland Council assets in this stretch, namely the two pump stations and portions of the unformed legal road at Alan Tanner Reserve, may be required to extend the life of these assets.		
Implementation notes • Management: This stretch includes large areas of privately owned coastline. No protection structures are anticipated in these areas. • Transport: Acknowledging coastal hazard risk to the unformed legal road at Alan Tanner Reserve, ongoing collaboration with Auckland Transport across all scenarios may be required. • Management: Implementation of adaptation strategies should take into account management intentions for Sispara Reserve including maintaining native planting within the park and investigating options to reinstate the pathway between Sispara Reserve and Neptune Park (Auckland Council, 2024c).		

3.7: Beach Haven Wharf & Hilders Reserve

This stretch commences at Hilders Park Reserve in the south and culminates north of the wharf area an Auckland Council landholding. Hilders Park is a coastal park at the northern end of Beach Haven Road. The key piece of coastal infrastructure located at Hilders Park is Beach Haven wharf, which is home to Beach Haven ferry terminal. Larkings Landing is also located within this stretch of the coast, a reclaimed coastal edge area at Hilders Park.

Scenarios for change		
Low	Moderate	High
Protect 	Protect 	Adaptation Priority 
Explanation A protect approach under a low to moderate climate change scenario reflects the need for ongoing protection and maintenance of important access connections (wharf infrastructure), reclaimed sections of the coast, and highly valued parks and assets, with Auckland Council-owned buildings (Beach Haven Sea Scouts) and assets (boat ramp at Hilders Park providing access to Waitematā Harbour). This strategy aligns with and reflects community feedback for this stretch of coast, with a protect approach providing for continued use of the area and maintenance of the coastal edge under a low – moderate scenario. Acknowledging increased coastal inundation with sea-level rise under a high climate change scenario, a transition to adaptation priority facilitates the proactive management of landholdings in collaboration with key community groups, local iwi and assets owners.		
Implementation notes Cultural: Sections of this stretch of coast (i.e. Larkings Landing and Hilders Park) are of high cultural significance; ongoing engagement with local iwi identified in Volume 2 of Waitemata Harbour will be required to further understand the cultural values associated with this site and how this may impact adaptation strategies. Management: Beach Haven ferry terminal connects Hobsonville Point and the CBD and is managed by Auckland Transport (Auckland Council, 2024c). Ongoing engagement with Auckland Transport will be required to determine how adaptation strategies may impact this facility, and how adaptation strategies can best be implemented to allow for ongoing use of this ferry service. Social: As the Beach Haven Sea Scouts building is exposed to erosion under all climate change scenarios, engagement with the Sea Scouts Group will be required to determine how adaptation strategies can be implemented to allow for continued use of the facility and to minimise impact on the scouts. Management: Implementation of adaptation strategies should consider management intentions for Larkings Landing, which includes investigating opportunities to retain the sandy beach area within the park through coastal adaptation planning.		

3.8: Beach Haven North (to Rambler Crescent)

This stretch commences north of Auckland Council land at Beach Haven Road end and includes an area of coastline which is predominantly in private ownership north to Rambler Road end.

Scenarios for change		
Low	Moderate	High
No action 	No action 	No action 
Explanation A no action approach reflects the absence of Auckland Council-owned assets within this stretch of coast, noting that coastal access structures in this coastal stretch are privately-owned.		

Scenarios for change		
Low	Moderate	High
Implementation notes		
N/A – lack of Auckland Council-owned land and assets within this stretch.		

3.9: Tui Park

This stretch commences at the western border of Tui Park. It extends around the coastal perimeter of the park before culminating at Gazelle Avenue Road end. Tui Park consists of open green space / grassland, bordered by bush around the coast. The park is utilised for informal recreation. Council-owned buildings at Tui Park include the Girl Guides Hall, Beach Haven Scouts, and Tui Park public toilets. Community aspirations are for increased coastal walking connections traversing this coastal stretch.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation		
Maintain over all climate scenarios provides for the management of risk to assets, including open space park areas and coastal walking connections through design and location of these assets. This approach prefers a natural coastal edge utilising nature-based features, including coastal vegetation to manage hazard impacts. Maintain provides for the management of risk where necessary in collaboration with iwi and community interests. This stretch also includes road ends providing access to the coast. Management of risk to road ends is also provided for under the adaptation pathway.		
Implementation notes		
Maintain provides for the management of risk to assets through design and alignment of assets in relation to hazard areas. It also provides for continued maintenance of the coastal accessway. No coastal protection in this area is anticipated with a preference for maintain a natural coastal edge. Collaboration between asset owners, iwi and community groups will be required in implementation of adaptation actions over all climate scenarios.		

3.10: Beach Haven (Gazelle to Cresta Avenues)

This stretch includes the coastline from Gazelle Avenue to Cresta Avenue. Cresta Avenue Esplanade is a bush-clad reserve. Coastal access structures are privately owned. The coastal environment is estuarine with mangroves populating the shoreline.

Scenarios for change		
Low	Moderate	High
No action 	No action 	No action 
Explanation There are limited Auckland Council-owned assets located within hazard prone areas. A no action approach is identified as the coastal landholding is in private ownership.		
Implementation notes No action regarding coastal protection structures to fortify the coastal edge reflective of Council landholdings and assets in this area.		

3.11: Shepherds Park

This stretch commences at Cresta Avenue and includes Shepherds Park coastline culminating at the west of Hellyers Creek Reserve. This highly used coastal area includes multiple Council-owned buildings such as Beach Haven Sports Centre, Beach Haven Bowling Club and storage shed, Birkenhead United Association Football and Sports Club, Kaipatiki Trust storage shed, Beach Haven Community House and Creche building.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation Maintain provides for the management of risk to assets and uses while maintain a natural coastal edge for the majority of this stretch. This highly valued park area is subject to erosion processes and access to the coast and water is seen as important by the local community. Maintain provides for the management of risk to coastal access and connections through design and location of these assets.		
Implementation notes Maintain for the management of risk through the alignment and design of assets located in coastal hazard areas. Collaboration between asset owners, iwi and community groups will be required in the implementation of adaptation actions over all climate scenarios.		

3.12 Shepherds Park East

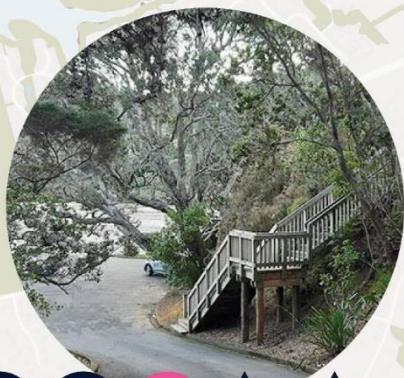
This stretch commences at Hellyers Creek Reserve, culminating at the end of the unit area, within the reserve at the southern Ranch Avenue access point. It includes Hellyers Creek Path extending along the coast of Hellyers Creek, within Hellyers Creek Reserve which is characterized by regenerating bush. Paragon Road boat ramp, a highly valued local connection, is also located within this stretch.

Scenarios for change					
Low		Moderate		High	
Maintain		Maintain		Maintain	
Explanation					
Maintain signals risk management through the alignment and design of assets located in coastal hazard areas through a combination of design and coastal protection structures where necessary and associated with key infrastructure and connections to the coast. For the majority of this stretch, a natural coastal edge is preferred while maintaining coastal access, where practicable and where safe access can be maintained.					
Implementation notes					
• Maintain signals the management of risk through the alignment and design of assets located in coastal hazard areas. It confirms access to the coast (Paragon Avenue) and the maintenance of connections along coastal areas, responsive in design and location to the values (ecological and cultural) and hazard exposure.					



Unit 4

Waitematā Harbour West



Manuka Reserve

Kaipatiki Esplanade Reserves

Regionally endangered forest ecosystems and habitats



Hellyers Creek Reserve - Local connections

Kahika Point Reserve

Beach Haven Rd
Lauderdale Rd

Key coastal connections



Birkdale Rd

Verbena Rd

Eskdale Reserve

Rangatira Reserve

Glendhu Scenic Reserve

Elliott Reserve

Kaipātiki Park

- Unit boundary
 - 4.1 4.2 Stretch
 - Informal recreation park
 - Mooring management area
 - Auckland Council owned land
- 0 0.5km 1km

Unit 4: Birkdale, Glenfield & Bayview

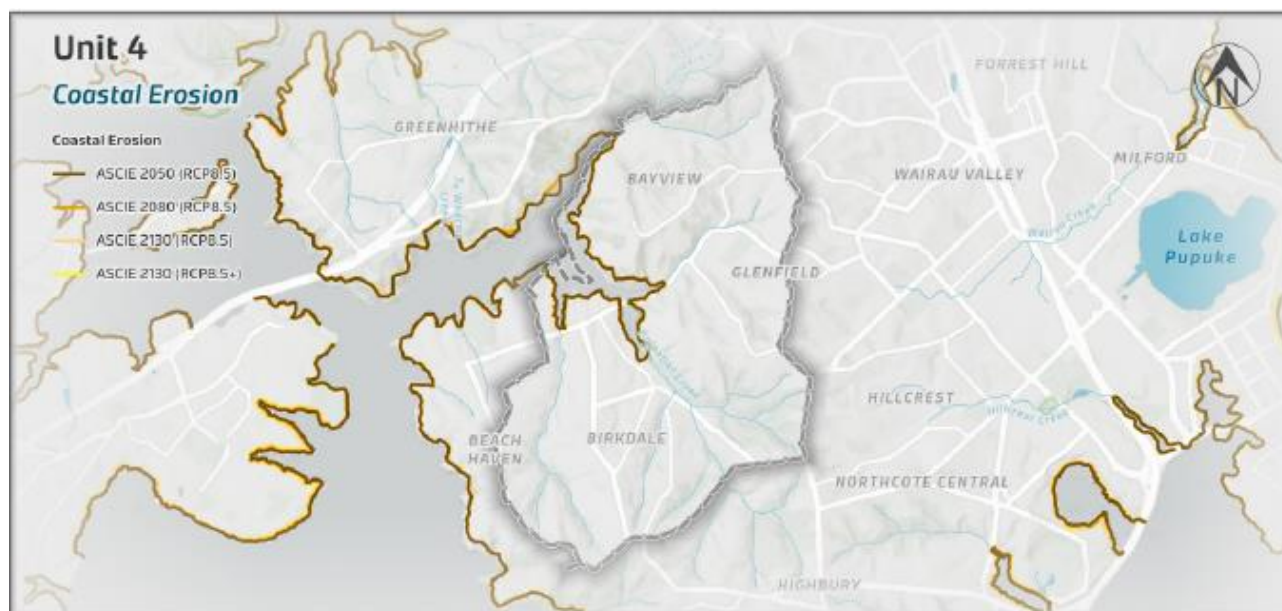
This unit, located within the Kaipātiki Local Board area, commences in the northern coastal area of Beach Haven and includes the coastline of Glenfield and Bayview. The coastline includes extensive areas of vegetated coastline, numerous watercourses and areas with limited coastal access. Key coastal access points include Maukua Road end where a boat ramp and recreational reserve areas are located. A reserve network, north of Maukua Reserve, provides coastal access to a series of reserves and wider reserve network (Glendhu Reserve). Wastewater infrastructure and roading connections are located in proximity to coastal edges but are generally set back from hazard areas. The unit is subject to a low-energy coastal environment with erosion processes impacting the soft coastal cliff edges. Inundation both coastal and from catchment flooding impacts low-lying areas.

What is happening

This unit is very low energy being in the upper reaches of Hellyers Creek and the Kaipatiki Creek side arm. The estuarine arms of the Upper Waitematā Harbour are fringed with mature mangroves fronted by muddy intertidal flats.

Coastal erosion and instability

The exposed Waitematā formation sandstones cliffs of this coastline are subject to slow, ongoing weathering and erosion, and occasional episodic failures or slips. The coastal hazard extents show that exposure of coastal land and assets at this location is typically low noting the limited number of assets located near the coast (e.g. park assets, roads, and water infrastructure).



Coastal inundation

There is low risk from coastal inundation flooding in this unit due to the elevated landform, however with sea-level rise, localised areas are predicted to be impacted, including the coastal margin of Hellyers Creek Reserve and Manuka Reserve and associated assets (Manuka Reserve boat ramp and carpark, walkway connections).



The shoreline of upper Hellyers Creek is generally densely vegetated and largely unmodified with no coastal armoured in the sheltered tidal inlet. Management of the coastal edge is limited to Auckland Council-owned coastal assets at Manuka Reserve including the reclaimed landing/vehicle turning area and small boat launching ramp. The reclamation is armoured with a grouted rock seawall, and there are several stacked rock groynes that were constructed to retain a small renourished beach area.



Maukau Reserve accessway leading to the boat ramp area (source Auckland Council)

Catchment flooding

Kahika Stream and Kaipātiki Creek discharge to the coast within this coastal stretch. Overland flow paths and associated flood plains are identified within low-lying areas and adjacent to the streams. Bridges across these streams include Beach Haven Road and Kaipatiki Road.



Risk assessment

The risk table represents key groups of assets (e.g. Auckland Council-owned land, buildings, road extents) which are supported by the regionally consistent data set. The risk assessment provides a regionally consistent method for comparing risk to Auckland Council-owned land and assets allowing for identification of areas with highest risk for potential future assessment (e.g. Series 2).

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

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 (153.0 ha) Buildings, wharves (24 No.)			Park amenity structures, carparks, accessways, buildings (1.7 ha)			AT roads (59.3 km) Bridges (904.0 m ²)			Water pipes (434.5 km)		
Short	Medium	Long	Short	Medium	Long	Short	Medium	Long	Short	Medium	Long
Coastal erosion and instability susceptibility											
Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	High	High	High	High	High	High
Coastal inundation											
Low	Low	Moderate	Moderate	Moderate	Moderate	High	High	High	Low	Low	Low
Key											
Very Low		Low		Moderate		High		Very High			

What matters most



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



Reserves:

- Manuka, Francis Kendall, Lynn, Arcadia Eskdale, Francis Kendall, Kahika Point, Kaipatiki Esplanade, Lauderdale, Manuka Neighbourhood, Manuka, Nikau (Kaipatiki LB), Pemberton Standish, Tamahere, Tree View, Witheford, and Kereru.



Wastewater:

- Kahika pump station and storage tank.



Walking tracks:

- Hellyers Creek Path; Manuka Reserve Path; Witheford Reserve Path.
- A popular walkway "Eskdale Walkway" in the area runs from Kaipatiki Road through Eskdale Reserve to Glenfield Road.

Connections:

- The unit features well-maintained road networks with main roads leading to neighbouring suburbs and the Northern Motorway (SH1). Additionally, there are cycling paths and walkways for active modes of travel. Key roads facilitating coastal access include Beach Haven Road, Kaipatiki Road, Manuka Road, Pemberton Avenue, Kahika Point Road and Eskdale Road.



- Manuka Road (Manuka 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 may be developed through ongoing involvement with local iwi identified in *Volume 2: Waitemata Harbour West SAP Area Overview*. Guiding objectives and outcomes which have informed the development of adaptation strategies have been identified in Volume 2, with ongoing engagement with local iwi essential for implementation.
- Purapura Pai Marae located within this unit is set well back from the coast (no specific iwi affiliations)



- One of the larger areas of open space in the unit is Manuka Beach Reserve, which provides for informal recreation with a playground, lookout and boat ramp for boat launching and marine activities.
- From Manuka Reserve, the Manuka Reserve Path runs around the coast through to Lynn Reserve.



- Remnants of regionally endangered forest ecosystems, such as Kauri, podocarp, broadleaved forest and taraire, tawa, podocarp forest covering the reserves (Eskdale Reserve, Nikau Reserve, Arcadia Reserve, Manuka Reserve and Leigh Scenic Reserve). A wide variety of native avifauna have been recorded within this vegetation (iNaturalist, n.d.).
- Records of the giant kokopu in the Kaipatiki Creek system.
- Habitat provision for native lizards and passerine birds, such as the copper skink (*Oligosoma aeneum*, At Risk – Declining).



Who did we hear from

- This unit had a reasonable level of engagement and feedback via digital platforms; Social Pinpoint, 'AK Have Your Say'.
- Additionally a drop-in session at Glenfield Library, along with a presentation (facilitated with support from Kaipaitiki Local Board) at the Beachhaven & Birkdale Ratepayers & Residents' Association aided in gathering feedback for this area (attended by prominent community such as Pest Free Kaipātiki).

What is happening?

- Feedback identified concerns and experience of coastal erosion and damage to key walking tracks following storm events, noting the need for better maintenance of coastal tracks.
- Flooding from extreme events and coastal accretion / build-up of sediment was also commented on, noting stormwater runoff is perceived as contributing to silt building up along the coast.
- Debris and runoff from storms has also been seen to degrade nearby waters (i.e. Kaipatiki Creek), leading to a decline in the health of natural environments from sediment.
- Concern regarding how future development further up the catchment will impact coastal environments.

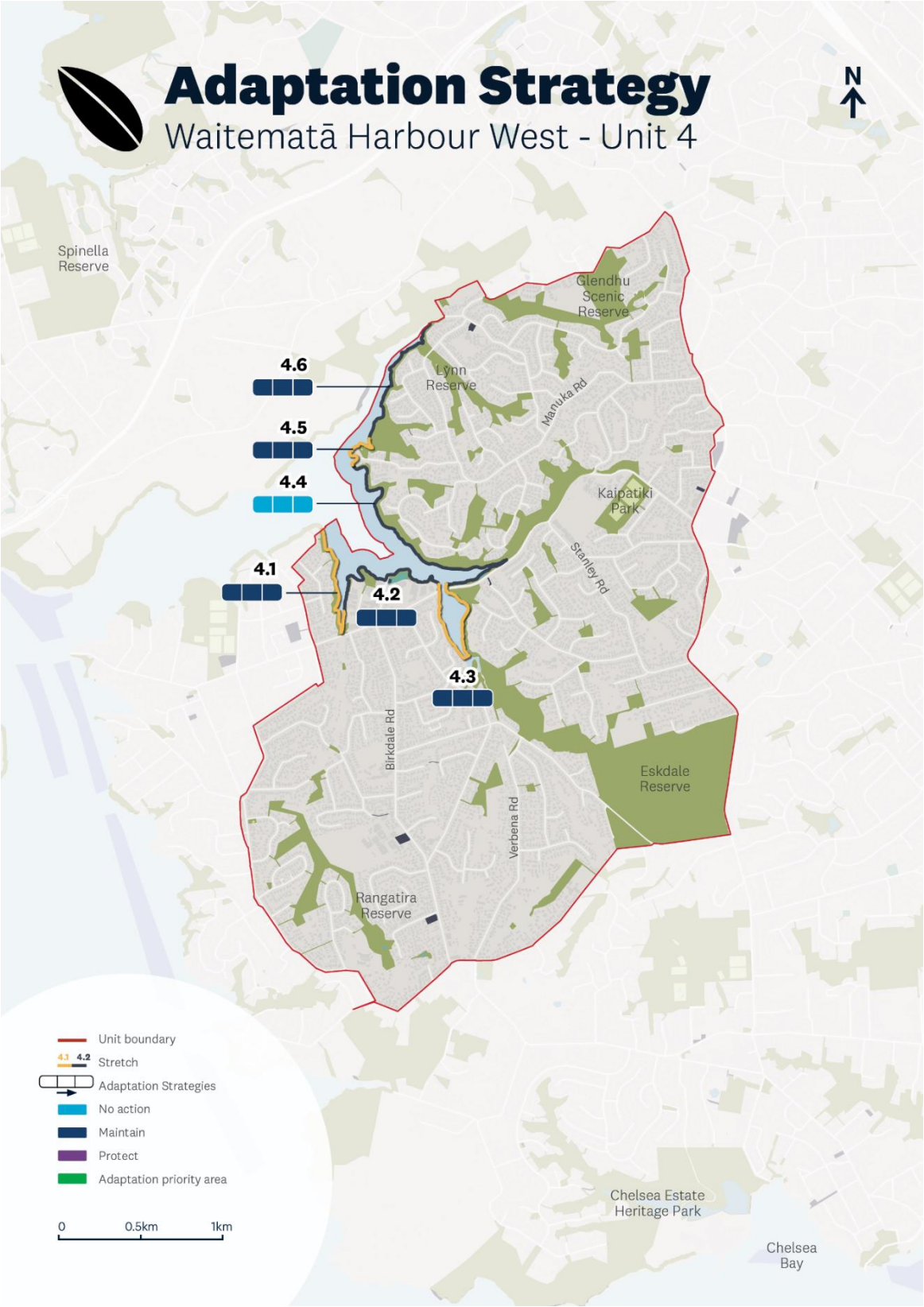
Key community uses and values included:

- Locals enjoy a range of activities in the Birkdale, Glenfield, and Bayview areas. The two most popular activities are nature watching, e.g. watching birds, marine mammals, etc, and walking or running on the beach. This was followed by passive recreation, e.g. sitting, relaxing, picnicking.
- Use of the boat launching facilities at Maukau Road Reserve is highly valued by the local community.

What can we do about it? Community feedback and aspirations

- Respondents expressed a clear interest in improving walking connections along the coast (i.e. from Tui Park through to Kahika Reserve and Eskdale Reserve).
- Ongoing environmental restoration efforts from community groups (i.e. Kaipātiki Project and Pest Free Kaipātiki), reflect aspirations to upkeep natural landscapes, riparian margins and ecological corridors through bush tracks and coastal reserves – Kaihiki Point Reserve was noted of high value in this respect, with local volunteer groups looking after it.
- Clear interest was expressed from community groups to be actively involved in coastal adaptation initiatives for this section of the coast and what this may mean for communities and ecological spaces (i.e. Pest Free Kaipātiki).

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



4.1 Hellyers Creek Reserve

Stretch 4.1 commences near Ranch Avenue Road end adjacent to Hellyers Creek Reserve. It encompasses Kahika Stream and ends opposite Bay Park Place at the east of Kahika Stream. The stretch encompasses the community of Beach Haven. Hellyers Creek Reserve continues along the coast for the duration of the stretch, as does Hellyers Creek Path.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation A maintain approach provides for the location and design of assets within reserve areas (i.e. Hellyers Creek Path, noting this is a well-used community asset) to respond to hazard risks. Asset-specific ‘hold the line’ measures may be applicable for certain assets to maintain function, such as the Beach Haven Road connections and wastewater assets.		
Implementation notes • Cultural: Hellyers Creek Reserve contain wāhi tupuna. Ongoing engagement with local iwi will be required across all climate scenarios.		

4.2 Kahika Point

This stretch commences east of where Beach Haven Road crosses Kahika Stream and includes the coastline and associated reserve areas northeast of this point, culminating at the southern boundary of Hellyers Creek Reserve where the reserve connects to Beach Haven Road (at approx. 320 Beach Haven Road Birkdale). This stretch covers Kahika Point Reserve and remnant sections of Hellyers Creek Reserve, with industrial land predominantly lining the inland coastal margin.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation A maintain approach enables the management of assets (i.e. accessways into and from Kahika Point Reserve), noting the extent of erosion and Kahika Point Reserve exposed to erosion and inundation under a low climate change scenario.		
Implementation notes • Management: Management of Kahika pump station and storage tank is provided for under a maintain strategy, with asset-specific measures to maintain access to key assets a key focus.		

4.3 Kaipātiki Creek

This stretch commences at the southern boundary of Hellyers Creek Reserve where the reserve connects to Beach Haven Road (at approx. 320 Beach Haven Road Birkdale) and concludes at the eastern side of Kaipātiki Creek. Francis Kendall Reserve and Lauderdale Reserve are located within this stretch of coast/ estuarine environment.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation To accommodate the management of risk to well-used coastal walkways and community assets within Francis Kendall Reserve and Lauderdale Reserve, a maintain approach is applied across all climate change scenarios.		
Implementation notes Ecological: Consideration of ecological corridors and management of ecological landscapes within and along coastal reserves will be a key consideration in managing this stretch of coast in response to changing coastal hazard risks.		

4.4 Hellyers Creek Inlet

Stretch 4.4 commences at the eastern side Kaipātiki Creek and culminates south of Manuka Road end (and boat launching area). Kaipātiki Esplanade Reserve and Standish Reserve are situated along the coastal margin of this unit.

Scenarios for change		
Low	Moderate	High
No action 	No action 	No action 
Explanation A no action approach is selected as the predominant strategy for this stretch reflective of the ecological values and natural waterways within this stretch necessitating a need to retain a natural coastal edge.		
Implementation notes • Management: The Kaipātiki Road cycling network extends through part of this stretch and the Kaipātiki Connections Network Plan identifies a potential shared walking and cycling connection through several of the other reserves in this stretch - this would form the Beach Haven Coastal Connection. Consideration should be given to how risk to any new assets is managed in relation to this future connection. • Management: Whilst no action is the predominant strategy for this stretch, management of risk through considered design and alignment of future/ new assets is recommended. This includes management of risk to Kaipātiki Road and Pemberton Road.		

4.5 Manuka Road Boat Launching

Stretch 4.5 commences to the south of Manuka Road end and extends to another section of Manuka Reserve, separated by Manuka Road. It concludes at the embayment north of the park play area, part way along Manuka Reserve adjacent to Manuka Reserve Path.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation A maintain approach provides for ongoing maintenance and repair of Manuka Road boat ramp to allow for continued boat launching at this location, as well as for ongoing maintenance of the playground and path. Coastal access is particularly important for the area.		
Implementation notes • Management: Inundation risk will increase over time and areas of this stretch not subject to existing protection will continue to be subject to erosional processes. The design and location of assets will need to respond to this changing hazardscape.		

4.6 Bayview South

This stretch commences in Manuka Reserve north of the play area and small embayment. It includes the coastline north of the end of Unit 4 and Kaipātiki Local Board area, including Lynn, Bonito, Glendhu, Scenic and Spinella Reserves. Other reserves and parkland in this stretch include Manuka Reserve, Anne Mclean Reserve, Elliot Reserve, Fernwood Grove and Sapphire Reserve.

Manuka Reserve Path extends along most of the stretch, ending near the playground at Lynn Reserve. The walk begins adjacent to the playground at Manuka Reserve (in Stretch 4.3). The bushwalk extends through the vegetated part of Manuka Reserve, offering a peaceful walk which can also be accessed from surrounding streets.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation A maintain approach enables the management of risk through location and design of assets within coastal areas with a focus on maintaining the values of the reserve areas and access to the coast.		
Implementation notes • Management: Localised re-alignment of Manuka Reserve Path may be required as well as coastal accessways (supported via a maintain-based approach).		



Unit 5

Waitematā Harbour West



Unit 5: Waitematā Harbour West

Unit 5 is located within the Upper Harbour Local Board area and covers Greenhithe Peninsula along the northern shoreline of Hellyers Creek inlet and includes the coastline north to Albany Village, including the suburbs of Upper Harbour, Greenhithe, Schnapper Rock and Albany.

What is happening

The upper harbour is a low wave energy environment. The majority of Unit 5 shoreline is a sheltered tidal inlet along the northern shoreline of Oruamo/Hellyers Creek and the southern shoreline of Lucas Creek including the small embayment at the entrance to Te Wharau Creek. The main channel to Upper Waitematā Harbour is constricted through the narrow inlet between Beach Haven and Hobsonville. Mangrove vegetation infills the upper reaches of tidal inlets reflecting the very low energy coastal environment.

Coastal inundation

There is limited exposure to coastal inundation in this unit because the sloping vegetated margin is generally elevated. Subsequently, there are few Auckland Council assets that are within the predicted extent including low-lying Rahui Reserve and Rame Reserve.



Coastal erosion and instability

The ASCIE lines that indicate the area susceptible to coastal instability and erosion generally show a low to moderate risk, reflective of the more sheltered environment of Waitematā Harbour. The predicted ASCIE is greatest on higher elevated sections of coastline such as along the cliffs around Beach Haven, than the vegetated slopes in the sheltered tidal inlets.



There are several existing coastal protection structures around low reclaimed reserve landings located on the eastern upper harbour shoreline at boating access points (Rahui Reserve and Rame Reserve). The western side of Rame Road is protected by a section of rock revetment. The boat ramp in the upper Lucas Creek accessed from Wharf Road, is also protected with short length of rock armour.

Catchment flooding

A series of shorter catchments drain north to the coast within Lucas Creek inlet, Te Wharau Creek and tributaries discharging to the east of the main Greenhithe settlement. As well, Oteha Valley Stream and Lucas Creek discharge to the coast within the eastern areas of the tidal inlet. Areas of floodplain and overland flow paths are identified in proximity to these stream catchments and stormwater management ponds are located within several more recently developed areas.





Risk assessment

The risk table represents key groups of assets (e.g. Auckland Council-owned land, buildings, road extents) which are supported by the regionally consistent data set.

The risk assessment provides a regionally consistent method for comparing risk to Auckland Council-owned land and assets allowing for identification of areas with highest risk for potential future assessment (e.g. Series 2).

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

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 (219.0 ha) Buildings, wharves (49 No.)			Park amenity structures, carparks, accessways, buildings (4.9 ha)			AT roads (56.0 km) Bridges (1,987.0 m ²)			Water pipes (353.3 km)		
Short	Medium	Long	Short	Medium	Long	Short	Medium	Long	Short	Medium	Long
Coastal erosion and instability susceptibility											
High	High	High	Moderate	High	High	High	High	High	High	High	High
Coastal inundation											
Moderate	Moderate	Moderate	High	High	High	High	High	Very 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 unit that may be impacted by coastal hazards (inclusive of catchment flooding) over changing climate scenarios.



- There is a significant amount of Auckland Council-owned land and infrastructure within this unit including reserves and parks, that range from densely vegetated riparian margins to larger open space areas (Waionui Park North, The Landing, Kell Park).
- North Shore Memorial Park (cemetery).
- The most recently established Regional Park, Platt Arboretum Regional Park is located within this unit.



- Public amenities at coastal reserves include Rame Reserve, Rahui Reserve, and Kell Park.
- Recreational and sports field facilities include Waionui Park North and South.



Wastewater:

- Multiple pump stations are located in close proximity to the coastal edge and pipelines travers this unit both on land and within the coastal marine area (sea), viz: Aberly; Mahoney; Remu; Rahui; Awatahi; Oscar; Wainoni; Kerema; Albany; and Churchouse Road Kyle 1 pump stations.

**Key regional roadways:**

- SH18 Upper Harbour bridge crossing; local road connections Rame Road.

Key pathway connections:

- Albany Village Path, Hooton Connection Path, Greenhithe West Path, Greenhithe to Wharf Path and Greenhithe East Path provide walking access near the coast within the unit.

**Harbour access:**

- Key access points and boat launching (Rahui and Rame Roads), and Kell Park timber jetty/canoe landing.

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.



- North Shore Memorial Park (cemetery).
- Rahui Reserve: NZ Scouts is associated with the reserve and boating access, with its club building located at this reserve. This site also has Historic Heritage Value and is the site of the old Greenhithe wharf.
- Lucas Creek provides historic harbour access to the upper reaches of the Albany area and is rich in cultural and historic heritage.
- Rame Reserve is popular, primarily used for boat launching, with a wharf providing access for recreational boating and fishing. North Shore Rowing Club also has a storage shed at this reserve.
- There are numerous private jetties along Lucas Creek shoreline.
- Oruamo/Hellyers Creek is a High Natural Character area (AUP).
- North Shore golf course (privately owned).



- Reserves along the northwestern cliffs of Oruamo/Hellyers Creek are covered in regionally endangered forest ecosystems, such as pōhutukawa-dominated coastal forest (WF4), taraire, tawa, podocarp forest (WF9), and kauri, podocarp, broadleaved beech forest (WF12).
- Oruamo/Hellyers Creek vegetated coastal areas provide important habitats and linkages.
- Open spaces for conservation and recreation are mostly found along the coastline and tidal inlets, with some inland locations.

**Who have we heard from?**

Feedback was received via Social Pinpoint and 'AK Have Your Say' survey. Events local to this area included being held at Catalina Markets and Albany Library.

Submissions included from UWEN (Upper Waitematā Ecology Network) who identified the urgency of addressing climate change and urban development pressures through ecological restoration, sustainable planning, and collaborative governance. The submitter sought a proactive, integrated approach to protect both the natural environment and community resilience in the Upper Harbour area.

Local Board feedback emphasised the importance of water connections at Rahui and Rame Roads. The complex land ownership at Rame Road and need for collaboration to maintain important connections and infrastructure was noted.

**Community concerns and experience of hazards**

- Respondents commented on instability of cliffs and multiple slips during Cyclone Gabrielle.
- They observed more silt and mangroves, less fish, resulting in the need to find other places for recreation and fishing.

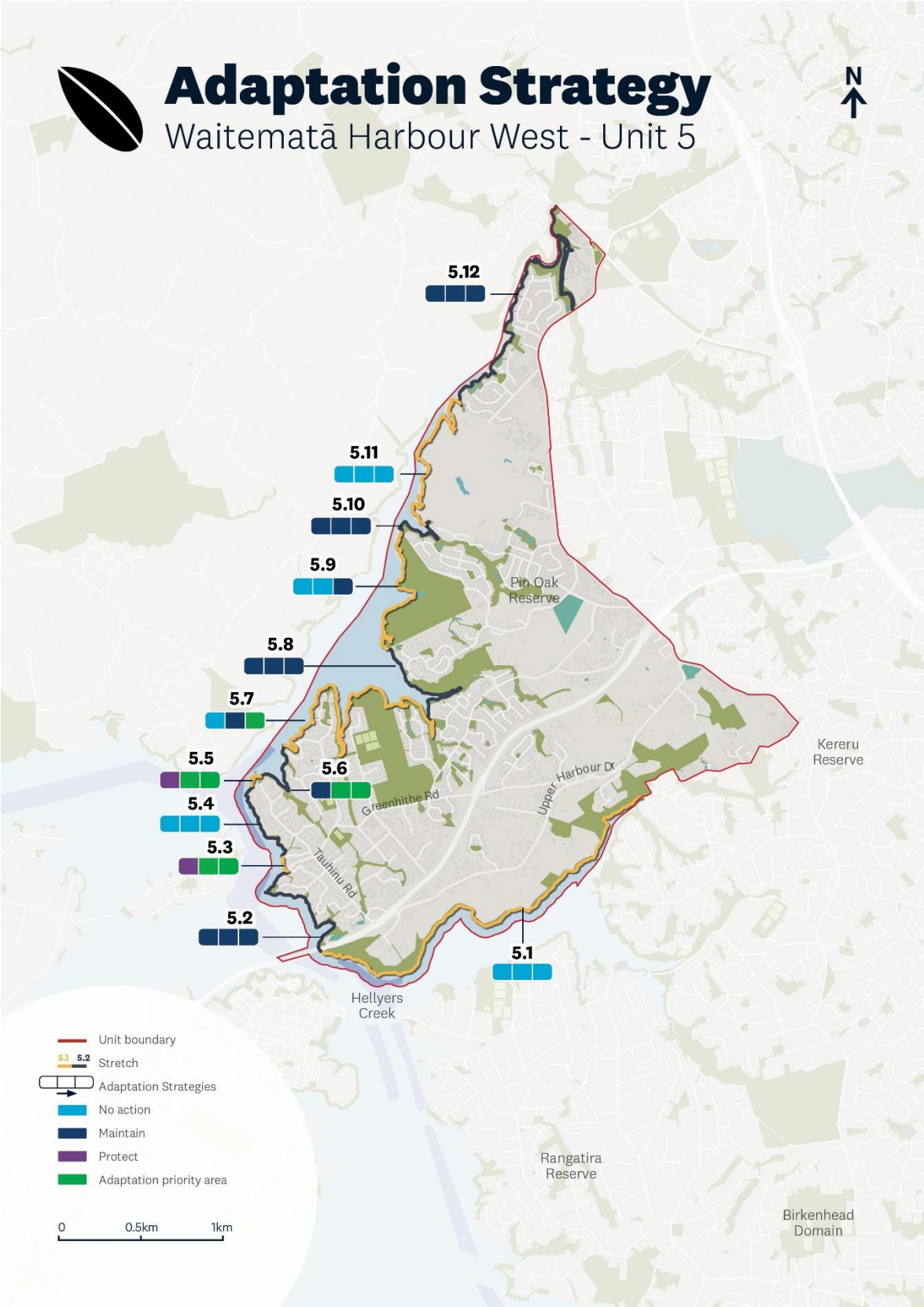
**What matters most? Community values**

- Rahui Reserve was identified as a hugely important location through community and stakeholder engagement. It was valued for providing community uses and valuable harbour connections.
- The value of the natural landscape and lovely view of the creek. Importance of being able to look at the beauty of the local hills and water - restful and relaxing.
- The coastal and tidal creek environment was identified as valuable for walking to enjoy the natural habitat.

**What can we do about it? Community feedback and aspirations**

- Community feedback supported restoration of natural environments and support for natural ecological landscapes.

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



5.1: Oruamo / Hellyer Creek

This stretch commences at the southern boundary of Unit 5, at Kereru Reserve on the northern side of Oruamo/Hellyer Creek inlet and concludes to the south of the Upper Harbour Road bridge of SH18. The esplanade reserve along this shoreline is nearly continuous and is undeveloped with no Auckland Council assets.

Scenarios for change		
Low	Moderate	High
No action 	No action 	No action 
Explanation Our preferred pathway recognises the High Natural Character Area value of the bush-clad slope along the northern shoreline of the creek. It also reflects the significance of existing vegetation cover and use of nature-based protection such as is provided by the existing mangrove fringe that also provides important habitats and ecological linkages.		
Implementation notes • No active intervention reflects the generally undeveloped nature of the coastal areas and limited assets within this area. It also includes ecological, historic and cultural heritage sites. No active intervention does not preclude actions associated with these features. • Ecological and policy: North-West Wildlink landholdings are relevant for this stretch and the high natural character of the park as part of Oruamo Creek escarpment.		

5.2: Greenhithe: Marae Road

This stretch commences at the northwestern border of Taihinui Historical Reserve, near the SH18 Upper Harbour Motorway. It extends along the coast before culminating at the embayment south of Rahui Road end, including the southern portion of Rahui Road Reserve. It encompasses reserve and parkland, along with residential areas of Greenhithe. Parks and reserves located at the coast are The Knoll, Remu, Marae Road Esplanade, Marae, and Rahui Reserves. Most of these reserves function as riparian zones separating private properties from the cliffs at the coast.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation Maintain is preferred recognising the importance of the local coastal connection along the Greenhithe West Path, and existing Council-owned assets (such as the existing wastewater pumping stations at Remu Reserve & Koki Reserve), along the shoreline that will require ongoing maintenance to retain functionality and use in changing climate scenarios.		

Scenarios for change		
Low	Moderate	High
Implementation notes • Maintain reflects the management of risk to existing walking access and piped assets and does not indicate the need for, or use of, coastal defences more generally within this stretch. • Management: The Kaipātiki Local Parks Management Plan identifies a range of management intentions for parks within the stretch. • Engagement with multiple asset owners will be required for implementation due to the location of the State Highway and Watercare assets located within this stretch.		

5.3: Rahui Road

This short stretch commences at the northern side of the embayment between Marae and Rahui Roads, including the low reclaimed reserve area and boating access at Rahui Reserve, and culminates adjacent to Rahui Road where this turns east away from the coast.

Scenarios for change		
Low	Moderate	High
Protect 	Adaptation Priority 	Adaptation Priority 
Explanation Rahui Reserve is an important community reserve with highly valued assets including grass open space and ablutions, Tauhinu Sea Scouts Den, a carpark and boat ramp providing access to Waitematā Harbour. Greenhithe West Path also runs through the reserve. Rahui wastewater pump station and associated pipe network is located in the reserve.		
Implementation notes • Protect in the low scenario reflects maintenance / protection of the existing armoured coastal edge and assets from coastal erosion. Localised protection measures may be required across all climate scenarios in relation to piped assets. • Adaptation priority in the moderate change scenario continues to support maintenance and structures, while providing for proactive engagement with asset owners, iwi and communities. In the moderate to high climate change scenario, inundation becomes an increasing issue. This requires consideration of the long-term viability of maintaining all current uses in this location, principally coastal access connections and reserve uses, noting that other assets may be adapted and designed to respond to increasing inundation exposure.		

5.4: Greenhithe: Rame Road

Stretch 5.4 commences north of Rahui Road end culminating to the western side of Rame Road marine facilities including residential areas of Greenhithe. It encompasses Rame Esplanade Reserve, which comprises several disconnected and undeveloped esplanade reserves, dominated by steep vegetated coastal cliffs.

Scenarios for change		
Low	Moderate	High
No action 	No action 	No action 
Explanation No action is preferred because this stretch is undeveloped esplanade reserve and private property. Limited coastal access is provided, with the main access path to the coast from Rame Road to a small embayment.		
Implementation notes No action does not preclude the maintenance of the walkway access point to the coast from Rame Road to the small embayment.		

5.5: Rame Road Boat Access

This stretch commences southwest of Rame Reserve and extends around a short length of coast, ending on the northeastern end of Rame Reserve. It encompasses residential areas of Greenhithe, and the marine facilities at the end of Rame Road. This includes privately owned, DOC-owned and Auckland Council-owned and managed (including Eke Panuku and Auckland Transport) areas. Rame Reserve on the Lucas Creek shoreline is primarily used as a launching point for boating activities and is an important community asset.

Scenarios for change		
Low	Moderate	High
Protect 	Adaptation Priority 	Adaptation Priority 
Explanation Protect is chosen as the reserve at the road end is a key connection point for access to Waitemata Harbour including the adjacent mooring area, with associated maritime facilities (dinghy lockers, rowing club, boat ramp and jetty). A number of assets in this reserve have a functional need to remain at the coast and are at increasing risk of erosion and inundation over time. Adaptation priority under moderate to high climate scenarios reflects the complexity of maintaining protection with multiple parties involved in boat/harbour connection infrastructure.		
Implementation notes Protect applies to Auckland Council-owned land and assets only. Engagement with adjoining land owners, mana whenua and the community will be required in the implementation of the strategies for this stretch. Adaptation priority in relation to Auckland Council landholdings and assets acknowledges the existing coastal defences in relation to coastal erosion and identifies the increasing challenge posed by inundation for this low-lying area. Adaptation priority also relates to the complex and highly valued uses including coastal access paths, leased areas, boat storage and parking areas that will be subject to increasing inundation risk in the moderate to high change scenario. Further consideration of the design and location of activities within Auckland Council landholdings will be required to manage inundation risk and manage aspirations for coastal access and associated facilities, and continue to accommodate existing uses. Management: Management intentions for Rame Reserve include aspirations to enhance the area as a strategic facility for rowing and canoeing activities.		

5.6: Greenhithe Coastal Reserves

This stretch starts immediately east of Rame Road marine area, continues upstream along Lucas Creek shoreline, encompassing Orchard and Awatahi Reserves that extend around the small embayment, culminating at the end of the coastal walkways connections that link to Awatahi Place. These reserves are predominantly riparian zones / bush covered, separating private properties and the coast.

Scenarios for change			
Low		Moderate	High
Maintain		Adaptation Priority	
Explanation Maintain recognises the importance to the community of the coastal walkway with its Greenhithe to Wharf Path connection and key wastewater infrastructure located along the coastline. Coastal erosion and instability with increased sea levels are identified as impacting this highly valued narrow coastal connections prompting consideration of the management of risk and importance of these coastal connections.			
Implementation notes Maintain in the low change scenario relates to the maintenance of coastal pathway connections to and along the coast, and continued serviceability of wastewater assets. Specific actions to ensure the continued functions of piped (wastewater) assets may be required over all timeframes. Adaptation priority in the moderate to high change scenario is reflective of the ongoing erosion risk to coastal walking and access connections, and the need to consider long-term provision of access to and along the coast. Erosion has already impacted the coastal access and connectivity of these reserve areas and may result in the continued need to realign walkway connections. Cultural: Wāhi tapū are located within coastal areas. Engagement with mana whenua is required to further understand the cultural values and implementation of adaptation strategies.			

5.7: Greenhithe North

Stretch 5.7 starts near the small peninsula / rocky outcrop at Awatahi Reserve and extends for a long portion of coastline around the southern part of the Te Wharau Creek embayment. It encompasses the residential areas of Greenhithe and Wainoni and there is a near continuous undeveloped esplanade reserve along the densely vegetated coastal margin. Wainoni Park North is a large open grass reserve area that extends inland following two smaller side arms of Te Wharau Creek.

Scenarios for change			
Low		Moderate	High
No Action		Maintain	
Explanation No action in the low change scenario is identified due to the majority of the esplanade reserve being currently undeveloped, with limited Council assets exposed to coastal hazards in this stretch, with most park assets and sports facilities at Wainoni Park located inland from the coast. Maintain under a moderate change scenario reflects the need to consider impacts on connections to the coast and where walkway connections cross inlets which discharge flood			

Scenarios for change		
Low	Moderate	High
flows and are low lying in nature. Adaptation priority under the high climate change scenario reflects the importance of coastal recreational areas, community and ecological values and the need to support proactive conversations about coastal change.		
Implementation notes		
No action does not preclude the maintenance of this coastal access connection, particularly across estuarine areas and the maintenance of water infrastructure. Maintain provides for the management of risk to connections to the coast, adaptation priority under a high climate scenario reflects the need for proactive engagement to manage risk to coastal recreational uses. - Consideration of the design and location of any new assets and activities, within Council landholdings, will be required to manage inundation risk and manage aspirations for coastal access and associated facilities and continue to accommodate existing uses.		

5.8: Te Wharau Creek

This stretch commences at Te Wharau Creek Esplanade Reserve. It extends along the coast ending at the northwestern boundary of the North Shore Memorial Park / North Shore Cemetery landholding. Residential areas of Greenhithe and Schnapper Rock are within the stretch.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation		
Maintain recognises the local importance of public access connections around the coastline through more elevated vegetated esplanade reserves, and walkways throughout these parks that connect to neighbouring street networks. Coastal erosion and in lower-lying areas, inundation hazards are identified. Management of risk through the design and location of assets in this area is preferred and armouring of the coastal edge is not envisaged, with coastal vegetation providing a natural buffer for energy from the coast.		
Implementation notes		
Maintain reflects the need to manage risk to key coastal connections within this stretch, between the Greenhithe and Schnapper Rock areas. There is a coastal track through Lady Phoenix Reserve, connecting these areas. Maintain provides for the maintenance of the pathway and/or localised realignment as required. - The use of hard protection structures to manage risk is not anticipated.		

5.9: Schnapper Rock

This stretch includes the North Shore Cemetery area / North Shore Memorial Park, continues along the entire coastal boundary of the park, culminating at Wharepapa Reserve at the north end of the stretch. The park is situated adjacent to residential areas of Schnapper Rock. Council-owned

buildings at North Shore Memorial Park include a crematorium, several amenity buildings and sheds, and a toilet block generally set well back from the coastal edge.

Scenarios for change		
Low	Moderate	High
No Action 	No Action 	Maintain 
Explanation No action reflects that the current land use and location of assets are not exposed over the low to moderate climate change scenario. There are multiple SEAs situated within or adjacent to reserve land, with existing vegetation providing a nature-based buffer to the reserve. Maintain is recommended in the high climate change scenario, reflecting the increasing erosional risk in this scenario and the sensitivity of the land use and significant community value of North Shore Memorial Park.		
Implementation notes No action reflects the location of assets and land uses in proximity to hazard areas. Coastal defences are not envisaged for this natural coastline where SEA values support nature-based methods. No action does not preclude the management of assets and uses in response to other values and requirements.		

5.10: Schnapper Rock North Wharepapa

This stretch commences adjacent to Wharepapa Reserve, at the northern border of North Shore Memorial Park. It extends along the coast of a small mangrove infilled tidal creek, culminating at the northern border with North Shore Golf Course. It encompasses residential areas of Schnapper Rock, and includes reserves extending inland along the riparian margin of the stream. These esplanade reserves are highly valued as green spaces for these communities.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation Maintain notes that erosion and instability are a risk to the boat launching ramp at Wharepapa Reserve over all climate scenarios, along with flooding related to the flood plain areas and stormwater reserves (Laural Oak and Aberley). There are also some particularly low-lying reserves which may be exposed to inundation and catchment flooding hazards and management of risk through design and location of assets may be required.		
Implementation notes Maintain reflects the need to manage risk to Council assets, namely access to Schnapper Rock boat ramp in Wharepapa Reserve, through design, maintenance, and alignment. - No additional coastal protection structures are anticipated for this area.		

5.11: Golf Course & North

This stretch commences at the southern extent of the privately-owned golf course and culminates in the north at Wharf Road Reserve. It extends around the coastal boundary of North Shore Golf Course, culminating at the southwest boundary of Wharf Reserve (noting this is not a Council-owned asset).

Scenarios for change		
Low	Moderate	High
No action 	No action 	No action 
Explanation		
No action reflects the absence of Council-owned land and assets.		
Implementation notes		
No action is reflective of the absence of Council-owned land and assets requiring management of risk from coastal hazards.		

5.12: Lucas Creek (Albany Village)

This stretch in the upper Lucas Creek commences south of Wharf Road Reserve and extends along the eastern shoreline before culminating at Dairy Flat Highway, near the northern corner of Kell Park. It encompasses residential and commercial areas of Albany / North Harbour. Several large open space reserves extend along the meandering creek shoreline including Wharf Reserve, The Avenue Esplanade Reserve, The Landing, Albany Domain and Kell Park. Water infrastructure includes Mahoney pump station at Wharf Reserve, Albany pump station at The Landing, and a watermain adjacent to Albany Domain.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation		
Maintain was selected as Council land and assets located along the upper Lucas Creek shoreline are adjacent to highly developed urban areas and are valued for accessibility to the tidal channel for small craft and the network of pathways including the Hooton Connection Park and Albany Village Park, as well as park amenities such as at Kell Park.		
Implementation notes		
Maintain does not indicate the need for, or use of, coastal defences more generally within this stretch. The preference is for nature-based solutions, noting the upper creek is lined with mature mangrove vegetation and there are multiple SEAs within the stretch. These areas are highly valued for the natural protection they provide by buffering the shoreline. Maintain supports maintenance of key coastal connections (including Albany Village Path and Hooton Connection Path) and coastal infrastructure within reserve areas. Within existing landholdings, localised realignment of assets (e.g. paths or carparks) may be required, particularly under moderate and high climate scenarios. The design and location of activities and assets will need to be responsive to the hazardscape and the heritage, cultural and ecological values.		

Scenarios for change

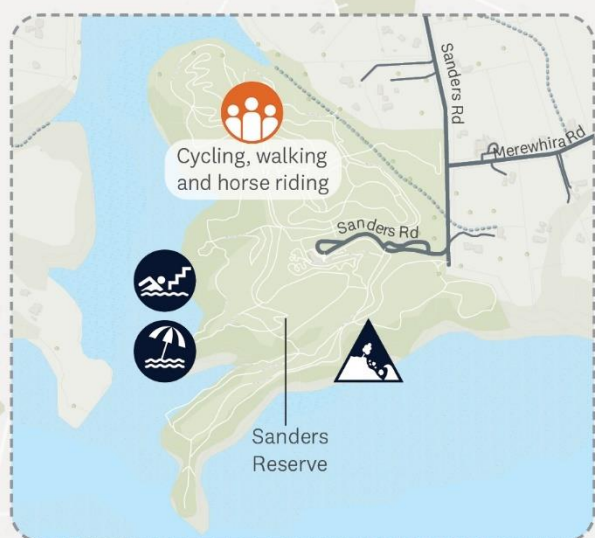
Low

Moderate

High



Cultural: Wahi tupuna are recorded at Wharf Reserve (Auckland Council, 2024i). Engagement with mana whenua is recommended to further understand the cultural values associated with this site and how this may impact adaptation strategies.



Unit boundary

6.1 6.2 Stretch

Unit 6: Lucas Heights & Paremoremo

Unit 6 is located within the Upper Harbour Local Board's area and commences north of Albany Village including the coastal areas of Lucas Heights, Attwood and Paremoremo. The unit includes the northern coastline of Lucas Creek inlet and the eastern shoreline of Paremoremo Creek.

What is happening

The upper harbour and tidal inlets are significantly low-energy wave environments with very short fetch distances across to Whenuapai and Herald Island, and shallow water depths across intertidal areas.

Coastal inundation

Coastal inundation flooding is predicted to impact the natural vegetated margin fringing esplanade reserves along Lucas Creek. The majority of the esplanade reserve areas are undeveloped, with future sea-level rise predicted to have the most impact within this unit at Attwood Reserve. Existing walkways at Saunders Reserve are elevated and will not be impacted.



Coastal erosion and instability

Coastal hazard extents show that exposure of coastal land and assets at this location is typically low noting the rural undeveloped character of the unit and limited number of assets located near the coast (e.g. park assets, roads and water infrastructure). The low cliffs are fronted by intertidal fine sand and mudflats, with the main harbour channel within 50 m of the headland at Attwood Reserve.



The only area within this unit with coastal protection structures is Attwood Reserve landing and boat ramp access that is armoured with a seawall along with a short length buttress wall that supports the road to the east of the wharf.

Catchment flooding

Flood plains are primarily associated with Pāremoremo Creek discharging to the coast within the inlet to the north west of the unit area. Localised areas of flood plain and associated overland flow paths are located within the vegetated generally steeper, cliffed coastal areas of this unit.





Risk assessment

The risk table represents key groups of assets (e.g. Auckland Council-owned land, buildings, road extents) which are supported by the regionally consistent data set. The risk assessment provides a regionally consistent method for comparing risk to Auckland Council-owned land and assets allowing for identification of areas with highest risk for potential future assessment (e.g. Series 2).

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

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 (189.2 ha) Buildings, wharves (11 No.)			Park amenity structures, carparks, accessways, buildings (0.4 ha)			AT roads (16.3 km) Bridges (200.8 m ²)			Water pipes (16.8 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	Low	Low	Low
Coastal inundation											
Moderate	Moderate	Moderate	High	High	High	Moderate	Moderate	Moderate	Low	Low	Low
Key											
Very Low			Low			Moderate			High		
									Very High		

What matters most



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



- Lucas Creek Esplanade Reserve and Lucas Creek Scenic Reserve
- Sanders Reserve
- Attwood Reserve



- Walking tracks and mountain bike tracks at Sanders Reserve



- **Closed landfills:** Paremoremo



- **Harbour access:** Key access points at Attwood Reserve boat ramp and wharf (historic)

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.



- Historic coastal access structures at Attwood Wharf.
- Two Outstanding Natural Landscape areas: sections of Lucas Creek and the Paremoremo Escarpment. Additionally, Lucas Creek is recognised as a High Natural Character Area.



- The western banks of Lucas Creek are dominated by regionally endangered forests, including kauri, podocarp, broadleaved, beech forest (WF12), taraire, tawa, podocarp forest (WF9) and coastal broadleaved forest (WF4).
- Paremoremo Scenic Reserve is the largest native bush reserve on the North Shore.



Who have we heard from?

Responses were received via digital platforms and through engagement with local ecological groups at Albany Library events and through submissions.

Community concerns and experience of hazards

- Land instability within steep coastal areas was identified along areas of Lucas Creek.
- Coastal erosion was observed at Sanders Reserve.

What matters most? Community values

- Sanders Reserve was identified as a key asset, providing for recreational activities and connections to the coast for a range of users.
- Attwood wharf was identified as a key coastal connection. Respondents noted the lack of access to the coastal edge and the importance of this connection for local community and surrounding areas.

What can we do about it? Community feedback

- Community feedback supported restoration of natural environments and support for natural ecological landscapes. Support for and the enablement of these local community-led initiatives from Council was sought by respondents.

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



6.1: Lucas Heights

Commencing north of Albany Village and including the northern coastline of Lucas Creek, culminating to the east of Attwood Wharf. This long stretch encompasses rural / residential areas along the western shoreline of Lucas Creek.

Scenarios for change		
Low	Moderate	High
No action 	No action 	No action 
Explanation The coastline in this stretch is bordered by esplanade reserves that are dominated by native bush. While subject to mapped coastal hazards, these highly naturalised and resilient environments are identified as having high ecological values, supported by the local community. Council assets within reserve areas are limited and as such, no action is reflective of the need to enable a natural coastal edge.		
Implementation notes • No action does not preclude the management of risk to water assets which traverse this stretch. • No action does not preclude advocacy and support for ecological outcomes supported by local community groups. Nor does it impact the opportunity for future assets and connections to the coast within esplanade areas. • Cultural: Historically, Lucas Creek was a highly valued portage route for local communities. Engagement with iwi is required to further understand the values associated with the waterway and how these may impact adaptation strategies.		

6.2: Attwood Reserve Wharf

Commencing at the eastern extent of the Attwood Wharf area and culminating in the west, adjacent to where Attwood Road turns east away from the coastal edge. The stretch includes the residential area south of Paremoremo. Attwood Reserve is a bush-covered reserve bordering the coast, and there are also multiple SEAs within or adjacent to the reserve. Auckland Council-owned assets include the boat ramp, wharf and Attwood Road.

Scenarios for change		
Low	Moderate	High
Protect 	Protect 	Protect 
Explanation Attwood wharf and boat launching facility, are highly valued and key harbour access points. This facility is served by Attwood Road, which meets the coast north of the wharf and provides access to this facility. Protect over all climate scenarios recognises the importance of these assets. Inundation and erosion risk to the wharf and associated access under the moderate to high climate scenarios may require further intervention.		

Scenarios for change		
Low	Moderate	High
Implementation notes Protect: - In the short term, protect reflects the maintenance of wharf facilities (historic structures) at this location in relation to coastal erosion hazards. - In the moderate to high change scenario, protect reflects that continued maintenance of structures is required to support ongoing public use, whilst also considering future design and locations of assets to respond to increasing coastal hazard risks. The resilience of the road connection to the wharf is important regarding the use of these facilities. - The surrounding coastal areas contains wāhi tupuna and pā site. Engagement with mana whenua is required to further understand the cultural values associated with this site when considering implementation of adaptation strategies. - Attwood wharf is a historical wharf. Consideration of heritage values will be required to inform implementation of adaptation strategies.		

6.3: Chatham Reserve and West

Commences west of Attwood Wharf stretch and includes the coastal area culminating adjacent to Sanders Road end in the west. The stretch consists predominantly of green space and bush-covered reserves bordering the coast with few developed Council assets. There are some rural residential zones within the stretch, south of Paremoremo.

Scenarios for change		
Low	Moderate	High
No action 	No action 	No action 
Explanation No action is reflective of the steep, vegetated and general natural coastal edge with few Council-owned assets present (coastal access track at Chatham Reserve).		
Implementation notes No action does not preclude the management of activities within reserve areas in response to coastal hazard risks. This includes maintenance of the stormwater discharge point to the coast at the western end of Attwood Reserve, if required.		

6.4: Sanders Reserve

Stretch 6.4 commences adjacent to the end of Sanders Road and extends around the coastal perimeter of the headland reserve, culminating at the northeastern border of Sanders Reserve. Sanders Reserve is situated adjacent to rural areas southwest of Paremuremo, with a range of walking and cycling tracks throughout the park. This is a highly valued and well-used community asset.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation Maintain is selected as the reserve is a highly valued recreational destination for walking and includes a dog park, mountain biking and equestrian activities. Council-owned buildings include Sanders Reserve Visitor Centre, and toilets. Sanders House and associated sheds are generally well set back from the coastal edge. The reserve includes a playground, wāhi tūpuna, Tauhinu Pā, shell middens and a maritime site.		
Implementation notes Maintain reflects the need to maintain a natural coastal edge while managing risk to assets, including shared trails, and access to the coast within the wider reserve area, through location and design of assets. Cultural: Sanders Reserve contains a wāhi tupuna and Tauhinu Pā. Engagement with mana whenua is required to further understand the cultural values associated with this site and how this may impact adaptation strategies.		

6.5: Paremuremo West

This stretch extends along the eastern shoreline of Paremuremo Creek to the north of Sanders Reserve, and culminates adjacent to Brookdale Road, near Paremuremo Scenic Reserve at the head of the inlet. The stretch includes areas of unmaintained esplanade reserve and encompasses rural areas of Paremuremo, serviced by Sanders Road, along with some industrial sites.

Scenarios for change		
Low	Moderate	High
No action 	No action 	No action 
Explanation No action reflects the limited Council-owned land and assets located within this stretch.		
Implementation notes No action does not preclude the management of flood and coastal erosion risk to Paremuremo/Brookdale Road as required. - Paremuremo Scenic Reserve closed landfill, located to the north of the coastal edge is subject to the Closed Landfill Asset Management Plan.		



Unit 7

Waitematā Harbour West



Rangitōpuni Stream
Statutory
acknowledgement
area, Te Kawerau ā
Maki



Catchment
flooding



East/west
roading
connection



Boat launching
location



Highly valued
connection to
harbour



Ecology/Landscape of
the upper Waitematā



Marine and terrestrial
ecological areas,
highly vegetated
coastal edge



Outstanding
natural
landscape

Riverhead

Rangitōpuni
Stream
Riverhead

Coatesville Riverhead Hwy

Barrett Rd

Lloyd Rd

Ridge Rd

Ridge Rd

Edward Jonkers Dr

James Paige Ln

Lloyd Road
Esplanade
Riverhead

Paremoremo
Creek inlet

Sanders
Reserve

Waitematā
Harbour

Unit boundary

7.1 7.2 Stretch

Informal recreation park

Mooring management area

Auckland Council owned land

0 0.5km 1km

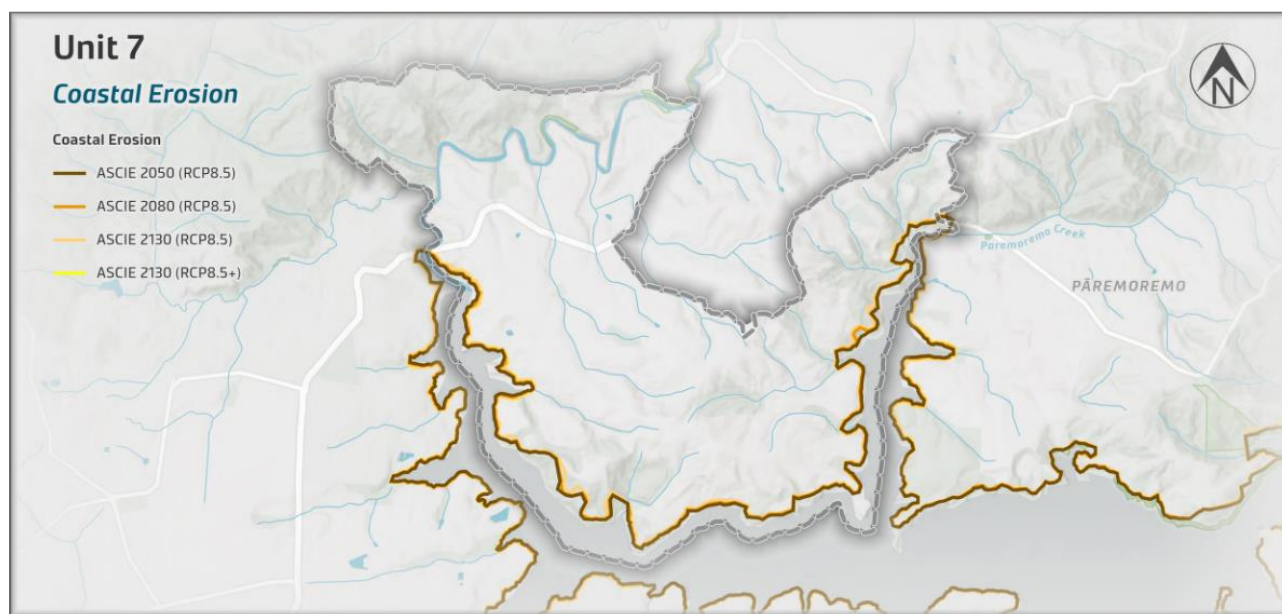
Unit 7: Riverhead East

Unit 7 is located within the Rodney Local Board area and is mainly rural residential land use with limited Auckland Council-owned land and assets. The coastal edge is predominantly unmanaged and includes private access structures and water access points (privately owned). Roding networks and connections are generally set back from hazard areas. Coatesville Riverhead Highway traverses the unit in the north and joins Unit 8 to the west, a key east-west roading linkage.

What is happening?

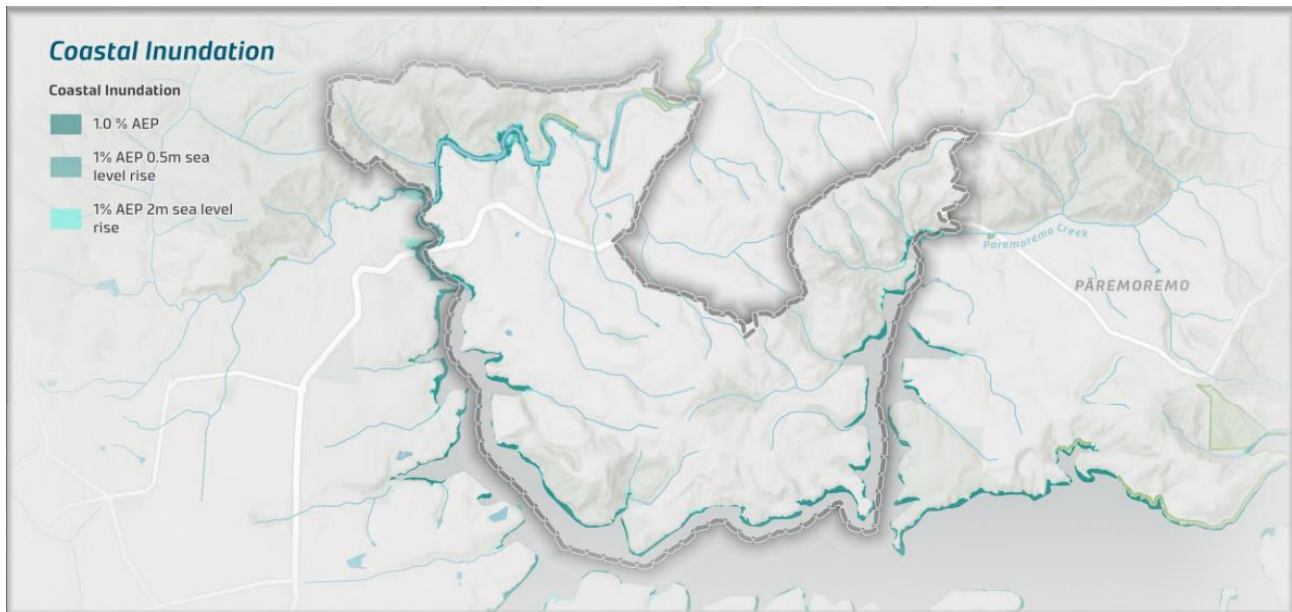
In the Upper Waitematā Harbour, the main tidal channel branches to the west and splits into two smaller sub-arms. Riverhead is located at the headland of the northern sub-arm. Unit 7 is a low energy environment extending from the western shoreline of Paremoremo Creek to the eastern shoreline of this northern sub-arm. The Upper Harbour shoreline is typical of estuarine inlets with muddy intertidal flats fringed with mangroves that infill smaller indented areas. Established mangroves and fine muddy sediment reflects the sheltered low energy coastal environment. Vegetated coastal edges are generally in a natural state with limited infrastructure (or development) located in proximity to the coastal edge.

Edward Jonkers Reserve is identified as being exposed to erosion and inundation under the low climate scenario. Much of the coastal edge is natural and generally vegetated with boat ramp access located within the park area. Mangroves are present in coastal areas adjacent to the coastline for the reserve. Under moderate and high climate scenarios, a larger extent of the reserve is identified as exposed to coastal hazards, both erosion and inundation. Few assets are located within areas of Council land potentially impacted by coastal hazards. Car/trailer parking areas at Edward Jonkers Reserve are located landward of the mapped inundation extent.



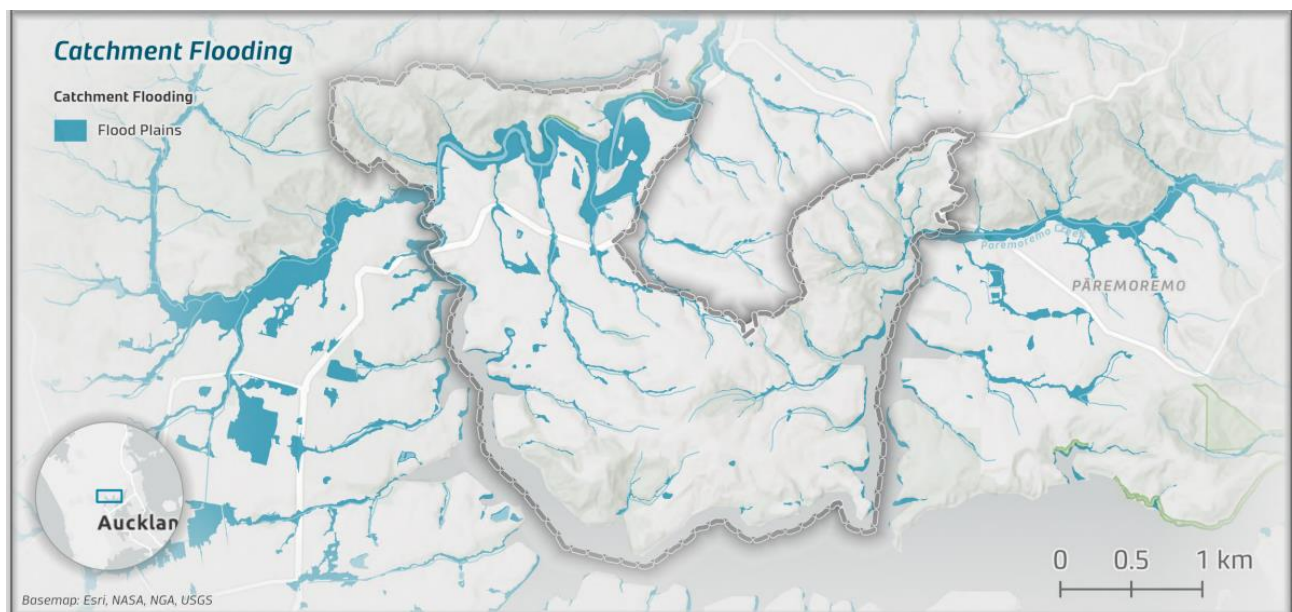
Rangitōpuni Stream is identified as being exposed to erosion and inundation under the low climate scenario. Noting the presence of cultural heritage, the coastal edge is largely natural and generally vegetated. Mangroves are present in coastal areas adjacent to Lloyd Road Reserve areas. Under

moderate and high climate scenarios, a larger extent of the reserve is identified as exposed to coastal hazards. Few assets are located within areas of Council land potentially impacted by coastal hazards.



Catchment flooding

Rangitōpuni Stream catchment flooded during the 2023 storm events, impacting private property and road access and damaging (destroyed) a road bridge at Mill Flat Road, located within the upper reaches of the catchment. Flood hazards are identified within the upper reaches of Rangitōpuni Stream.





Risk assessment

The risk table represents key groups of assets (e.g. Auckland Council-owned land, buildings, road extents) which are supported by the regionally consistent data set.

The risk assessment provides a regionally consistent method for comparing risk to Auckland Council-owned land and assets allowing for identification of areas with highest risk for potential future assessment (e.g. Series 2).

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

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 (11.1 ha) Buildings, wharves (1 No.)			Park amenity structures, car parks, accessways, buildings (0.1 ha)			AT roads (11.0 km) Bridges (87.8 m ²)			Water pipes (0.8 km)		
Short	Medium	Long	Short	Medium	Long	Short	Medium	Long	Short	Medium	Long
Coastal erosion and instability susceptibility											
Moderate	Moderate	Moderate	Low	Low	Low	Low	Low	Low	Low	Low	Low
Coastal inundation											
Low	Low	Low	Low	Low	Low	Low	Low	Low	Very low	Low	Low
Key											
Very Low			Low			Moderate			High		
									Very High		

What matters most



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



- Edward Jonkers Reserve, Lloyd Esplanade Reserves.
- Unmaintained sections of Rangitōpuni Stream Esplanade and paper roads.
- This area includes properties that were affected by the 2023 storm events.



- Edward Jonkers boat launching and supporting roading and parking areas.



- Coatesville Riverhead highway and associated local roads.

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



- Stretch 7.1 the adjoining bank of the inlet the AUP records as a site of significance; a kāinga Te Marae o Hinekakea village site.
- Edward Jonkers Reserve and the Lloyd Road Esplanade contains wāhi tupuna.
- Taurangatira (Kāinga) is located to the west of the unit area.
- Rangitōpuni Stream (and tributaries) are a statutory acknowledgement area for Te Kāwarau a Maki.
- 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.



- Outstanding natural landscape – Paremoremo Escarpment is identified over a portion of the Edward Jonkers reserve.
- The Cultural Heritage Inventory records many historic heritage sites within the esplanade reserve at Edward Jonkers, including remnants of a barge.



- Terrestrial SEAs are located within or adjacent to the coast, with regionally important ecosystems located in Edward Jonkers Reserve. This includes kānuka scrub which grades into podocarp forest and a small area of raupō reedland.



- Edward Jonkers Reserve is highly valued by the local community as a harbour access point and popular canoeing spot, providing one of the few access points to the coast.

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



7.1 Paremoremo Creek West

This stretch commences at the head of Paremoremo Inlet and includes mainly privately-owned coastline from the northern side of Paremoremo Creek inlet culminating at the northern extent of Edward Jonkers Reserve.

Scenarios for change		
Low	Moderate	High
No action 	No action 	No action 
Explanation No action is preferred as there are few/no assets located within proximity to the coastal edge within the identified Council landholdings. The predominantly natural coastal edge is vegetated, located within an outstanding natural landscape and includes both terrestrial and marine significant ecological areas. Modification of the coastal edge is not a preferred outcome due to the landscape and ecological values within this coastal stretch.		
Implementation notes No action does not preclude continued maintenance and protection of the ecological, cultural and heritage features within the stretch.		

7.2 Edward Jonkers coastal connection

This stretch includes the coastline of Edward Jonkers Reserve, culminating at the southern extent of the Council reserve area.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation Maintain reflects the limited Council assets located within proximity of the coastal edge. There are no coastal management structures located along this section of coast and hard structures such as formalised accessways are adequately set back from the coastal edge. The predominantly natural coastal edge is both vegetated and identified, in the case of Edward Jonkers Reserve, as being located within an Outstanding Natural Landscape (AUP).		
Implementation notes Maintain relates to the continued management of access to the coast due to the highly valued coastal access / connection point at Edward Jonkers Reserve. Maintain does not indicate the mitigation of coastal hazards on the wider coastal landholding. Modification of the coastal edge is not preferred due to the stretch's high landscape and ecological values. Should management of risk to assets be required, consideration of the design and location of assets should be required first. Cultural: Edward Jonkers Reserve contains wāhi tupuna. Engagement with mana whenua regarding the management of risk from coastal hazards to cultural sites and landscapes may inform future revisions of adaptation strategies for this stretch. Coastal reserves within this stretch are identified as having associated		

cultural heritage value. Engagement with local iwi, including Te Kawerau A Maki may inform the development of further adaptation planning actions reflective of cultural heritage values.

7.3 Riverhead Rural South

This stretch includes the predominantly privately-owned coastline from the northern side of Paremoremo Creek inlet, south of Edward Jonkers Reserve, and culminates in the north on the eastern bank of Rangitōpuni Stream.

Scenarios for change			
Low		Moderate	
No action		No action	
			
		High	
No action		No action	
			
Explanation			
No action reflects that the natural coastal edge is vegetated with limited access to the coast with few developed areas of land or Council-owned assets within close proximity to the coastal edge. Modification of the coastal edge is not a preferred outcome due to high landscape and ecological values. Coastal reserves are identified as having associated cultural heritage value. Engagement with local iwi, including Te Kawerau A Maki may inform the development of further adaptation planning actions reflective of cultural heritage values.			
Implementation notes			
No action does not preclude continued maintenance and protection of the ecological, cultural and heritage features within the stretch. Cultural: Rangitōpuni Stream (and tributaries) has significance to mana whenua, as an identified Statutory Acknowledgement Area for Te Kawerau ā Maki and Lloyd Road Esplanade Riverhead is identified as containing wāhi tupuna. Engagement with mana whenua regarding the management of risk from catchment flooding and coastal hazards to cultural sites and landscapes may inform future revisions of adaptation strategies for this catchment. Storm-affected land: This area includes properties, which following the 2023 storm events, that 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, may be updated as decisions are made on the land.			



Unit 8

Waitematā Harbour West



Unit 8: Riverhead West

Riverhead West Unit 8 commences at the northern-most inlet of Waitematā Harbour, covering Riverhead shoreline and western shoreline of Brigham Creek, and is within the Rodney Local Board area. It includes the settlement of Riverhead, which has established and developing areas, a rich cultural landscape and is rich in historic heritage. Southern areas of the unit include rural areas with private religious institutions, golf courses and key roading connections for the North West area with limited areas of generally unmaintained coastal esplanade reserve. The unit concludes at SH16 in the south at Brigham Creek Inlet.

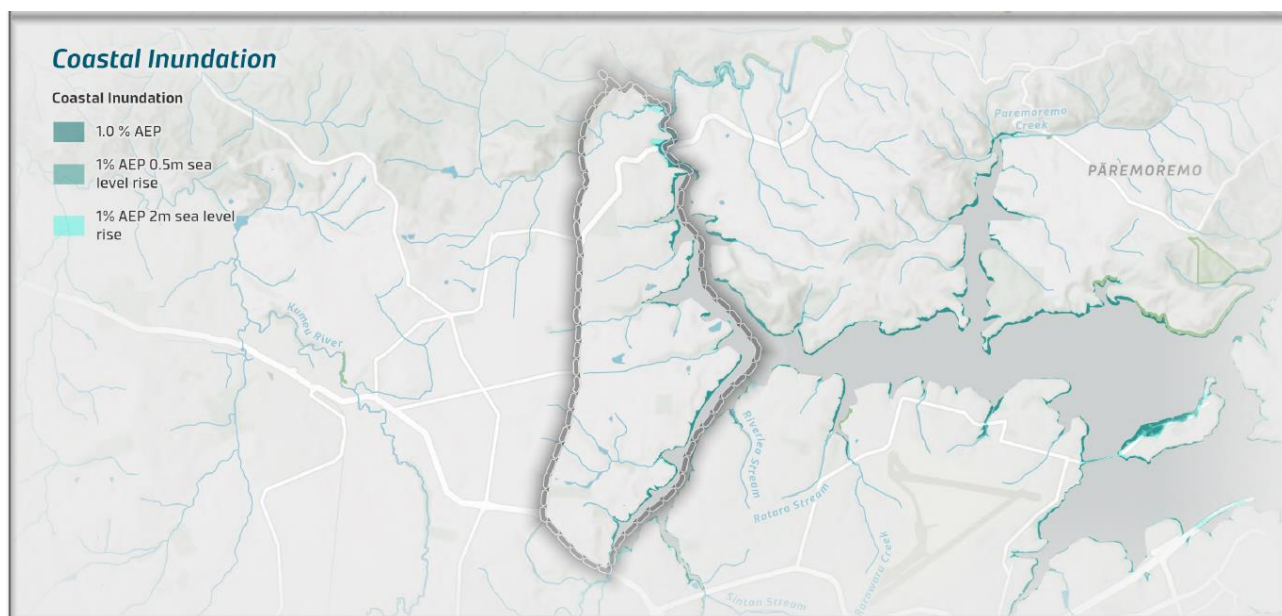
What is happening

The upper reaches of Waitematā Harbour are generally a lower energy environment in relation to coastal inundation and erosional processes.

Coastal inundation

Coastal inundation (1% AEP) is identified as potentially impacting areas of low-lying reserve land within the Murray Jones and Historic Mill Reserve areas. At Wharf Road end, the boat ramp access is identified as being exposed, with increasing inundation exposure under moderate and high climate scenarios.

Within Stretch 8.4, stormwater management reserves and treatment devices (ponds) located in lower lying areas of this stretch are exposed to catchment flood hazards and inundation from the coast. This includes the Drainage Basin Reserves at Tauwaka Crescent, Riverhead Point Reserve and Jessie Rise.



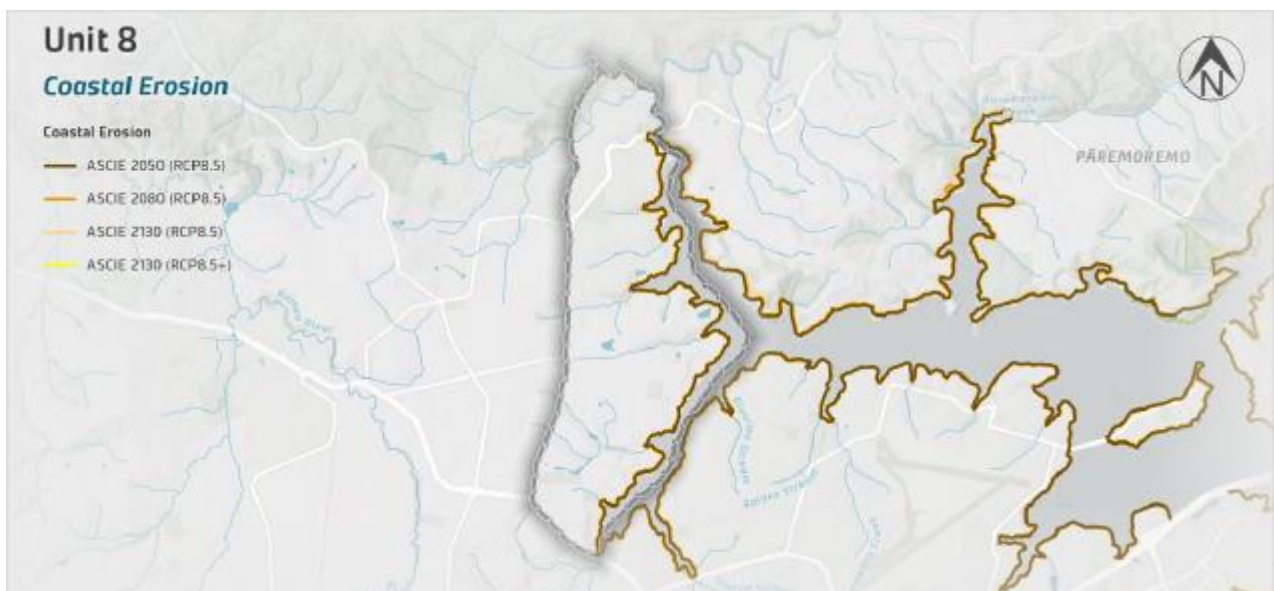
Under moderate and high climate scenarios with sea-level rise, the extent of possible inundation during a 1% AEP storm event is identified as impacting the Murray Jones Reserve areas (see the figure below).



1% AEP coastal inundation with 0.5, 1 m, 1.5 and 2 m of sea-level rise. Source: Auckland Council GeoMaps

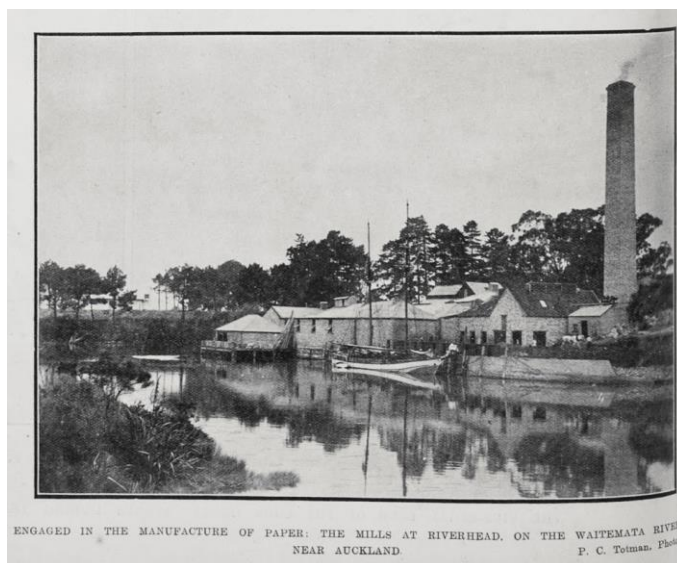
Coastal erosion and instability

This upper area of the harbour is generally low energy in terms of wave climate, with mangrove forests further buffering reduced wave energy, primarily generated by watercraft. Ongoing erosional processes can impact low-lying coastal edges with repeat wetting and drying over the tidal cycle contributing to weathering of exposed margins.



There are few coastal management structures located along this section of coast and hard structures such as formalised accessways are set back from the coastal edge. The coastal edge is largely unprotected, and pathways are set back with established coastal planting and mangrove forest present within the upper reaches of the catchment. Most of the esplanade reserve areas associated with Stretch 8.1 to 8.3 are not armoured except for the Historic Mill infrastructure in Stretch 8.2.

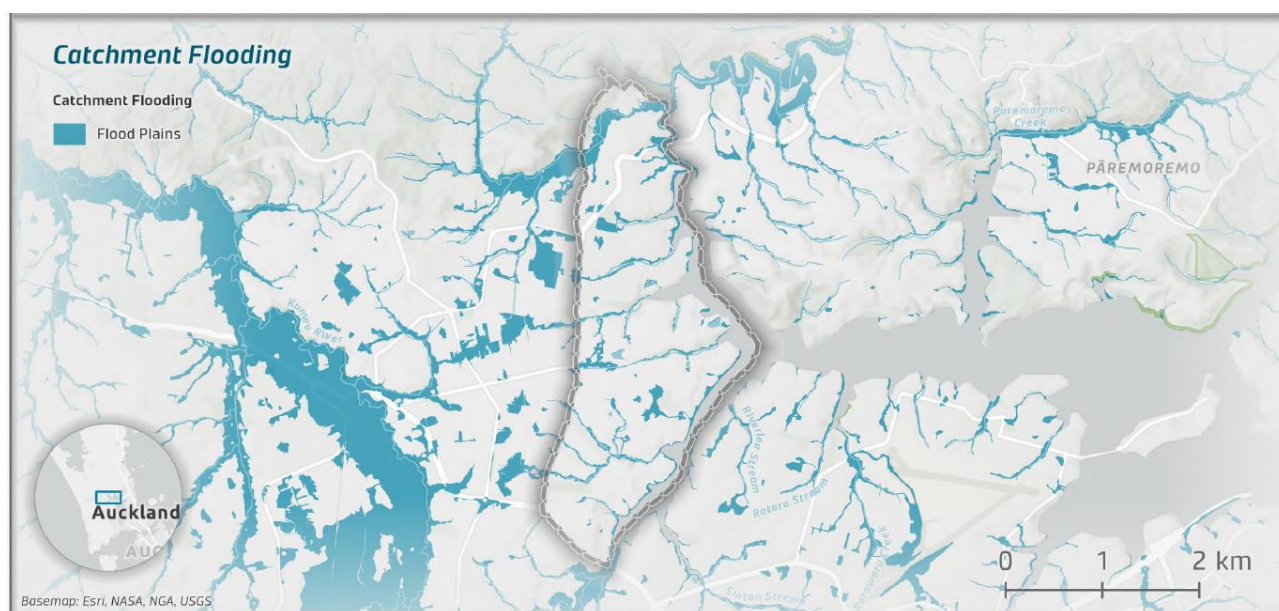
The Landing Reserve and Dinning Road Esplanade Reserve provide open space at the coastal edge, and are identified as being susceptible to coastal erosion and instability.



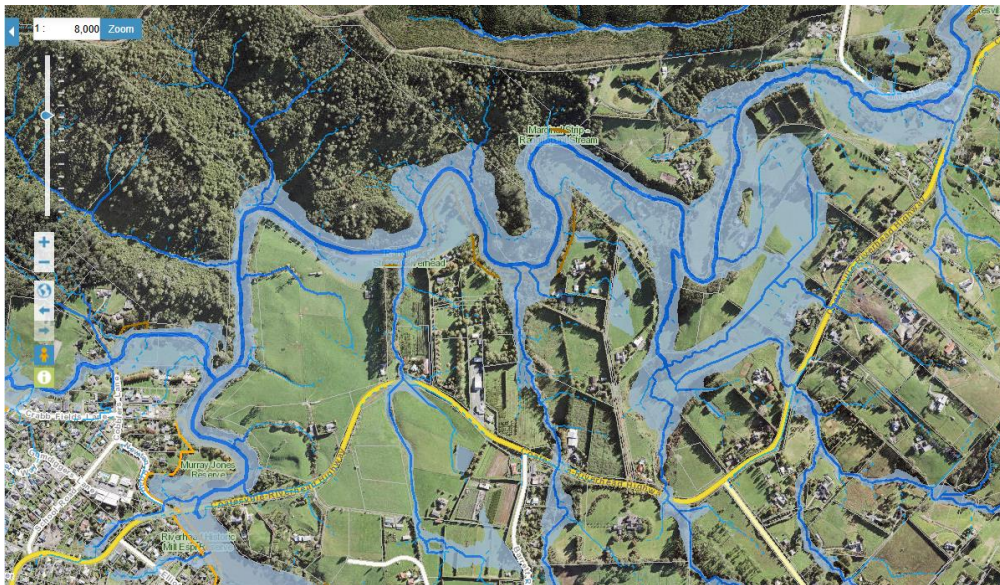
Source <https://heritageetal.blogspot.com/2014/02/the-mills-at-riverhead.html>

Flooding

Flood hazards, as experienced in the 2023 storm and other events is identified as impacting roading connections, primarily Coatesville Riverhead Highway where this traverses the upper reaches of Rangitōpuni Stream and at several locations further south where flow paths and floodplains convey water to the harbour. Private property was also impacted near Wautaiti Stream catchment within the Riverhead residential area.



Catchment flooding of Rangitōpuni Stream and Wautaiti Stream catchments during the 2023 storm events impacted private property and road access, and damaged (destroyed) a road bridge at Mill Flat Road (located within Unit 7) located within the upper reaches of the catchment. Flood hazards are identified within the upper reaches of the stream and tributaries from both the east and west (see below).



1% AEP floodplain and overland flow paths. Source: Auckland Council GeoMaps



Risk assessment

The risk table represents key groups of assets (e.g. Auckland Council-owned land, buildings, road extents) which are supported by the regionally consistent data set. The risk assessment provides a regionally consistent method for comparing risk to Auckland Council-owned land and assets allowing for identification of areas with highest risk for potential future assessment (e.g. Series 2).

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

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 (28.1 ha) Buildings, wharves (7 No.)			Park amenity structures, carparks, accessways, buildings (0.4 ha)			AT roads (22.0 km) Bridges (850.5 m ²)			Water pipes (97.5 km)		
Short	Medium	Long	Short	Medium	Long	Short	Medium	Long	Short	Medium	Long
Coastal erosion and instability susceptibility											
Moderate	Moderate	Moderate	Low	Low	Low	High	High	High	Low	Low	Low
Coastal inundation											
Low	Low	Moderate	Moderate	Moderate	Moderate	High	High	High	Low	Low	Low
Key											
Very Low		Low		Moderate		High		Very High			

What matters most



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



- The upper catchment includes Rangitōpuni Stream Riverhead and Wautaiti Stream Esplanade.
- Inland Riverhead War Memorial Park.
- Coastal esplanades with shared pathways, coastal access structures and associated amenities: Murray Jones Reserve, The Landing and Dinning Road Esplanade Reserve.



- Murray Jones Reserve (boat ramp, associated park facilities and community lease building).
- Boat ramp launching at Wharf Road/Elliot Street.



- Stormwater management reserve and assets: Drainage Basin Reserves at Tauwaka Crescent, Riverhead Point Reserve and Jessie Rise.
- Underground piped assets (landward of coastal edge).
- Riverhead wastewater pump station is situated at the western boundary of Huapai Golf Course.



- Coatesville Riverhead Highway.
- SH16 crossing.

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.



- Sites of significance to mana whenua (Turangatira) are identified within this area of the upper harbour/river catchment.
- Important portage area and connection to the Kaipara to the North.
- The reserve is a historic site and place of significance to mana whenua (Turangatira) identified within this area of the upper harbour/river catchment.
- 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.



- Heritage feature: The Waitematā Flour Mill/Riverhead Paper Mill site R10_721, including water race and holding ponds. In the late 1800/early 1900s this was Auckland region's largest flour mill and NZ's second largest paper manufacturer.



- Heritage areas at Brigham Creek (Sinton Homestead) and the historic location of the Portage Railway, between Riverhead and the Kumeu River with a historic wharf at Harkins Point.
- Further inland is the main open space and sport and recreational area for Riverhead (and surrounding areas) including Riverhead War Memorial Park.
- The historic location of Riverhead Wharf adjacent to the boat ramp access and the private wharf/boat access facilities adjacent to Riverhead Hotel.
- The Kumeū, Huapai, Waimauku and Riverhead Rodney Greenways Plan identifies opportunities for further connectivity outside existing park areas (Auckland Council, 2024i).



- Mangrove forests which line the estuaries (SA1.2) grades into regenerating kānuka forest (VS5) near Riverhead Point Drive.
- Threatened avifauna, including Caspian tern (*Hydroprogne caspia*, Threatened – Nationally Vulnerable) and little black shag (*Phalacrocorax sulcirostris*, At Risk – Naturally Uncommon) in the upper reaches of Rangitopuni Stream (New Zealand eBird, n.d.).



Who have we heard from?

Community feedback for Unit 8 was received through social pinpoint. Feedback was limited and no feedback was received in relation to the proposed adaptation strategies in the consultation documents.

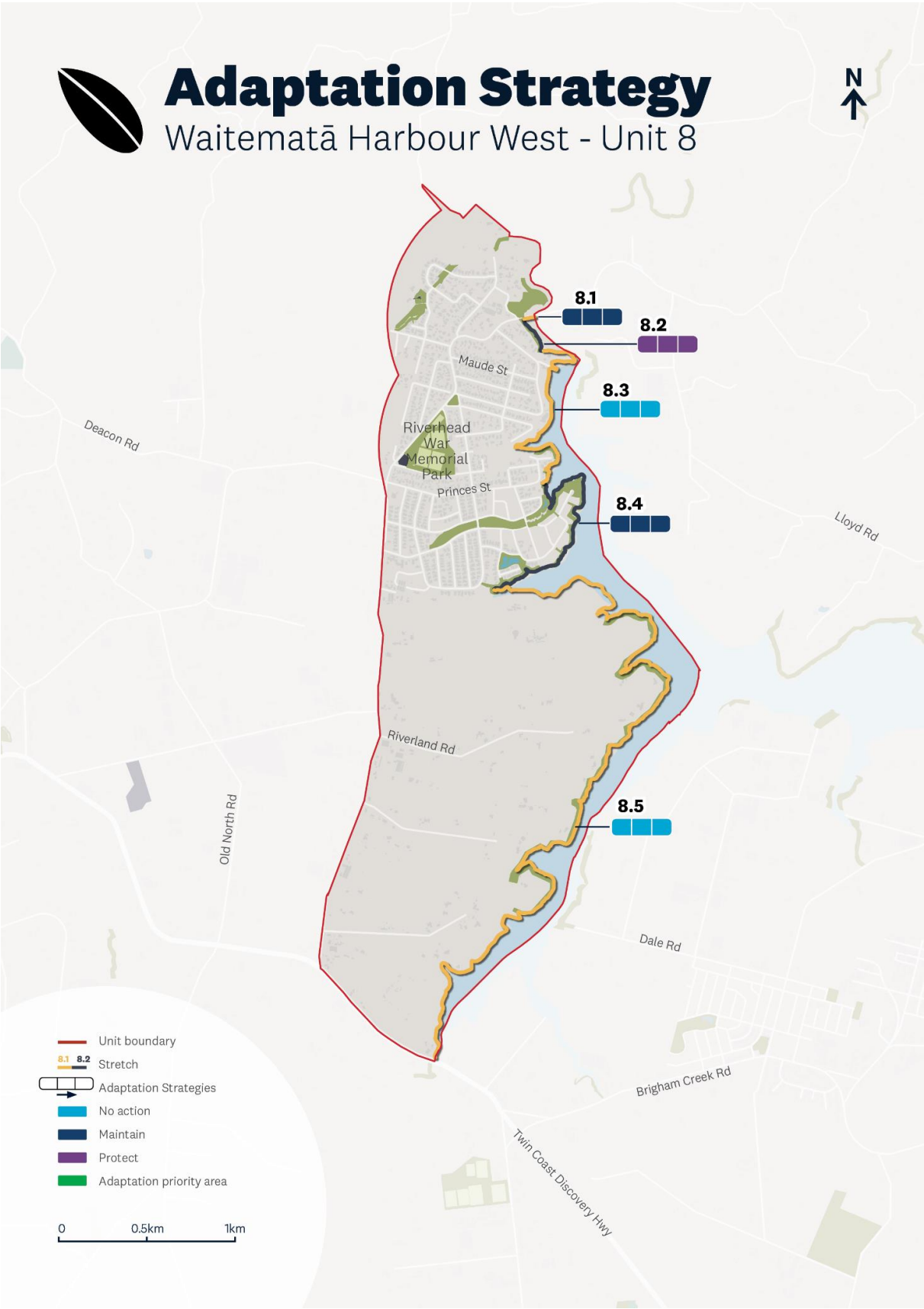
Community concerns and experience of hazards

- Flood impacts associated with the 2023 storm events were identified.
- Local board feedback highlighted interest in how storm-affected land, primarily in relation to flooding, would be considered within this area.
- Feedback also highlighted concern with how stormwater and catchment flooding impacts may be managed where further development is planned.

What matters most? Community values and aspirations

Community feedback identified the use of harbour access points for kayaking, the use and enjoyment of coastal walkways and an aspiration for greater connectivity to coastal walkways (from the Deacon Point area) both towards northern areas and to the south towards the Whenuapai area.

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



8.1: Rangitopuni Stream (north of Coatesville Riverhead Highway)

This stretch includes Murray Jones Reserve and culminates at the road bridge for the Coatesville-Riverhead Highway.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation Maintain is preferred recognising Murray Jones Reserve as a highly valued community access point to the harbour with boat launching facilities. The upper reaches of the catchment are generally low energy, and the extent of present-day (low climate scenario) coastal hazards are limited, however flood hazards are identified as impacting areas of the reserve. Maintain provides for opportunities to increase infrastructure resilience through the design and location of assets. Under a moderate to high climate scenario, maintain continues to reflect the need for further action to respond to the potential for increased frequency of inundation and the management of community and cultural values.		
Implementation notes • Maintain indicates the need to manage risk to coastal access (Murray Jones Reserve) and supports maintaining existing protection and coastal access structures, noting the coastal/river interface is a dynamic environment. • Maintain also reflects existing community uses being accommodated within the reserve, such as community leases, noting there may be opportunity to adapt to the impact of moderate to high climate scenarios and a need for consideration of design and location to improve resilience where assets and/or leases for use of Council land are renewed.		

8.2: Riverhead Historic Heritage

Stretch 8.2 commences at Coatesville-Riverhead Highway, encompassing this key road connection and culminating at the southern end of Riverhead Historic Mill Esplanade Reserve.

Scenarios for change		
Low	Moderate	High
Protect 	Protect 	Protect 
Explanation Protect was selected as this coastal stretch includes key roading connections (east/west) and includes areas of historic and cultural significance. The modification of the coastal edge and presence of existing protection structures supports preservation of the historic heritage site and continued maintenance of the coastline in its current location. Riverhead Historic Mill Esplanade Reserve is identified as being susceptible to coastal erosion and instability under low climate scenarios. In the absence of the historic modification of the coastal edge and retaining/protection structures, the reserve edge would be eroded. Management of flood risk (both coastal and catchment) to key roading connections		

Scenarios for change		
Low	Moderate	High
and low-lying areas of reserve land (containing heritage features) will require further assessment of options to identify the features, values and feasibility of protection strategies.		
Implementation notes		
- The feasibility and design requirements available to achieve protection of the reserve and heritage areas will require detailed investigation and engagement with cultural and historic heritage experts and local iwi. The efficacy of the aging protection measures in response to inundation hazards may require differing pathways to be explored for future high climate change scenarios. Protect under a moderate to high climate scenario is focused on maintaining an east/west roading connection, based on the current use and location of Coatesville Riverhead Highway, and reflects the importance of coastal access and the historic and cultural significance of Council reserves within this stretch.		

8.3: Riverhead Village North

This stretch commences south of Rivermill Historic Reserve (Stretch 8.2), adjacent to the intersection of Elliot and Wharf roads, and culminates adjacent to Kaipara Portage Road. It encompasses established and redeveloping residential areas of Riverhead and includes Wharf Road end harbour access and the undeveloped Kent Road Esplanade Reserve. Much of the coastal edge within this stretch is privately owned with the local road network and reserve areas generally set back from the coastal edge.

Scenarios for change		
Low	Moderate	High
No action 	No action 	No action 
Explanation		
No action reflects that the exposure of Council land and assets within this stretch is limited. Management of the limited coastal access structures at Wharf Road can be managed. While private structures are located within the coast adjacent to esplanade areas (Kent Terrace Esplanade), public access to these areas is currently limited. Acknowledging community aspirations for increased development of coastal connections, and the important cultural and historic heritage landscape of this area, strategies can be updated to reflect collaborative risk management as required.		
Implementation notes		
No action under a low climate scenario is reflective of the location of few Auckland Council-owned land parcels and the location of assets in relation to the hazardscape within this area. - This pathway does not preclude the maintenance of public harbour access structures, notably the Wharf Road boat ramp which is identified as a valuable local coastal connection through community and local board engagement. - Under moderate and high climate scenarios, based on monitoring and site-specific understanding of coastal erosion, instability and inundation, further consideration of the need to manage risk to roading, water networks and aspirational coastal access may be considered. This can be reflected in updated pathways as required.		

8.4: Riverhead Village South

Commencing at Kaipara Portage Road end in the north, culminating in the south at the southern extent of the residential developed area (reserve known as The Landing – Riverhead).

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation Maintain provides for the management of risk to Council land and assets, including stormwater management systems, boat launching and coastal walkways, through the design and location of assets and management of uses.		
Implementation notes Maintain provides for the management of risks to assets through their location and design, supporting the role of existing natural features to mitigate the impacts of coastal processes, such as mangroves, where practicable. - Under moderate and high climate scenarios, the location of new assets and coastal connections should be carefully considered to ensure risks are managed through design and location of assets. Cultural: Te Taonga Waka (Canoe Portage) is a Māori heritage area located within the northern area of this stretch. Engagement with mana whenua will support further understanding of the cultural values associated with this area.		

8.5: Brigham Creek

Stretch 8.5 commences south of The Landing Reserve and includes the coast south, culminating at Brigham Creek. The stretch includes predominantly privately-owned coastal (rural landholding) land. Brigham Creek Esplanade extends along the coast for a portion of this stretch and is a narrow, predominantly bush-clad reserve with limited public access.

Scenarios for change		
Low	Moderate	High
No action 	No action 	No action 
Explanation No action acknowledges that there are few Council-owned assets developed along this coastline that will be impacted by erosion and coastal instability.		
Implementation notes No action reflects the predominantly private ownership and absence of Council assets from coastal areas within this stretch. The esplanade reserve within this area is generally unconnected and unmaintained. - Note: SH16 runs inland from this stretch and is in close proximity to the coast at the easternmost boundary of this stretch but is not an Auckland Council-owned/managed roading connection.		



Unit 9

Waitematā Harbour West



Riverlea Reserve

Regularly used for access to the river for kayaking and fishing - community advocacy for maintaining this connection



Waimarie Beach Reserve - Community hotspot for harbour access



Brighams Esplanade

Dale Road Reserve



Cycling connections around Brigham Creek - Plan to extend existing cycleway (Upper Harbour Greenways plan)



Planting and other work is being conducted on all these reserves by volunteers from the local ecological group "Living Whenuapai" with plants from the Upper Harbour Local Board

Waiarohia Inlet

Whenuapai Village Hall

Royal New Zealand Air Force Base

Malcolm Hahn Reserve

Pōhutukawa Esplanade

Kauri Esplanade



Hobsonville Point Rd

Limeburners Bay

Waipareira Bay

Auckland West Harbour

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

0 0.5km 1km

Unit 9: Whenuapai

Unit 9 is located within the Upper Harbour Local Board area, commencing in the west at Brigham Creek and culminating at the Upper Harbour Motorway (SH 18) to the east. It includes rural and residential land uses and Whenuapai settlement. It has the landward connection of the causeway to Herald Island (located within Unit 10).

What is happening

The Upper Waitematā Harbour is low energy with only a small fetch across upper tidal inlets and shallow water depths. The shoreline within this unit is indented with several small embayments and tidal creeks infilled with mangroves.

The coastal margin is largely rural and undeveloped. There are isolated and disconnected areas of esplanade in this unit, and the shoreline is generally unmodified apart from numerous private jetties and boat ramps.

Coastal erosion and instability

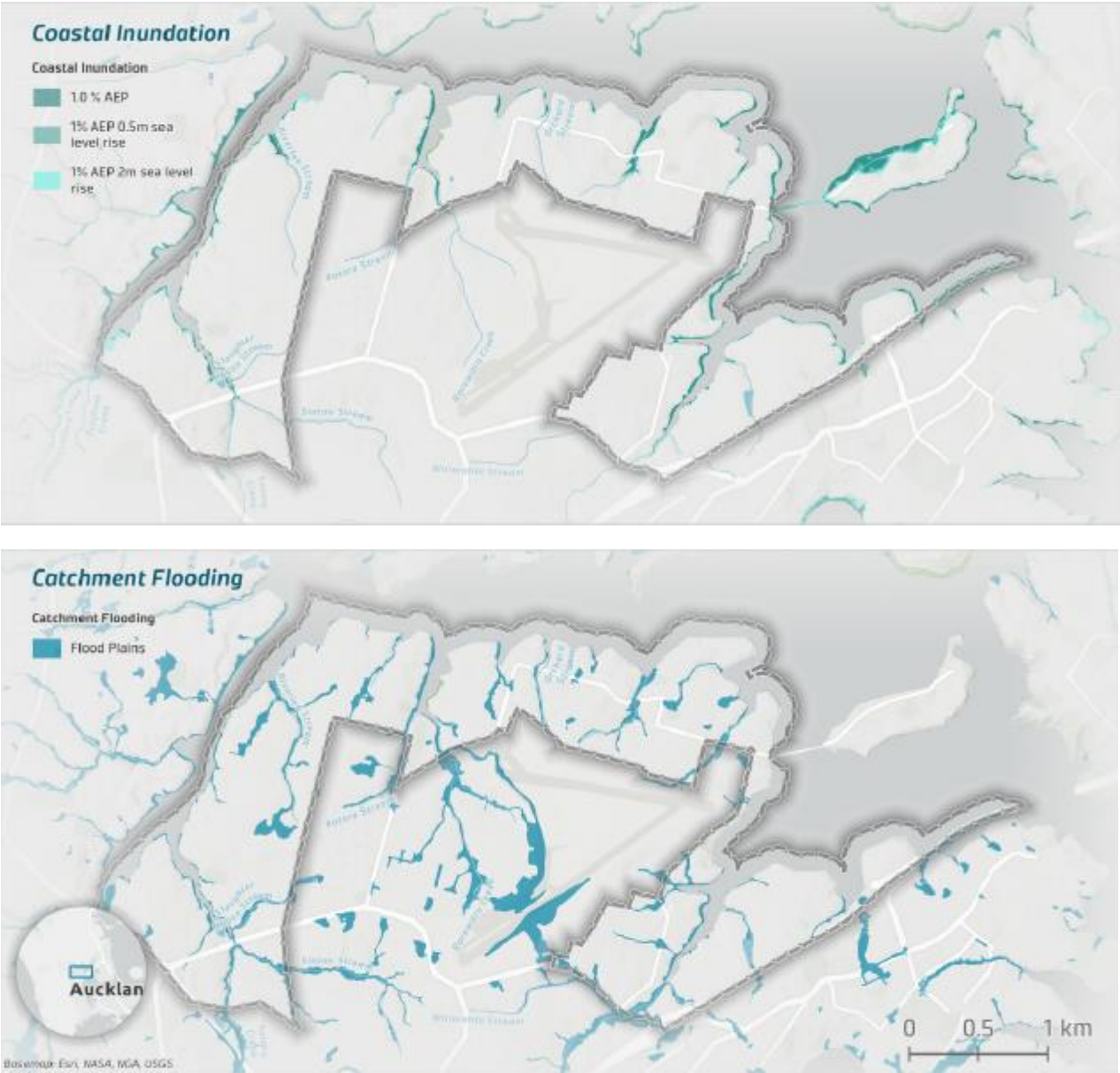
This inner harbour area is generally a lower energy environment and the rural nature of land use limits the interventions to manage limited erosional hazard exposure.

There are no Auckland Council-owned coastal management structures located along this section of coast, and hard structures such as formalised accessways are set back from the coastal edge. An exception is at Waimarie Beach, where there is tipped rock armouring along the grass edge to the northern side of the boat ramp.



Catchment flooding and coastal inundation

Coastal inundation is generally limited to the lower-lying inlets where streams discharge to the coast. Flood plains and overland flow paths are mapped to these generally lower-lying areas.



Risk assessment

The risk table represents key groups of assets (e.g. Auckland Council-owned land, buildings, road extents) which are supported by the regionally consistent data set. The risk assessment provides a regionally consistent method for comparing risk to Auckland Council-owned land and assets allowing for identification of areas with highest risk for potential future assessment (e.g. Series 2).

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

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 (12.6 ha) Buildings, wharves (59 No.)			Park amenity structures, carparks, accessways, buildings (0.2 ha)			AT roads (16.0 km) Bridges (354.3 m ²)			Water pipes (37.3 km)		
Short	Medium	Long	Short	Medium	Long	Short	Medium	Long	Short	Medium	Long
Coastal erosion and instability susceptibility											
Moderate	Moderate	Moderate	High	High	High	Low	Low	Low	Low	Low	Low
Coastal inundation											
Low	Moderate	Moderate	Very high	Very high	Very high	Moderate	Moderate	Moderate	Low	Low	Low
Key											
Very Low			Low			Moderate			High		
									Very High		

What matters most

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



- There are limited Council assets located within coastal hazard areas, due to land ownership patterns and the peri-urban nature of land use in this area.
- Key reserves include Bringham Creek Road Recreational Reserve, Brighams Esplanade, Bristol Road Esplanade Reserve, Riverlea Reserve, Rurawaru Esplanade, and Totara Esplanade.



- Buildings are concentrated within Malcolm Hahn Memorial Reserve, where a hall, play facilities and associated parks facilities are located.
- Waimarie Road end/ Beach Reserve includes local park assets.



- An area of reclamation provides for important wastewater connection across the harbour within the eastern side of the unit area.



- There are several key roading connections which provide access to the coastal edge, including Riverlea Reserve, Whenuapai Hall Reserve, Waimarie Beach and Kauri Reserve, which enable access to the coast within this unit. Roading connections, including road ends are located within coastal hazard areas in several locations.



- Key coastal access is provided off Waimarie 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.
- Coastal esplanade areas include wāhi tupuna, as well as middens.



- Most of Unit 9 includes the rural and residential land uses of Whenuapai. These rural areas are classified as a Future Urban Zone under the Auckland Unitary Plan.
- The unit includes the Royal New Zealand Air Force Base and associated infrastructure. The climate change response and adaption for the Royal New Zealand Air Force Base is included in the New Zealand Defence Force Defence Estate Climate Adaptation Plan for the base.
- There are multiple privately-owned wharfs / jetties scattered along the coast. The reserves in the stretch are all bush covered / riparian zones at the coast.
- Upper Harbour Motorway which runs through this stretch is an important road for connectivity across the harbour.
- Community gathering facilities are limited with the main community gathering locations including Malcolm Hahn Memorial Reserve consisting of grassy and bush covered areas. It contains a playground and Council-owned Whenuapai Village Hall (a historical heritage site). There is also a basketball / tennis court at the reserve.



- Areas of mangrove scrub/forest (SA1.2) line the eastern banks of Brigham Creek to the Upper Harbour Motorway.
- Threatened avifauna, including Caspian tern (*Hydroprogne caspia*, Threatened – Nationally Vulnerable), South Island pied oystercatcher (SIPO; *Haematopus finschi*, At Risk – Declining), and white-fronted tern (*Sterna striata*, At Risk – Declining).
- SEAs are mapped along many of the coastal riparian areas within this unit.



Who have we heard from?

Responses were received through digital engagement platforms including a submission from UWEN (Upper Waitematā Ecology Network). Local events were held at Catalina Bay Farmers Market and Kumeu Library.

Community concerns and experience of hazards

- Respondents identified that not enough infrastructure was provided to support ongoing intensification and the need for future infrastructure to be climate resilient.
- The opportunity to proactively plan for coastal and climate change before land is subdivided for development was raised. Respondents felt this would ensure a part of the coastline can be protected and regenerated for public use and enjoyment.
- Feedback identified experience with coastal hazards including damage to the road access to boat ramps, walking tracks and accessways and what can be done to improve ground stability for these areas, with damage to Riverlea Reserve observed to impact access to the river/harbour.
- Respondents observed a gradual increase in mangrove cover.

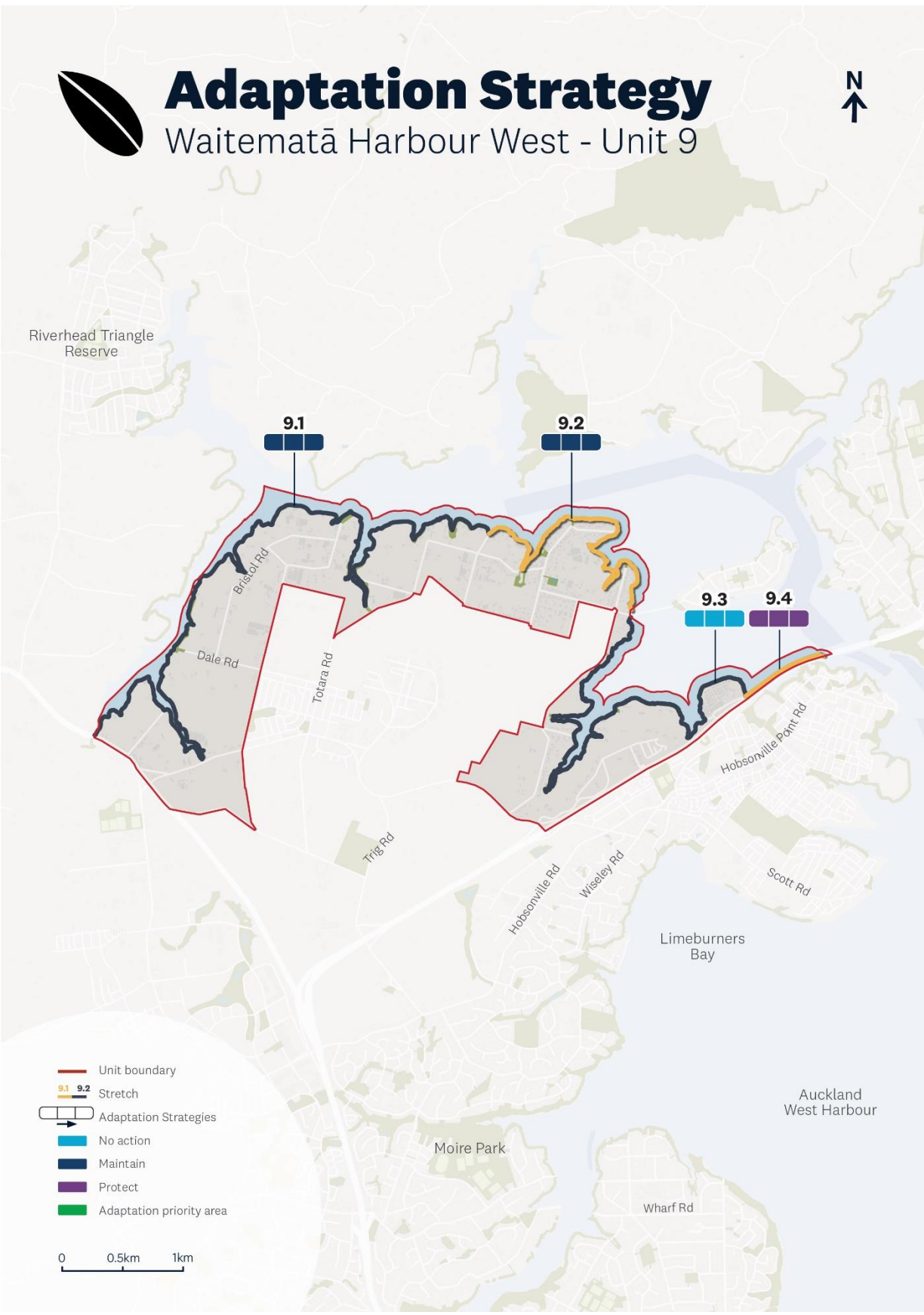
What matters most? Community values

- Respondents identified aspirations for coastal walkways in this area (e.g. Hobsonville).
- With the expected housing growth in the Whenuapai Structure Plan, there will be significantly more residents in this area looking for places to recreate and connect with nature to enhance their wellbeing.

What can we do about it? Community aspirations and feedback

- Respondents identified that the coastline along Stretch 9.1 could be regenerated to provide a natural buffer and slow coastal erosion. This strip of land could also be used to create a public coastal walkway, providing recreation opportunities for the population of Whenuapai (expected to grow significantly in the Whenuapai Structure Plan).
- Advocacy for more planning around waterways.

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



9.1: Brigham Creek to Karaka Road

This stretch commences at Brigham Creek, adjacent to Taupaki Esplanade Reserve and extends in an easterly direction along the coast, encompassing Totara Inlet, before culminating at Karaka Road end. The stretch encompasses rural areas of Whenuapai, with many properties containing horticultural / agricultural infrastructure. There are multiple privately-owned boat ramps, wharfs, and jetties along the stretch. Reserves and parkland within the stretch are generally bush covered / riparian zones, separating rural areas from the coast.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation Maintain promotes the management of risk to assets and coastal connections, namely road ends at the coast. Under moderate and high climate scenarios, additional design considerations may be required to respond to increased exposure to instability at the coast and inundation hazards.		
Implementation notes Maintain includes the management of risk through location and design of assets located within coastal areas, namely road ends at the coast. - Note: There are multiple privately-owned protection structures located within coastal areas, including Auckland Council esplanade reserve areas. Cultural: Engagement with mana whenua is required to further understand the cultural values associated with areas and values within this coastal stretch.		

9.2: Karaka Road to Herald island

Stretch 9.2 commences at Karaka Road end, extending along the coast including Kotukutuku Inlet and Te Turerenga Inlet and ends at the causeway to Herald Island (Kingsway Road bridge). Roads near the coast include Totara, Waimarie, Pōhutukawa, Puriri and Kauri roads. The stretch has both rural and residential areas of Whenuapai. Waimarie Beach is a small sandy beach at the end of Waimarie Road / Pōhutukawa Road with boat launching access.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation Maintain includes the management of risk to assets located within Whenuapai Hall Reserve, Waimarie Beach and Pōhutukawa Road end. This includes the maintenance of existing assets (boat ramp) to enable access to the coast and Council-owned coastal protection structures (rock revetment) associated with Waimarie Beach. Maintaining coastal access to the coast is important to local communities.		

Scenarios for change		
Low	Moderate	High
Implementation notes • Maintain indicates a preference for management of risk through design and asset location. Coastal protection structures within this stretch are limited and no further structures are anticipated. Exploration of the opportunity to support natural coastal vegetation to manage coastal hazard risk should be prioritised over hard-engineered solutions. • Cultural: Wāhi tupuna are identified within this coastal stretch. Engagement with mana whenua will be required to implement adaptation strategies.		

9.3: Herald Island Causeway South

Stretch 9.3 commences at the causeway to Herald Island and culminating in the southeast at Monterey Esplanade Reserve, Clarks Point.

Scenarios for change		
Low	Moderate	High
No action 	No action 	No action 
Explanation No action is preferred as this stretch includes coastal areas predominantly in private ownership. Esplanade Reserve areas are unconnected, limited in accessibility and Council assets are generally set back from coastal areas. No action does not preclude the management of risk to roading connections or water assets as required, including Kauri Road and Brigham Creek Road.		
Implementation notes • No action does not preclude the management of risk to Auckland Council transport connections should hazard risks present to Kauri Road or other roading assets. Note: This stretch is traversed by SH18 which is not an Auckland Council-owned/managed asset. • Note: Landward of the coastal edge in this stretch, is the Royal New Zealand Air Force Base. Climate change response and adaption for this landholding is included in the New Zealand Defence Force Defence Estate Climate Adaptation Plan. • Cultural: Wāhi tupuna are identified within this coastal stretch. Engagement with mana whenua will be required to implement adaptation strategies.		

9.4: Reclamation and highway

Stretch 9.4 commences east of Clarks Point culminating at the eastern extent of the reclamation. The stretch only encompasses this brief section of road. Coastal protection structures along the road include rock revetments. The Upper Harbour Motorway which runs through this stretch is an important road for connectivity across the harbour.

Scenarios for change		
Low	Moderate	High
Protect 	Protect 	Protect 
Explanation Protect reflects that reclaimed land will require ongoing protection including maintenance of the revetment and management of risk to water and transport infrastructure/assets. The Upper Harbour Motorway is a key transport route providing access across the harbour. Rock revetments currently provide protection for this critical asset, as well as wastewater connections. A protect approach allows for this critical infrastructure to be maintained in its current location and for a fixed coastal edge to be maintained.		
Implementation notes • Protect reflects the reclaimed nature of the land in this stretch and the critical transport and wastewater connections. • Management: The State Highway network is managed by Waka Kotahi NZTA. Collaboration with Waka Kotahi will be required in implementation of adaptation strategies.		



Unit 10

Waitematā Harbour West



Walking, exercising dogs, running or cycling around the island daily for exercise and the enjoyment of the coastal environment. Popular destinations include the causeway, Christmas Beach, Pahiki Reserve, and the Wharf area with its harbour views. Residents also frequently visit Kowhai Beach Reserve and Kingsway Reserve to observe seabirds feeding.



Landing Reserve
Recreational boating and fishing

Source Herald Island Environmental Group (HIEG), Herald Island Residents & Ratepayers Association Incorporated (HIR&R)



Herald Island Wharf

Community Wharf for boating, fishing, and boat maintenance. Home to Herald Island Boating Club and Herald Island Community Wharf Trust



Pahiki Reserve

Ferry Parade Plantation Reserve

Highly valued beaches and coastal spaces, popular for swimming, kayaking, and picnicking



Twin Wharf Rd

Pahiki Reserve

Christmas Beach

Herald Island Wharf



Ecosystems, access to the water, recreation, amenity and a sense of connection to the coast.



Kingsway Reserve



Kōwhai Beach Reserve



Community led ecological monitoring and restoration - Herald Island Environmental Group active in restoration of ecosystems and supporting native flora and fauna through pest control and planting initiatives



Ferry Parade Esplanade slip after January 2023 floods.

Source Herald Island Environmental Group (HIEG), Herald Island Residents & Ratepayers Association Incorporated (HIR&R)

Community feedback identified:

- Increasing erosion at Kowhai Beach Reserve
- Coastal slips after January 2023 floods/ Cyclone Gabrielle on Ferry Parade Plantation Reserve
- Coastal inundation on The Terrace coastal reserves
- Major slips at the wharf end of Twin Wharf Road



Unit boundary

10.110.2 Stretch

Informal recreation park

Mooring management area

Auckland Council owned land

0 250m 500m

Unit 10: Herald Island

Located within the Upper Harbour Local Board area, Unit 10 includes the full extent of Herald Island and the connecting causeways

What is happening

The shoreline in this unit is low energy with short fetch and shallow water depths over wide intertidal flats.

The island is connected to the mainland via a causeway constructed in 1958. Significant siltation has occurred on either side of the causeway as tidal flows that historically maintained a channel have been progressively cut off. Mangroves have established on either side of the causeway, with a more extensive band of mature mangroves on the northern side. Christmas Beach on the northern shoreline is the main recreational access point on the island with adjoining esplanade reserve. Kowhai Beach is located on the southern shoreline backed by low scarped bank. The main harbour tidal channel flows close to the eastern end of the island.

There are numerous private coastal structures around the Herald Island shoreline. A pre-1940 rock masonry seawall exists at Christmas Beach.



Rock masonry seawall, Christmas Beach, Herald Island (Source: Auckland Council)

- Small-scale sand push-up and planting has previously been undertaken on the southern shoreline of Herald Island where there has been community interest in armouring the low scarped bank at Kowhai Beach.
- At the eastern end of the island, a seawall protects the bank behind Herald Island wharf (Auckland Council, 2024b).

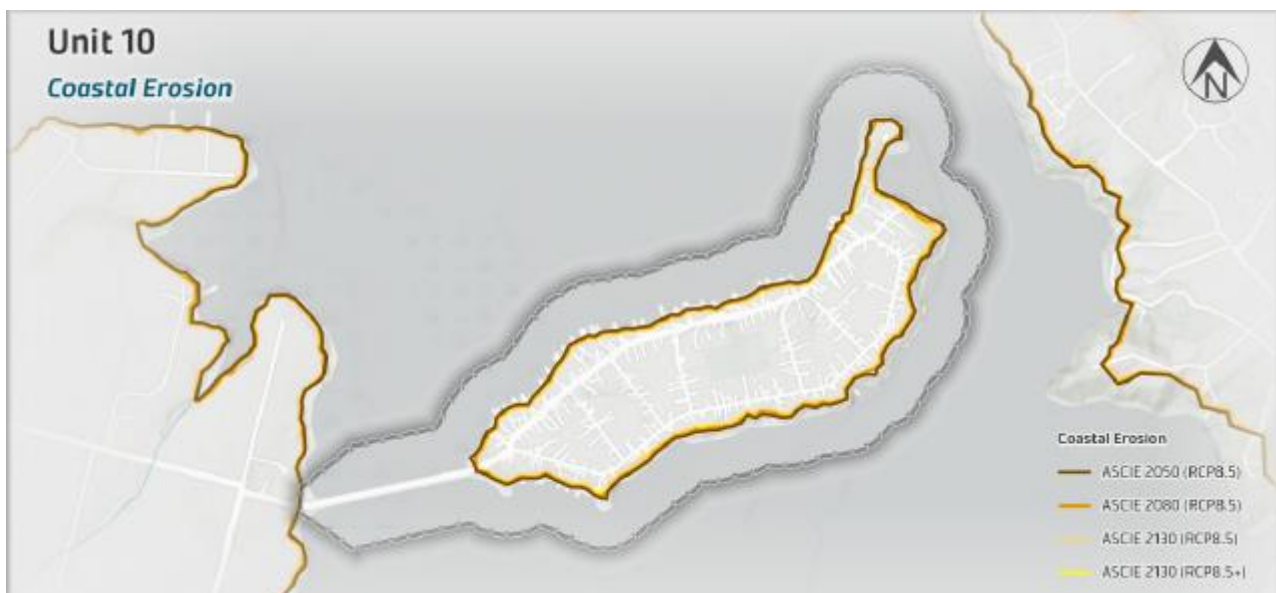
Coastal inundation

Coastal inundation is predicted to have the greatest impact on low-lying land and Council-community facility assets along the northern coastline of Herald Island. The inundation extent will increase with future sea-level rise.



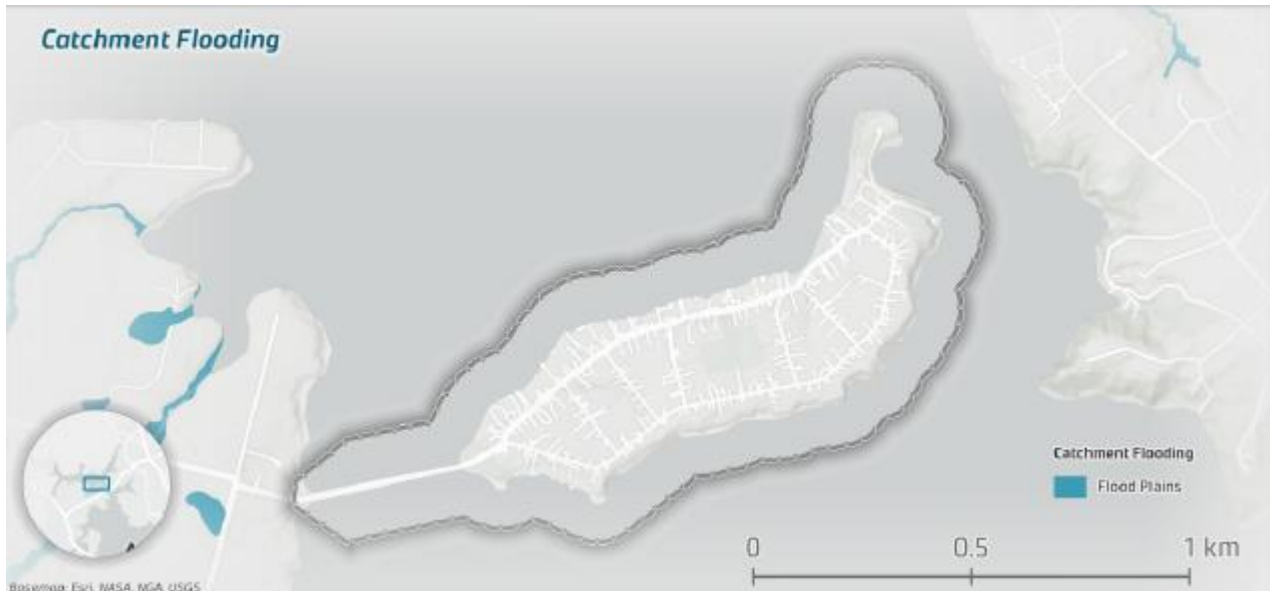
Coastal erosion and instability

The coastline includes multiple coastal protection and access structures; the majority being privately owned, including at some locations, within Auckland Council esplanade reserve areas.



Catchment flooding

There are no floodplain areas identified, with numerous overland flow paths conveying water to the coast. This is due to the limited catchment size.



Risk assessment

The risk table represents key groups of assets (e.g. Auckland Council-owned land, buildings, road extents) which are supported by the regionally consistent data set. The risk assessment provides a regionally consistent method for comparing risk to Auckland Council-owned land and assets allowing for identification of areas with highest risk for potential future assessment (e.g. Series 2).

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

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 (3.2 ha) Buildings, wharves (59 No.)			Park amenity structures, carparks, accessways, buildings (0.2 ha)			AT roads (4.0 km) Bridges (0 m2)			Water pipes (21.3 km)			
Short	Medium	Long	Short	Medium	Long	Short	Medium	Long	Short	Medium	Long	
Coastal erosion and instability susceptibility												
Low	Low	Low	High	High	High	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	
Coastal inundation												
Low	Low	Low	Very high	Very high	Very high	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	
Key												
Very Low		Low		Moderate		High		Very High				

What matters most



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



Reserves:

- Kingsway Reserve, Landing Reserve, Christmas Beach, Herald Island Domain, Herald Island Domain – Access, Pahiki Reserve, Wharf Road Esplanade, Ferry Parade Reserve, Herald Island fire station and Kowhai Beach Reserve.



Buildings:

- Herald Island Hall, Old Herald Island fire station, Old Herald Island post office. The island also has a playground and Pétanque court.



Wastewater:

- The island is served by waste, potable and stormwater networks.
- Two wastewater pump stations are located within the island and piped connections connect to the island within the southern side of Kingsway Reserve.



Connections:

- Key local roading connections include the causeway and roading access that provides for circumnavigation of the island serving coastal access points at Christmas Beach and the Herald Island (twin) wharf area.
- A 2.7 km path from the domain loops around the island.



Boating:

- Landing Reserve boat launching facility.
- Herald Island wharf.

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.



- Herald Island is a small community with limited households, predominantly single-storey residential homes with private coastal access.
- Key community assets include Herald Island Domain, which includes a playground, recreational areas, public toilets, and seating.
- There are numerous private boat ramps and several private wharfs and jetties within the stretch. There are seawalls along large areas of the coast protecting private landholdings and assets.



- An area of pōhutukawa treeland (CL1 – Regionally Vulnerable) is on the northern end of the island with coastal broadleaved forest (WF4 – Regionally Endangered) surrounding the southern border.
- Records of Caspian tern (*Hydroprogne caspia*, Threatened – Nationally Vulnerable) and other coastal birds congregating at the Herald Island Wharf and along Christmas Beach.



Who have we heard from?

Comprehensive submissions were received from the Herald Island Environmental Group (supported by the Herald Island Residents and Ratepayers' Association), and UWEN (Upper Waitematā Ecology Network).



Community concerns and experience of hazards

- Concerns that with projected sea-level rise, risk to the causeway will need to be addressed. Suggestions include a bridge which would support water to flush away pollution, e.g. from stormwater runoff (there are currently no culverts in causeway).
- The need for maintenance of protection structures, including:
 - Christmas Beach - the stone wall foundations supporting the reserve are eroding and need maintenance as soon as possible to avoid greater costs.
 - Land under Herald Island wharf needs structural help to ensure it doesn't corrode away leaving the community without an important asset.
- Other observations of change included silt building up along Christmas Beach and the southern beach restricting swimming enjoyment. Increased mangrove inundation was noted.



What matters most? Community values

General values and feedback included the identification of:

- Access to the water for boating activities and provision of supporting facilities.
- Recreation and enjoyment of coastal areas.
- Value of active community environmental groups supporting outcomes for birds and habitat on Herald Island.



What can we do about it? Community aspirations and feedback

- Communities and stakeholders will be required to consider options to manage risk and adaptation pathways under all climate scenarios to ensure that signals, triggers and thresholds can be established for highly valued local areas.

The Herald Island Environmental Group (supported by the Herald Island Residents and Ratepayers' Association) identified the following key values, ranked by priority:

- **Healthy natural coastal ecosystems:** Flourishing with native flora and fauna, free from plant and animal pests, and resilient to sea-level rise, erosion, and flooding. Hard structures are supported only when nature-based options are insufficient to protect Auckland Council land or assets.
- **Community access to the water:** Providing reserves, beaches, wharves, boat ramps, and jetties for recreational activities such as walking, swimming, water sports, kayaking, boating, and fishing.

The Herald Island Environmental Group identified areas within Herald Island that are enjoyed for activities such as:

- **Environmental conservation:** HIEG conducts pest control (animals and plants), revegetation with native plants, and bird monitoring to restore habitats and bird life. HIEG environmental initiatives (pest control and bird monitoring) are particularly relevant to Stretches 10.1, 10.4, 10.5, 10.6, 10.7 and 10.8, where members are active in bird counts and replanting natives.
- **Recreational activities:** Residents and visitors enjoy walking, cycling, swimming, kayaking, boating, picnicking, fishing, and dog walking, especially at Christmas Beach, Landing Reserve, and along the coastal stretches.
- **Community events:** Activities such as the annual raft race at Christmas Beach and the coastal cleanup contribute to community engagement.
- **Wildlife viewing:** Visitors observe seabirds and occasionally dolphins, especially at Kowhai Beach Reserve and other coastal areas.

They identified popular spots including Christmas Beach (for picnics, kayaking, and sunset views), Landing Reserve (a boat launch hub), and the community wharf (boating and fishing).

Key **coastal hazards** experienced or were of concern for included:

- **Coastal erosion**, e.g. increasing erosion at Kowhai Beach Reserve. This point has been reinforced by the Herald Island Residents and Ratepayers' Group.
- **Coastal storm events** notably during the January 2023 floods and Cyclone Gabrielle.
- **Coastal inundation** flooding on The Terrace coastal reserves, especially during storms and king tides.

Observed changes included coastal slips after the January 2023 floods and Cyclone Gabrielle, particularly at Ferry Parade Plantation Reserve and Twin Wharf Road, where a fallen gum tree caused significant damage to a retaining wall which impacted interaction with the coast:

- When undertaking restoration activities, greater care is taken when working on the coastline, leaving unsafe areas to contractors.
- The hazards reinforced the importance of healthy natural areas with native vegetation to mitigate risks. HIEG continues ecological restoration but supports using hard protection structures when necessary to protect valued areas.

The organisation also submitted detailed feedback on the proposed adaptation strategies at individual stretch levels, and provided some feedback on correction of various area names and maps. This has been considered in the strategies presented in this plan.

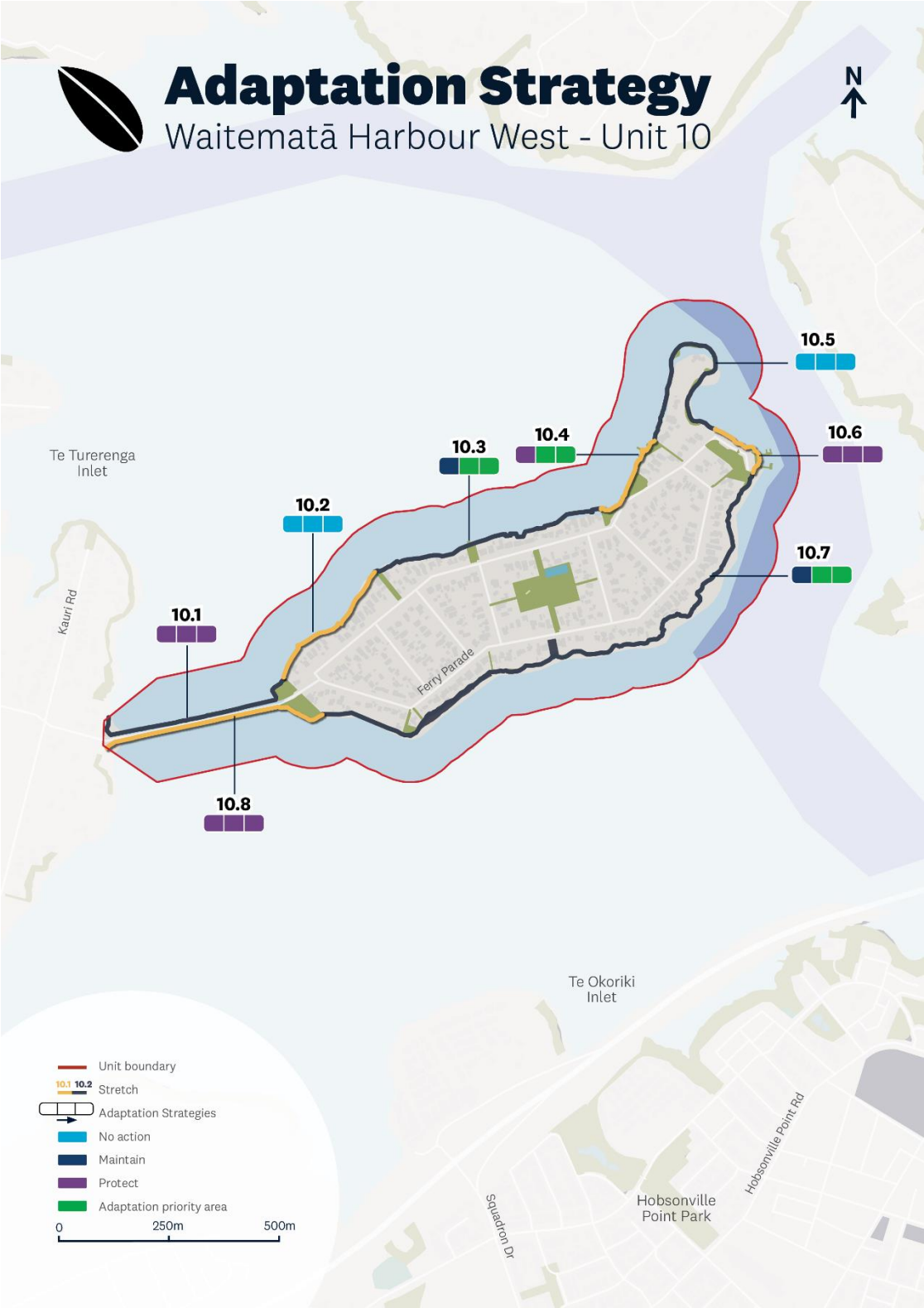


UWEN (Upper Waitematā Ecology Network)

The UWEN submitted feedback, focusing on the Upper Harbour Local Board area addressing ecological, social, and infrastructural challenges associated with urban development, climate change, and coastal changes.

UWEN's submission underscores the urgency of addressing climate change and urban development pressures through ecological restoration, sustainable planning, and collaborative governance. They call for Auckland Council to take a proactive, integrated approach to protect both the natural environment and community resilience in the Upper Harbour area.

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



10.1: Herald island Causeway North & Kingsway Reserve

Stretch 10.1 (and Stretch 10.8) includes the causeway providing access to Herald Island. It also includes Kingsway Reserve.

Scenarios for change		
Low	Moderate	High
Protect 	Protect 	Protect 
Explanation		
Protect supports continued maintenance of critical transport connections to Herald Island via the causeway; the only road connection to and from Herald Island and is currently protected by a series of revetments along its length.		
Implementation notes		
- A protect approach reflects the criticality of the causeway as an access structure which has a fixed coastal edge. Inundation risk under a moderate to high climate change scenario will require further design to manage inundation. Management: No further coastal protection structures are anticipated within the associated Kingsway Reserve area, beyond that which may be associated with the causeway connection. Managing uses and assets within this reserve may be required in response to hazard risk. Community context: Opportunities to support environmental initiatives through nature-based solutions in collaboration with HIEG and locals is advocated for across all climate change scenarios.		

10.2: Island North West

Stretch 10.2 commences east of Kingsway Reserve culminating west of Landing Reserve. It contains residential areas of Herald Island, serviced by The Terrace Road and contains several private wharfs and jetties. The Herald Island Path (highly valued by the community) runs through the stretch, adjacent to the Terrace, extending around the island to the east.

Scenarios for change		
Low	Moderate	High
No action 	No action 	No action 
Explanation		
A no action approach reflects limited Council land and assets located within this stretch. This relates only to Auckland Council-owned land and assets and does not preclude property owners from maintaining private structures on private land.		
Implementation notes		
Management: Under a high climate scenario, inundation may pose a risk to the Herald Island Path and roads including The Terrace and Duncan Road, which service a handful of houses. There may be a need to consider maintenance, repair or localised realignment to maintain these facilities in the longer term.		

10.3: Landing

Stretch 10.3 commences between 36 and 38 The Terrace (at the pump station) and includes both coastal esplanade areas and access reserves east to Christmas Beach. It encompasses residential areas of Herald Island, serviced by The Terrace which runs adjacent to the stretch. Herald Island 1 Pump Station is located at Landing Reserve.

Scenarios for change			
Low		Moderate	High
Maintain		Adaptation Priority	
Explanation			
A maintain approach under a low climate change scenario reflects the need for continued maintenance of access to the coast and management of risk to assets and uses located within reserve areas (boat launching access), and protection structures. Acknowledging the risk of coastal inundation under a moderate to high climate change scenario, along with community values and asset usage, a transition to adaptation priority is required, providing for proactive, collaborative management of exposed Council land and assets with local communities, asset owners and local iwi.			
Implementation notes			
• Community: Community feedback identified a need for community-led adaptation for areas of this coast. Ongoing collaboration with the local community in the implementation of the SAP will be required (particularly important for the transition to adaptation priority). • With the coastal hazard risk to Herald Island 1 Pump Station, a localised management of risk may be required under all climate change scenarios. Ongoing engagement with asset owners will be required to ensure alignment in management approaches. • Cultural: This stretch contains wāhi tupuna. Noting the significance of this stretch and the wider coastal landscape to local iwi, ongoing engagement will be required across all climate scenarios to ensure the implementation of adaptation strategies is managed appropriately.			

10.4: Christmas Beach

Stretch 10.4 includes the coastal area east of 84 The Terrace, culminating at the access reserve (between 94 The Terrace and 2 Twin Wharf Road), covering Christmas Beach Reserve (highly valued by the local community). The Herald Island Path also extends along this coastal stretch.

Scenarios for change			
Low		Moderate	High
Protect		Adaptation Priority	
Explanation			
Acknowledging Christmas Beach as a highly valued coastal space by the local community, a protect approach under a low climate change scenario allows for maintenance of a fixed coastal edge via existing protection structures, enabling the coastline to be retained in its current location whilst protecting facilities within the beach reserve such as the playground in response to coastal erosion.			

Scenarios for change		
Low	Moderate	High
As the risk of coastal inundation increases over a moderate to high climate change scenario, this is likely to result in more frequent inundation of reserve areas. In response, a transition to adaptation priority signals the need to consider how uses and assets, including park assets and roading assets, may be maintained within the local area and respond to increased inundation risk at the coastal edge. Proactive relocation of these facilities further inland away from hazard-prone areas may be required prior to reaching a high climate change scenario.		
Implementation notes • Cultural: This stretch contains wāhi tupuna. Noting the significance of this stretch and the wider coastal landscape to local iwi, ongoing engagement will be required across all climate scenarios to ensure the implementation of adaptation strategies is managed appropriately. • Ecological: There are notable trees including Pōhutukawa and a significant ecological area in this coastal stretch. Ongoing consideration of maintaining ecological values associated with this stretch of coast may be required under a moderate to high climate change scenario. • Social: Community volunteer groups (e.g. Herald Island Environmental Group and Upper Waitemata Ecology Network) are involved in the management and restoration of Christmas Beach Reserve. Collaboration with local associations and groups will be required to implement adaptation strategies. • Community: Herald Island Environmental Group members undertake environmental initiatives in this stretch (members are active in bird counts and replanting natives). Opportunities to support environmental initiatives through nature-based solutions in collaboration with locals is advocated for across all climate change scenarios.		

10.5: Island North (Wharf Road Esplanade)

Stretch 10.5 commences at the northern boundary of Christmas Beach. It contains a residential area and culminates adjacent to Twin Wharf Road. Wharf Road Esplanade is a strip of vegetated land /riparian zone, separating private residential properties from the coast.

Scenarios for change		
Low	Moderate	High
No action 	No action 	No action 
Explanation A no action approach in relation to coastal protection is reflective of limited Council land and assets located within this northern area of the island.		
Implementation notes • Community: Herald Island Environmental Group (HIEG) members undertake environmental initiatives in this stretch (members are active in bird counts and replanting natives). The Upper Harbour Ecological Connectivity Strategy identifies this coastal area as a suitable habitat for kereu and a core habitat for pekapeka – tou – roa. The group is actively working with the Upper Harbour Local Board to support opportunities restore the esplanade's native vegetation. Opportunities to support nature-based solutions and coastal values in alignment with community initiatives and local board efforts can still be supported via a no action approach across all climate scenarios.		

10.6: Herald Island Wharf

Stretch 10.6 commences at the southeast boundary of Wharf Road Esplanade. It extends around the coast adjacent to Twin Wharf Road, culminating at the southern boundary of Pahiki Reserve. The northern wharf is utilised by the public for docking boats and dinghies.

Scenarios for change		
Low	Moderate	High
Protect 	Protect 	Protect 
Explanation A protect approach reflects the importance of Pakihi Reserve in providing for access to the coast via Twin Wharf Road. A protect approach enables a fixed coastal edge to be retained at the reserve over all climate change scenarios, allowing for continued (road) access to the wharf for boat launching, as well as supporting park facilities and amenities such as car park areas, toilets and walking connections.		
Implementation notes • Management: Major slips at the wharf end of Twin Road Wharf during the 2023 storms have been noted by the local community. Reflecting on community feedback and the potential future impact of coastal hazards, protect relates primarily to Twin Wharf Road access and the Council-owned and maintained wharf structure. This includes the use of coastal protection structures, where identified. • Risk to assets and uses within elevated areas of Patiki Reserve are anticipated to be managed through the location of activities. No coastal defences or armouring of the southern eastern areas of the (currently undefended) coastal edge are anticipated, noting that Pahiki Reserve is not situated directly on the coast. • Community: Herald Island Environmental Group members undertake environmental initiatives in this stretch (members are active in bird counts and replanting natives). Opportunities to support environmental initiatives through nature-based solutions in collaboration with locals is advocated for across all climate change scenarios.		

10.7 Herald Island South

Stretch 10.7 commences south of Pahiki Reserve and includes the island's southern coastline ending at Kingsway Reserve in the west. It includes residential areas of Herald Island, and a portion of Herald Island Path. Reserves and parkland in the stretch include Ferry Parade and Kowhai Beach reserves.

Scenarios for change		
Low	Moderate	High
Maintain 	Adaptation Priority 	Adaptation Priority 
Explanation A maintain approach under a low climate change scenario reflects the exposure of assets and reserves to coastal erosion and coastal inundation, signalling the need to maintain key community connections (i.e. Herald Island Path) and reserves within this stretch. A transition to adaptation priority under a moderate to high climate change scenario recognises the ongoing impact of erosion of access, signalling the need for proactive management of key facilities, with a focus on enabling continued provision of access to the coast (in alignment with community values) at Ferry Parade		

Scenarios for change		
Low	Moderate	High
Reserve and Kowhai Beach Reserve, noting the need for structures and assets to be designed and located to respond to coastal hazard risks.		
Implementation notes		
• Community: Feedback identified a strong interest in community-led adaptation and the identification of community values in relation to reserves and associated connections to the coast. • Management: Community feedback highlighted the need for intervention on Kowhai Beach Reserve shoreline, which has been noted by locals as eroding at an alarming rate. Proactive management approaches in relation to managing erosion at Kowhai Beach will need to be considered across all climate change scenarios, reflecting community aspirations and values. • Community: Herald Island Environmental Group members undertake environmental initiatives in this stretch (members are active in bird counts and replanting natives). Opportunities to support environmental initiatives through nature-based solutions in collaboration with locals is advocated for across all climate change scenarios.		

10.8: Herald Island Causeway South & Kingsway Reserve

Stretch 10.8 commences at the southeastern corner of Kingsway Reserve and is the southern mirror of Stretch 10.1. It encompasses the southern side of the causeway and Kingsway Reserve area. Rock revetments currently line this causeway on both sides. The stretch encompasses part of Kingsway Reserve and Kingsway Road. Wastewater connects to the island within this stretch.

Scenarios for change		
Low	Moderate	High
Protect 	Protect 	Protect 
Explanation		
A protect approach over all climate change scenarios supports the continued maintenance of coastal protection structures (rock revetments) to allow for continued transport connections to the island (noting this causeway also provides potable and wastewater connections). Inundation risk in the mid to long term may result in a changed level of service or further design to manage inundation. This has been indicated as an opportunity through community feedback.		
Implementation notes		
• Management: No further coastal protection structures are anticipated within the associated Kingsway Reserve area, beyond that which may be associated with the causeway connection. Managing uses and assets within this reserve may be required in response to hazard risk. • Community: Herald Island Environmental Group members undertake environmental initiatives in this stretch (members are active in bird counts and replanting natives). Opportunities to support environmental initiatives through nature-based solutions in collaboration with locals is advocated for across all climate change scenarios.		



Unit 11

Waitematā Harbour West



The Hobsonville Esplanade North (Te Ara Manawa) walking track is a coastal walkway in Hobsonville Point, a 5km looping track that hugs the peninsula's shoreline and then cuts across the township. The track offers views of the waterfront at Catalina Bay and passes through various neighborhoods and bush-clad gullies.



Hobsonville Point marine precinct at Catalina Bay, is a master-planned community with sections of heritage masonry seawall and public amenities including ferry terminal, coastal walkway and a boat ramp



Hobsonville Point Park

Hobsonville War Memorial Park

Western Park

18

Hobsonville Rd

Hobsonville Point Rd

18

Launch Rd

Boundary Rd
Catalina Bay Dr

Onekiritea Park

This whole coastline and wider landscape is of high cultural significance to local iwi Te Kawere a maki and Ngāi Tai Ki Tāmaki, with multiple sites of significance identified and coastal statutory acknowledgements and associations with the area

Scott Point Sports Park

Scott Rd

Limeburners Bay

Waipareira Bay

Clearwater Cove

West Harbour Marina - Substantial rock revetments armour the majority of the shoreline, with landward development of the coastal walkway.

Luckens Reserve



Eastern edge of Luckens Reserve prone to erosion, impacting walking connections

Clearwater Cove Reserve

Marina Esplanade

Clearwater Cove

Clearwater Cove path network

Luckens Reserve

- Unit boundary
- 11.1 11.2 Stretch
- Informal recreation park
- Mooring management area
- Auckland Council owned land

0 0.5km 1km



Chenier-type shell banks and mangrove forest make up the array of highly significant ecosystems here, providing habitat for a range of coastal birds

Unit 11: Hobsonville & West Harbour

Unit 11, located within the Upper Harbour Local Board area, commences in the north on the southern side of the SH18 connection to Upper Harbour and culminates in the south at West Harbour. It includes Hobsonville and Scotts Points and coastal areas of West Harbour. The unit has key coastal connections and ferry access facilities at Hobsonville and West Harbour as well as extensive and highly valued coastal pathways.

What is happening

The shoreline of Unit 11 includes Hobsonville Point and West Harbour up to the entrance to Henderson Creek. The mangrove-infilled embayments and inlets (Catalina Bay, Bomb Bay, Nimrod Bay and Limeburners Bay) are low energy environments sheltered from the prevailing south westerly winds. Along the south-facing shoreline of Hobsonville, substantial rock revetments armour the majority of the shoreline, with landward development of the coastal walkway (Auckland Council, 2024b).



Figure 1-2: Rock revetment armouring and coastal path, Scott Road (Source: Auckland Council)

Other key current management approaches for this unit include:

- 1) Hobsonville Point marine precinct at Catalina Bay is a master-planned community with sections of heritage masonry seawall and public amenities including ferry terminal, coastal walkway and ramp.
- 2) Orion Point development area, no armouring along Tahingamanu Bay (north) or Nimrod Inlet (south). Full 20 m width of esplanade reserve vested to Auckland Council with developments and walkway assets aligned as far landward as practicable.
- 3) West Harbour Marina (also known as Hobsonville Marina) is a large, privately-operated recreational boat harbour located at the head of the wide shallow embayment north of the Henderson Creek. Auckland Council-owned reserve (Marina Reserve) extends around the

elevated slope landward of the lower area of reclaimed land that is largely marine-service based. Some residential development and a publicly accessible boat ramp are located along the southern side of the marina.

Coastal inundation

The most exposed section of shoreline within the unit is Scott Point, exposed to locally generated wind waves from the south. During extreme storm events, this shoreline is exposed to occasional higher wave energy from the south. The predicted extent of coastal inundation flooding shows the greatest areas impacted in this unit to be Hobsonville Landing and West Harbour Marina (also known as Hobsonville Marina).



Coastal erosion and instability

Due to the site's exposure and underlying geology, the low scarp cliff shoreline of weakly consolidated sandy silt Tauranga Group sediments is vulnerable to coastal erosion and much of the developed shoreline has been armoured with rock revetment.



Catchment flooding

Flood plains and overland flow paths are mapped to these generally lower-lying areas and areas further inland of the catchment.



Risk assessment

The risk table represents key groups of assets (e.g. Auckland Council-owned land, buildings, road extents) which are supported by the regionally consistent data set. The risk assessment provides a regionally consistent method for comparing risk to Auckland Council-owned land and assets allowing for identification of areas with highest risk for potential future assessment (e.g. Series 2).

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

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 (93.3 ha) Buildings, wharves (18 No.)			Park amenity structures, carparks, accessways, buildings (1.4 ha)			AT roads (36.8 km) Bridges (18.1 m2)			Water pipes (300.9 km)		
Short	Medium	Long	Short	Medium	Long	Short	Medium	Long	Short	Medium	Long
Coastal erosion and instability susceptibility											
High	High	High	Moderate	Moderate	High	Low	Low	Moderate	Moderate	Moderate	High
Coastal inundation											
Moderate	Moderate	Moderate	High	High	High	Very high	Very high	Very 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 unit that may be impacted by coastal hazards (inclusive of catchment flooding) over changing climate scenarios.



- Da Vinci Park
- Frances Bryers SW – TEMP
- Harrier Point Park-TEMP Headquarters Park
- Hobsonville Esplanade North-Lease Land
- Hobsonville Point Park
- Launch Road
- Hobsonville Container/Storage
- Linear Walkway
- Luckens Reserve
- Marlborough Precinct – TEMP Old Parade Grounds – TEMP
- Sunderland Lounge West Harbour Esplanade – East
- West Harbour Esplanade – West
- West Harbour Reserve
- Hobsonville Esplanade
- Hobsonville Rifle Range – TEMP
- Nimrod Esplanade



- Sunderland Lounge – Te Rere.
- Hobsonville Rifle Range – three Auckland Council-owned buildings.



Wastewater pump stations:

- Constable Lane, Hobsonville (several), Scott Point (several), Brickworks Bay, The Cove (several), and Westpark Marina (several).

Stormwater ponds:

- 15 Bomb Point Drive SW Pond-TEMP, Catalina SW Pond.



Walking tracks:

- Hobsonville Point Path, Luckens Coastal Path, Luckens Reserve Path, Clearwater Cove Path.
- This unit has a well-connected public transport network, including buses that link to Auckland's central areas and Hobsonville Point Ferry Terminal. The West Harbour Ferry services also operate out of this unit.



- Scott Esplanade boat ramp, Westpark Marina boat ramp, jetty.

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



- Tahingamanu (Kāinga and mahinga kai).
- Specific cultural values and outcomes for this unit will be developed through ongoing involvement with local iwi identified in Volume 2: *Waitemata Harbour West SAP Area Overview*. Guiding objectives and outcomes which have informed the development of adaptation strategies have been identified in Volume 2, with ongoing engagement with local iwi essential for implementation.



- Westpark Marina and Hobsonville Marina provide for recreational boating and marine-related activities. Hobsonville Marina has amenities including moorings, berths, maintenance services, and a launching ramp.
- Hobsonville Point within this unit, is a relatively new development in West Auckland featuring 26 ha of parks and reserves. Southwest of Hobsonville Point is West Harbour which is a more established residential area.
- Hobsonville Point Ferry Terminal primarily serves as a key transportation hub, linking Hobsonville Point Community with central Auckland and other destinations via ferry.
- Hobsonville Rifle Range is an outdoor theatre and recreation facility located along Bomb Point Drive. The range can be used for events for large numbers of people (HPRS, 2024). It has a public toilet and three Auckland Council-owned service buildings. There is a playground situated at Harrier Point Park, along with a flying fox.



- There are Chenier-type shell banks in front of Nimrod Inlet and Bomb Bay in the north, as well as in Limeburners Bay slightly to the south.
- Fragments of coastal forest, including areas of coastal broadleaved forest and regenerating kānuka forest can be found.
- An important ecological sequence to the south of Hobsonville Marina is mangrove forest which grades into saltmarsh to raupo reedland to coastal broadleaved forest.
- Threatened coastal birds, including Caspian tern and bar-tailed godwit (New Zealand eBird, n.d.). These species have been recorded in greater numbers around the Upper Harbour Motorway bridge and at Hobsonville Point Ferry Terminal.



Who have we heard from?

Feedback for this unit was received via Social Pinpoint and 'AK Have Your Say' survey. Events local to this area included being held at Catalina Markets Albany Library.

Submissions from UWEN (Upper Waitematā Ecology Network) were also of relevance, with key points highlighting the need for preparedness in emergencies and significant weather events with advocacy for natural systems being equipped to handle extreme volumes of inundation. Through their submission, UWEN also identified the urgency of addressing climate change and urban development pressures through ecological restoration, sustainable planning, and collaborative governance.



Community concerns and experience of hazards

- Concerns were raised around access and intensification, erosion and sediment build up and mangroves, along with general advocacy for supporting additional planning to manage coastal walkway margins.
- Particular areas, such as Lucken's Reserve were commented on regarding ongoing walkway erosion impacting usability – noting this is an area of high value to the local community, advocating for a focus on maintaining and improving walkway connections.
- Ongoing provision of coastal access was a key concern, with ongoing development in the area contributing to population growth and creating a strain on existing open spaces.

**What matters most? Community values and aspirations**

- Respondents identified the need to maintain critical transport links and facilities, including Hobsonville Wharf and West Harbour Marina in a way that supports natural landscapes and ecosystems. Ongoing improvement to wharves and jetties in the area was advocated.
- Walkways and cycleways around Bomb Point, Hobsonville Point Marina and Scott Point are highly valued by the local community – ongoing maintenance and public access to and along the coast needs to be maintained.
- Limeburners Bay and Catalina Bay are popular for boating and fishing.
- Supporting natural landscapes and ecosystems in the area – coastal margins along this unit are highly valued for their walkways and viewpoints - advocacy for maintaining natural character, enhancing ecosystems, and reducing commercial development where possible was clearly articulated via feedback platforms.
- Strong community support for planting and restoration efforts along the coast and waterways, improving habitats and water quality – with community-led planting initiatives of coastal areas advocated for.

What can we do about it? Adaptation strategy summary for Unit 11



11.1: Hobsonville North to wharf area

Stretch 11.1 commences adjacent to the inlet south of SH18 and culminates to the north of the Hobsonville Wharf area, including Launch Road end. The stretch encompasses residential housing, along with new housing developments in the Hobsonville area. It includes several parks and reserves including Linear Walkway, Hobsonville Point Park, Hobsonville Esplanade North-Lease Land, Headquarters Park, Old Parade Grounds, and Marlborough Precinct.

Hobsonville Esplanade North-Lease Land is a bush-covered strip along the coast. The Te Kawerau ā Maki Claims Settlement Act 2015 and Ngāi Tai Ki Tāmaki Claims Settlement Act 2018 include a coastal statutory acknowledgement describing the iwi association with this area of the Waitematā Harbour (New Zealand Legislation, 2015), (New Zealand Legislation, 2018). There are also several middens (archaeological sites) and historic heritage sites such as the Chichester Cottage, Base Chapel and the Former Royal New Zealand Air Force Hobsonville Mill House.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation A maintain approach across all climate change scenarios reflects the need for ongoing maintenance of coastal connections, including well-used pathway and boardwalk areas (including Hobsonville Point Path) and other assets (water assets) located within coastal areas. Management through design and location of assets is preferred and coastal protection structures will be limited.		
Implementation notes • Management: Hobsonville Point Path is a shared boardwalk along the coastal edge and extends for the entirety of the stretch. Maintain reflects the need to maintain this important connection for future generations. • Cultural: At Hobsonville Esplanade North-Lease Land, the Te Kawerau ā Maki Claims Settlement Act 2015 and Ngāi Tai Ki Tāmaki Claims Settlement Act 2018 include a coastal statutory acknowledgement describing the iwi association with this area (New Zealand Legislation, 2015), (New Zealand Legislation, 2018). Ongoing engagement with both e Kawerau ā Maki and Ngāi Tai Ki Tāmaki will be required across all climate scenarios to ensure the implementation of adaptation strategies is managed appropriately.		

11.2: Hobsonville Wharf

Stretch 11.2 commences southeast of Hobsonville Esplanade North-Lease Land, and extends around Hobsonville Point, encompassing Hobsonville Point Wharf and Seaplane Ramp. The area contains Hobsonville 3 Wastewater Pump Station. Hobsonville Ferry Terminal and Hobsonville Point Path are key features. Given the extensive infrastructure located at the coast, there are coastal protection structures such as seawalls and sloping rock revetments.

Scenarios for change		
Low	Moderate	High
Protect 	Protect 	Protect 
Explanation A protect approach confirms the coastal edge associated with Council-owned land in this stretch, providing for important water access connections and supporting infrastructure. Inundation risk is anticipated to increase over the long term and management of activities in this stretch may be required to respond to this hazardscape.		
Implementation notes • Management: Ongoing engagement with Auckland Transport, manager of Hobsonville Ferry Terminal, will be required.		

11.3: Catilina Bay & Te Onekiritea Point

Stretch 11.3 commences south of Launch Road including the coastal areas south, culminating adjacent to Squadron Drive and (Pukeko Road end). The stretch extends around a significant portion of coast, encompassing Catalina Bay, Te Onekiritea (Bomb Point) and Tahingamanu Bay. Parkland and reserves within the stretch include Harrier Point Park, Hobsonville Esplanade, Catalina stormwater pond, Hobsonville Rifle Range, Catalina Water Play Park, and Bomb Point. Social infrastructure includes Hobsonville Point Path and Hobsonville Rifle Range.

The stretch includes a site of significance to Mana Whenua – Tahingamanu situated at the coast. There are multiple sites with water infrastructure notably the Hobsonville 4, 5 and 6 pump stations.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation A maintain approach over all climate change scenarios supports the management of risk to stormwater infrastructure and coastal pathway connections and associated assets. Management of risk through location and design is the preferred approach, limiting the use of engineered coastal protection for this natural coastal area.		
Implementation notes • Management: In the longer term it is noted that important community assets and water infrastructure will become exposed (Rifle Range and Scott Point 6 Pump Station). Targeted relocation of these specific assets may need to be considered in response to increasing risk from erosion and inundation. • Cultural: Tahingamanu, which is a site of significance to mana whenua, is located within the stretch. Ongoing engagement with local iwi will be required across all climate scenarios to ensure the implementation of adaptation strategies is managed appropriately. • Social: Hobsonville Rifle Range is an important community asset. While this is administered and owned by Auckland Council, engagement with Hobsonville Point Residents Association may be needed to understand the value of and use of this facility to the local community and identify what sort of adaptation strategies are needed in future to allow for its continued use.		

11.4: Orion Point

This stretch commences south of Hobsonville Esplanade Reserve and includes the coastal edge of the Orion Point. It culminates at Scott Point Sustainable Sports Park to the south.

Scenarios for change		
Low	Moderate	High
No action 	No action 	No action 
Explanation		
A no action approach is reflective of limited Council land and assets located within Orion Point, which is privately owned. Water infrastructure and roading is set back from the coastal edge.		
Implementation notes		
N/A – this stretch has limited Auckland Council land and assets exposed to coastal hazards over all climate change scenarios.		

11.5 Nimrod Inlet

This stretch commences to the south of Orion Point and includes Nimrod Esplanade east to Bofers Point. It includes the coastal corner of Scott Point Sustainable Sports Park and Nimrod Esplanade. Water infrastructure is located within this stretch, set back from the coastal edge.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation		
A maintain approach supports the management of risk to coastal walkway connections within Nimrod Esplanade Reserve and applies to the design and management of stormwater and roading assets in relation to changing coastal hazards within this stretch.		
Implementation notes		
Management: Under a high climate change scenario, proactive management of wastewater infrastructure in response to ongoing erosion may be required. Ongoing engagement with Watercare may be needed to ensure alignment in adaptation approaches.		

11.6: Scotts Road south

Stretch 11.6 commences at Bofors Point, including the coast of Brickbat Bay, southwest of Scott Point, where an existing rock revetment armours a coastal access path located within Scott Esplanade Reserve. This stretch concludes before Limeburners Bay and includes Scott Reserve and Scott Esplanade.

Scenarios for change		
Low	Moderate	High
Protect 	Protect 	Protect 
Explanation A protect approach responds to the existing armoured coastal edge and a fixed coastal edge via maintenance of protection structures to protect landward pathway connections, the wastewater pump station and Scott Esplanade boat ramp. Inundation risk to the path may increase under a high climate change scenario, as a result of sea-level rise.		
Implementation notes • Management: A protect approach for this stretch is only applicable to Auckland Council-owned land and assets within this area and does not apply to private land and/ or private property. • Management: Design and management of stormwater, wastewater and roading assets in relation to changing coastal hazards within this stretch may be required under a high climate change scenario.		

11.7: Limeburners Bay

Stretch 11.7 commences west of Scott Esplanade Reserve, culminating at the western end of Limeburner's Bay Historic Reserve.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation A maintain approach supports the management of risk to assets and the need to respond to the historic heritage values present within the stretch. Inundation risk over time may require considered design and management of uses and assets within this stretch.		
Implementation notes • Management: Acknowledging community aspirations for community connections via walkways along this stretch of coast provides opportunities to support more contiguous coastal tracks along parks and reserves in the area.		

11.8: Wiseley Road, West Harbour Hobsonville

Stretch 11.8 commences west of Limeburner's historic reserve, culminating within Marine Esplanade, to the north of Westpark Marina. The stretch includes Wiseley Esplanade Reserve, Berneckers Landing and a portion of Marine Esplanade.

Scenarios for change		
Low	Moderate	High
No action 	No action 	No action 
Explanation No action supports the maintenance of a natural coastal edge in a highly modified coastal environment and reflects the absence of Council assets and contiguous coastal connections. This strategy selection does not preclude the management of wider risks to assets within Auckland Council landholdings and piped infrastructure within this stretch.		
Implementation notes Ecological: There are Chenier-type shell banks in the marine area of Limeburner's Bay. A no action approach does not preclude opportunities to support natural ecosystems in the area in alignment with community values.		

11.9: Westharbour Boat Access

Stretch 11.8 commences north of Hobsonville / West Harbour Marina. It extends around the marina, encompassing the jetties and berths. The stretch concludes to the south of the boat launching ramp south of the marine area.

Scenarios for change		
Low	Moderate	High
Protect 	Protect 	Protect 
Explanation Protect is applicable to Auckland Council-owned land and assets within the marine area, including Marina Esplanade Reserve, and boat launching facilities to the south of the marina.		
Implementation notes Management: Noting that the majority of Westhaven Marina is privately owned meaning collaboration with private landowners and organisations will be required to implement strategies.		

11.10: Waipareira Bay (Luckens Point)

Stretch 11.10 commences south of the marina, encompassing Waipareira Bay, and culminates south of Luckens Reserve. It includes residential areas of West Harbour / Hobsonville. Parks and reserves include Marina Esplanade, Luckens Reserve, and Picasso Reserve.

Luckens Reserve Path and Clearwater Cove Path are well-used pathways within the stretch. Clearwater Cove Path provides a scenic walkway along the West Harbour coastline, through Marina Esplanade to Hobsonville Marina (Auckland Council, 2024). The path connects the Marina and Luckens Reserve. Luckens Reserve Path is a sealed path ideal for bikes and pedestrians (AKL Paths, 2024). The path also extends into Luckens Coastal Path.

Scenarios for change			
Low		Moderate	
High			
Maintain		Maintain	
Maintain			
Explanation			
A maintain approach supports management of risk to assets, particularly the coastal access paths, including Clearwater Cove Path and Luckens Path, and associated assets and amenities. Access to and along coastal areas may require design and realignment to manage risk from coastal erosion and instability and increasing inundation risk in lower-lying areas.			
Implementation notes			
• Cultural: Marina Esplanade and Luckens Reserve contain a wāhi tupuna. • Management: The Upper Harbour Water Access Assessment 2019 identifies opportunities to improve water access in this park (Auckland Council, 2024i). Management intentions include working with local iwi to identity protect and interpret Māori heritage and maintaining the natural values within the park (Auckland Council, 2024i). Ongoing engagement with the Upper Harbour Local Board, local iwi and the local community may assist in understanding these aspirations and how they may impact the implementation of adaptation strategies. • Management: Management intentions for Luckens Reserve include considering the proposals identified in the Luckens Reserve Concept Design and Masterplan 2020 (Auckland Council, 2024i). This masterplan should be consulted before implementing adaptation strategies, and consideration should be given to how adaptation strategies can either contribute to the aims of the masterplan or avoid adversely impacting on the masterplan aspirations. • Community: Luckens Reserve was commented on in relation to ongoing erosion of walkways, impacting usability – noting this is an area of high value to the local community, a focus on maintaining and improving walkway connections is required. • Ecological: Romeo Stream runs through parts of the parkland, with native fish found within the stream catchment.			

11.11: West Harbour

Stretch 11.11 commences south of Luckens Reserve. It extends along the coast, culminating at West Harbour Esplanade – West, adjacent to West Harbour Drive including the coastal areas south to the end of the unit area, adjacent to Garcia Place and the Upper Harbour and Henderson/ Massey Local Board Boundary. Luckens Coastal Path extends along the stretch. Parks and reserves include West Harbour Esplanade – East, West Harbour Reserve, and Da Vinci Park. There is a jetty located on private Auckland Council-owned land, adjacent to West Harbour Esplanade - East. Most of the reserves/ parks are situated between the coast and private residential properties. They are a mix of vegetated and grassy spaces.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation		
A maintain approach reflects the management of risk to walkway networks, including Luckens Path, and other park uses in proximity to a steep coastal edge. This strategy also enables management of water networks in proximity to coastal hazard risk areas.		
Implementation notes		
Cultural: West Harbour Esplanade – East contains wāhi tupuna and the esplanade surrounding the inlet. Manutewhau was a former kainga settlement. Management intentions for the esplanade reserve include working with local iwi to identify, protect and interpret Māori heritage and to maintain the natural values of the park (Auckland Council, 2024i). Ongoing engagement with local iwi will be required across all climate scenarios to further understand the cultural values associated with these sites and how this may impact adaptation strategies will be essential.		



Unit 12

Waitematā Harbour West



Unit 12: Henderson & Te Atatu

Unit 12 is located in the Henderson Massey Local Board area and includes the coastal areas south of West Harbour in the west culminating in Glendean in the south east. It includes the communities of Massey, Ranui, Henderson, Te Atatu, Te Atatu Peninsular and the northern areas of Glendene in the south. The unit is traversed by significant infrastructure including State Highways (not Auckland Council-owned) and includes areas of Whau Pathway. The unit has considerable cultural, historic heritage and ecological values and in many areas, coastal margins include important areas, values, features and habitats.

What is happening?

This unit covers the two main tidal arms of Henderson Creek extending around the Te Atatū Peninsula and includes the western shoreline of Whau River. The Te Wai-o-Pareira / Henderson Creek tidal channel diverges into two branches, with the main channel meandering through a wide mangrove-infilled basin area towards Oratia Stream. A smaller side inlet branches towards the southwest to Swanson Stream.

Coastal inundation

Coastal inundation flooding is predicted to impact the fringe of esplanade reserves along Te Wai-o-Pareira / Henderson Creek, in particular at Taipari Strand, and the east-facing shoreline of Te Atatū Peninsula.

Along Te Atatū Peninsula, the natural vegetated margin will be increasingly exposed with future sea-level rise impacting existing walkways developed along the shoreline (Kelvin Strand, Spinnaker Strand, Waimanu Bay, Orangihina Reserves).



Coastal erosion and instability

The estuarine location is a very low energy coastal environment, with short fetch across the meandering tidal channel and shallow intertidal areas limiting local wind wave generation. The most exposed part of the shoreline within Unit 12 is the northeast-facing shoreline of Te Atatū Peninsula

that is fronted by wide intertidal flats. This shoreline is exposed to occasional higher wave energy from the east due to the greater fetch of up to 7.5 km across central Waitematā Harbour.



There are multiple existing coastal protection structures along this section of coastline. Some of the key features are as follows:

A rock seawall extends around the western edge of Taipari Strand Reserve (historic landfill) from the southern side of the existing jetty.



Taipari Strand grouted rock seawall and concrete footpath capping (Source: Auckland Council)

Kelvin Strand Beach Reserve is located at the tip of Te Atatū Peninsula and the eastern end of this reserve is armoured with a rock revetment seawall.



Kelvin Strand Beach reserve is located at the tip of Te Atatu Peninsula. The eastern end of this reserve is armoured with a rock revetment seawall, before a more naturalised edge adjacent the Shelly Pocket Beach.

Spinnaker Strand along the northeast facing shoreline of Te Atatū Peninsula, is armoured with rock masonry and rock revetment seawalls, with a series of detached groynes on the adjacent intertidal area.



Rock revetment seawall, Spinnaker Strand (Source: Auckland Council)

Along the east-facing shoreline of Te Atatū Peninsula, Waimanu Bay Reserve is armoured with sections of rock revetment seawalls. However, with remaining sections unarmoured, it is well vegetated along the reserve coastal edge.

There is a rock revetment seawall along the Harbourview Orangihina Reserve.



Catchment flooding

Catchment flooding is an identified hazard for this unit. The two larger catchments being Te Wai-o-Pareira / Henderson Creek and the Swanson Stream/Oratia Stream. Smaller catchments including Manutewhau Stream and smaller areas of flood plain are identified within the Te Atatu Peninsula area.

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.

The Clover Drive, Rānui 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](#).



Risk assessment

The risk table represents key groups of assets (e.g. Auckland Council-owned land, buildings, road extents) which are supported by the regionally consistent data set. The risk assessment provides a regionally consistent method for comparing risk to Auckland Council-owned land and assets allowing for identification of areas with the highest risk for potential future assessment (e.g. Series 2).

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

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 (342.9 ha) Buildings, wharves (193 No.)			Park amenity structures, carparks, accessways, buildings (11.2 ha)			AT roads (149.0 km) Bridges (5,282.8 m ²)			Water pipes (1,124.3 km)		
Short	Medium	Long	Short	Medium	Long	Short	Medium	Long	Short	Medium	Long
Coastal erosion and instability susceptibility											
Very high	Very high	Very high	High	Very high	Very high	Very high	Very high	Very high	High	High	Very high
Coastal inundation											
High	High	High	Very high	Very high	Very high	Very high	Very 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 unit that may be impacted by coastal hazards (inclusive of catchment flooding) over changing climate scenarios.



- There is a significant amount of Auckland Council-owned land and infrastructure within this unit including 68 reserves and parks, with larger parks including Harbourview Orangihina Park and McLeod Park.



- Auckland Council waste transfer and recycling centre and animal management facilities.
- Reserve and parks amenities, playgrounds and play facilities (numerous).
- Recreational and sports facilities; Moire Park and McLeod Park (in proximity to the coast).



- **Closed landfills:** Harbour View Reserve; Kelvin Strand; Bridge Avenue Reserve and Te Atatū Boating Club; McLeod Park; Spargo Reserve; Daytona Strand; The Concourse Strand; Waitākere Recovery and Recycling Centre; Coletta Esplanade; Jack Colvin Park; Springbank Esplanade; Taipari Strand; Kelvin Strand.



- **Wastewater:** There are multiple pump stations located in proximity to the coastal edge and pipelines traverse this unit both on land and within the coastal marine area (sea).



- **Key pathway connections:** Harbourview Orangihina Path; Moire Park Path; Orangihina Path; Te Atatū Peninsula North Path; Te Atatū Peninsula Harbourside Path; Te Atatū Playground Path; Te Atatū to City Path; Henderson Loop Path; Henderson Creek Path; Taipari Path
- Construction of the first stage of a section of Te Whau Pathway is currently underway, with a boardwalk section through the coastal marine area between Te Atatu Boating Club and adjoining esplanade reserve areas.
- **Key local and regional roading** connections traverse this unit, with key regional arterial routes serving Henderson located in some places in proximity to the coast and coastal inlets.

**Harbour access:**

- Key access points at Chapman Strand, Kelvin Strand, Taipari Strand, Spinnaker Strand, The Concourse Strand
- Numerous additional coastal access structures located within the inlet areas and reserve landholdings.

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.



This unit has a rich cultural landscape involving key portages, settlements and sites of significance. Engagement with iwi, Te Kawerau a Maki is vital to management of coastal areas and the catchments and the implementation of adaptation strategies under this plan. Some key features to note for Unit 12 include:

- Te Whau is an important transport route between the two harbours and was used for centuries providing food resources and large trees for waka building. As well, Whau and Riverhead Portages, Kaipara to Whau walking track and Te Henga to Whau walking track formed the backbone of a comprehensive communications network in West Auckland.
- Te Kawerau a Maki have ancestral links to people occupying the Henderson-Massey area as early as the 14th century. Te Kawerau a Maki are recognised by statutory acknowledgement in relation to the catchments located within this unit area.
- Within the Coastal Marine Area, protection of all heritage sites, water quality, quality and availability of kaimoana and limiting disposal of waste is of particular importance.
- The Te Wai-o-Pareira / Henderson Creek estuarine tributary is a taonga to Te Kawerau a Maki. This is reflected in the reserve management plans for this area.



- Key local areas of: West Harbour, Massey East, eastern parts of Ranui, Te Atatū Peninsula, Te Atatū South, Henderson and Glendene.
- Significant social infrastructure in this unit is located in proximity to Henderson, inland from the coastal edge.
- Open spaces are primarily located along the coast and tidal inlets, with several recreational parks situated centrally.
- There are two Outstanding Natural Features in Unit 12 including the Harbour View Pleistocene Terraces and Te Atatū Pleistocene plant beds. There is one High Natural Character Area in Unit 12 - Lowtherhurst Reserve Kauri Stand in Massey near Upper Waitematā Harbour.
- Moire Park in Massey connects with Manutewhau Walk, Manutewhau Reserve and West Harbour Esplanade, providing continuous access to Manutewhau Stream.
- Harbourview Reserve is home to the Te Atatū Pony Club and is also popular for bird watching, walking, cycling, and dog walking.
- Key coastal users include Te Atatū Boating Club, boat ramp and marina. There is boat access to Waitematā Harbour.
- Chapman Strand, Taipari Strand and Kelvin Strand Beach are all small beaches located along Te Atatū Peninsula and are used for informal recreation and for access to the water for small boats. Chapman Strand is also home to Taikata Sailing Club.

- Taipari Strand hosts several clubs including Waitematā Rowing Club, Waitematā Canoe and Multisport Club and Kenley Water Ski Club.



The following regionally important and/or vulnerable ecosystems and species have been recorded within this unit:

- Chenier-type shell banks located to the north of Te Atatū Peninsula.
- Mangrove forest salt marsh and shell banks located offshore of Harbour View Beach Reserve.
- A number of threatened avifauna, including shore plover (*Thinornis novaeseelandiae*, Threatened – Nationally Critical), SIPO, variable oystercatcher (*Haematopus unicolor*, At Risk – Recovering), and red knot (*Calidris canutus*, At Risk – Declining) (New Zealand eBird, n.d.). These species congregate within the important saline habitats described above.

Community feedback



Who have we heard from?

Feedback for this unit was gathered through 'Ak Have Your Say' feedback forms, social pinpoint and at in-person events, including one held at Te Atatu Library. Other events were held within the wider Waitematā SAP area.



What is happening?

- The primary concerns for respondents in the Henderson and Te Atatu areas are:
 - Flooding from extreme events and coastal erosion.
 - Coastal inundation, sea-level rise, and coastal storm events.
 - Significant tree debris in creek areas which impact on the length of the creek that can be accessed by kayak.
 - Heavy rainfall affecting the water quality.



What matters most? Community aspirations or outcomes

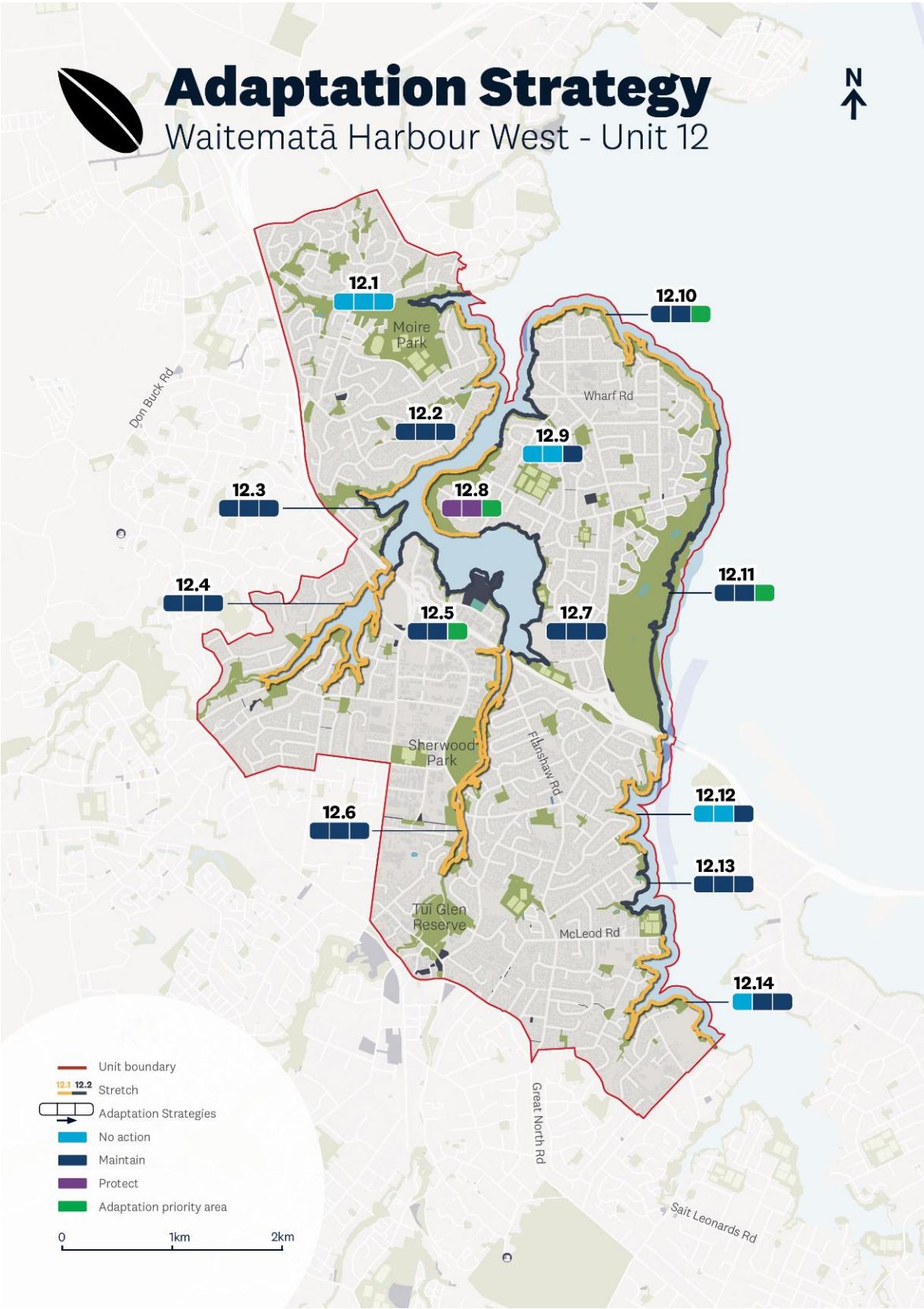
- Passive recreation, such as sitting, relaxing, and picnicking was the most identified activity for coastal areas. The next most popular activity is nature watching, including observing birds and marine mammals, followed by walking or running on the beach and pathways, and cycling on pathways and coastal roads.
- The health and associated water quality of Te Wai O Pareira/Henderson Creek was a matter of interest and importance to the respondents.



What can we do about it? Community feedback and aspirations

- Just over half of respondents supported the proposed adaptation strategies in the Henderson and Te Atatu area. The stretch for Te Wai-o-Pareira / Henderson Creek received the highest support.
- Concerns regarding the identification of retreat at Taipari Strand were related to the high value of this reserve and coastal access point. The need for this reserve as a coastal access point was raised.
- Concerns were also raised in relation to the loss of highly valued coastal walking tracks and the increasing population which will rely on these coastal areas.

What can we do about it? Adaptation strategy summary for Unit 12



12.1: Moire Park, Massey

Commencing at the Local Board boundary within West Harbour Esplanade culminating at the point adjacent to Allington Road. This stretch includes the Māpou / West Harbour Esplanade, Moire Park, a portion of the Kōtukutuku / Realm Esplanade and Moire Park, including the Moire Park Path. This stretch also includes a key wastewater pipeline (Whenuapai Branch Sewer) which traverse the CMA between the two sides of this stretch. Other water infrastructure is located within the stretch but is generally set back from the coast.

Scenarios for change		
Low	Moderate	High
No action 	No action 	No action 
Explanation No action is recommended as this low-energy coastal environment is highly vegetated and the reserve width means that hazard risk to assets can be appropriately managed. This strategy supports the continued maintenance of a vegetated coastal area which was supported through community feedback.		
Implementation Notes No action does not preclude the consideration of location and design of assets within Auckland Council landholdings, particularly in relation to flood hazards within low-lying areas and Moire Road. Cultural: This stretch includes two parks with dual names. The two parks take their names from two native trees as follows: Kōtukutuku (Fuchsia Excortica) is also known as the tree fuchsia and considered to be the world's largest fuchsia. The māpou is a small native tree growing to around 6 m providing food for Hihi (the native Stitchbird).		

12.2: Massey South

Commencing to the east of Moire Park including the coastal edge east and south and Covill Reserve, culminating at the northern side of the catchment within the Wai Huruwuru Mānawa/ Lowtherhurst Reserve. The stretch includes predominantly residential areas of Massey Southeast bordered by esplanade reserve at the coastal edge. Putaputawētā / Spargo Reserve contains a closed landfill. Royal Road (and road end at the coast), Colwill Road, Cedar Heights Avenue (southern corner of the stretch) are located within this stretch.

Water infrastructure is located at Wickstead Strand and Colwill Esplanade. Pump stations within the stretch include Colwill Road pump station and Darcy Place pump station.

This stretch includes vegetated coastal edges with a low energy coastal environment. Small catchments discharge to the coast within the central areas of the stretch and the stretch culminates at Rarawaru Stream and coastal edge. Esplanade areas are identified as being susceptible to coastal instability and erosion. Within the southern areas, mangrove forests provide for the dissipation of wave energy at the coastal edge.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation Maintain is the preferred pathway as this stretch includes numerous areas of unmanaged and unconnected steep esplanade reserve. In northern areas, road ends provide access to the coast (Royal & Colwill Road). The Putaputawētā / Spargo Reserve includes a closed landfill and water infrastructure traverses the stretch in several locations. Maintain provides for the management of risk to these activities, assets and uses through design and location. The natural coastal edge is highly vegetated, providing coastal habitat; the use of protection structures should be minimised within this stretch.		
Implementation Notes - The natural coastal edge is highly vegetated, providing coastal habitat, and the use of protection structures should be minimised. Closed landfill: Putaputawētā / Spargo Reserve contains a closed landfill. This is to be managed under the Closed Landfill Asset Management Plan. Social: Maintaining safe coastal walkways is a high priority for the local community. Equity of coastal access is also important, and there are future opportunities to develop additional assets to support a growing population. Cultural: The two parks take their names from two native trees which provide habitat for numerous indigenous species. Wai Huruhuru Mānawa / Lowtherhurst Reserve is named for the inlet that this reserve runs along. This is an important location and landscape where waka (canoes) would be left at the head of the Wai Huruhuru Mānawa / Huruhuru Creek tidal inlet, and travellers could connect to the Waitākere River valley, Te Henga and beyond to the Kaipara.		

12.3: Massey East

This stretch includes the coast from the Wai Huruhuru Mānawa/ Lowtherhurst Reserve and culminates at the southern extent of Taitapu Park (Rarawaru Stream catchment south).

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation Maintain is selected because within this low energy coastal environment, the management of risk to assets, such as park space and local coastal access, can be achieved through the location and design of assets.		
Implementation Notes Management of risk from flood hazards alongside coastal hazards may be required where catchments discharge to the coast. Stormwater management assets are located within this stretch.		

12.4: Te Wai-o-Pareira / Henderson Creek

This stretch commences south of Taitapu Park and includes the inlet to Te Wai-o-Pareira / Henderson Creek culminating south of the SH16 motorway connection on the inlet's southern side.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation Maintain is selected as this stretch includes the coastal interface for the Te Wai-o-Pareira / Henderson Creek and includes numerous coastal reserve areas such as Wai Huruwuru Mānawa / Lowtherhurst, Taitapu Park, Makomako / Sunline Park, Woodside Reserve, Momutu / Helena Park, Taikato / Riverpark, Penfold Park, Daytona Strand. It also includes a closed landfill at Daytona Strand and is traversed by numerous water connections. There are assets (pump stations) and roads located within hazard areas.		
Implementation Notes • Maintain provides for the management of risk through the design and location of assets and uses. Inundation risk and sea-level rise in the moderate to high change scenarios will require further consideration but a review of strategies may be required depending on the rate of coastal change, including impacts on coastal erosion and land stability. • Making space for water: The Clover Drive, Rānui 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, improving stormwater flow and making the network more resilient. This stretch 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. • SH16 is operated and managed by NZTA. Auckland Transport operates key transport links which utilise this road and this stretch is traversed by key regional transport routes within western areas of the inlet.		

12.5: Āria / The Concourse

This stretch commences from the NZTA-owned State Highway north including the coastal areas east where it ends at the interface with the highway. The largest park in this stretch is Āria The Concourse Strand, which is an esplanade reserve running along the coast for most of this stretch. It contains a closed landfill and a Council-maintained boat ramp.

Waitākere Refuse and Recycling Transfer Station is an Auckland Council-owned asset accessed off Āria / The Concourse which provides waste transfer and treatment services. Also within this stretch are Council animal management facilities, water infrastructure serving the industrial land uses and roading connections.

This stretch is also traversed by a NZTA owned/managed State Highway and National Grid transmission lines. This area has been identified as holding cultural value and provides access to the deep water channel located to the north of the land area.

Scenarios for change					
Low		Moderate		High	
Maintain		Maintain		Adaptation priority	
Explanation					
Maintain provides for continued management of the land and uses located within this area as well as the infrastructure which serves these uses, such as wastewater. While some areas of the coastal edge are armoured or modified, ‘maintain’ provides for flexibility in the management of this coastal edge and maintenance of existing structures. Under a high climate scenario, inundation risk from the coast and the potential for erosion susceptibility increases. Due to the concentration of Council assets and land uses which serve a critical role for the local and regional area and the presence of other values, including identified cultural values, and assets of national importance, adaptation priority is proactivity identified to ensure that further planning to manage risk is signalled.					
Implementation Notes					
• Maintain provides for continued management of risk and existing interventions for harbour access (Selwood Road end) and management of assets within landholdings (waste and recycling facilities and supporting infrastructure). • Adaptation priority is identified to prioritise consideration of the potential for increasing inundation risk to this area of relatively low-lying land with critical land use. This stretch includes Auckland Council waste transfer and management facilities and areas of possibly contaminated land which are subject to management through asset-specific management plans. • Note that engagement with major infrastructure providers will be required (NZTA, Transpower and others) when considering adaptation responses for this stretch of the coast.					

12.6: Henderson

Commencing south of the SH16 road bridge including the catchment south to Henderson town centre, and culminating again at the road bridge for the SH16 on the eastern bank. This stretch includes Tuangi Henderson Creek Esplanade, Trusts Esplanade, and numerous Council assets and landholdings within the upper reaches of this coastal inlet. The inlet is traversed by key roading links (bridged) and pathways provide for highly valued local connections.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation This stretch includes Henderson Creek catchment and associated reserve areas. Management of risk to coastal pathway connections, reserve activities and other assets (water infrastructure and road assets) located within these areas will be necessary to respond to catchment flooding and the interaction with coastal hazards.		
Implementation Notes • Maintain refers to the management of hazard risks through design and location of infrastructure. Hazard management structures and responses may be required to maintain key connections and manage risk within this catchment. Consideration of the natural values and systems, identified as important to iwi and local communities, will be necessary when considering adaptation actions for this stretch. • SH16 is operated and managed by NZTA. Auckland Transport operates key transport links which utilise this road and this stretch is traversed by key regional transport routes within western areas of the inlet.		

12.7: Gloria Park and South

Commencing north of the State Highway and culminating south of Taipari Strand Reserve where Matipo Road meets the coast. This stretch includes local sports facilities, park areas and areas of esplanade reserve.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation This stretch is located within a low energy environment; low-lying areas may become increasingly exposed to coastal inundation with sea-level rise. Maintain provides for the management of risk through design and location of assets. Closed landfill assets within this stretch are subject to the Closed Landfill Assets Management Plan.		
Implementation Notes		

Scenarios for change		
Low	Moderate	High
Maintain provides for the management of risk to assets located within park areas. Jack Colvin Park and Springbank Esplanade closed landfills are subject to the Closed Landfill Asset Management Plan. - This stretch 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.		

12.8: Taipari Strand

Commencing at the southern boundary of the reserve and culminating in the north, Taipari Strand facilitates access to the coast for water sports. The park contains a closed landfill, Auckland Council-owned buildings and a boat ramp located at the northern end of Taipari Strand. Community uses include Canoe & Multisport Clubhouse Land, Water Ski Clubhouse Land, Taipari Strand Scout Clubhouse, and Taipari Strand Clubhouse & Recreational Centre. Taipari Path traverses Taipari Strand.

Scenarios for change		
Low	Moderate	High
Protect 	Protect 	Adaptation priority 
Explanation Under a low and moderate climate scenario, protect reflects the maintenance of existing coastal protection on the coastal edge of this park (underlaid by a closed landfill). Protect provides for the continued maintenance of uses and features of the land, identified as a highly valued space by the community. Under a high climate scenario, inundation risk and the potential impact raised sea levels may have in relation to coastal erosion and instability, combined with the high value attributed to this area of the coast for a range of uses and harbour access, results in the identification of adaption priority to ensure that engagement and exploration of adaptation options can be undertaken.		
Implementation Notes Protect reflects the management of risk through protection of the coastal edge and maintenance of uses within the reserve, including closed landfill assets which are subject to the Closed Landfill Asset Management Plan. - In the high change scenario, this stretch is recognised as an adaptation priority area in relation to increased coastal hazard exposure of uses and assets within the stretch.		

12.9: Te Atatū West

Commencing north of Taipari Strand and culminating south of Chapman Road. Reserves and parks within the stretch include Renata Esplanade, Matipo Reserve, Kervil Park, Tawa Esplanade and Chapman Strand. This section of the coast is highly vegetated, and many areas identified as significant ecological areas.

Scenarios for change		
Low	Moderate	High
No action 	No action 	Maintain 
Explanation This stretch of the coast is highly vegetated, and park assets, water and transport networks are generally set back from a lower energy coastal edge. No action under low and moderate timeframes reflects a low risk to Council land and assets and signals a preference to maintain the natural coastal edge. Under a high climate scenario, management of risk may be required in response to increasing exposure to coastal hazards.		
Implementation Notes No action does not preclude the management of risk to road infrastructure (Matipo Road) and road end connection (e.g. Wharf Road) to coastal areas, and any assets located in these areas. Cultural & Social: This stretch includes multiple areas and features of cultural and historic heritage significance. Maintaining access to the coast and maintenance of those values is not precluded by the strategies identified for this stretch.		

12.10: Te Atatū North (walkways)

Commencing at (and including) Chapman Road end, this stretch includes the Te Atatu Peninsular northern area culminating on the north-eastern side of the peninsula at the southern end of Spinnaker Strand Reserve.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Adaptation priority 
Explanation This stretch includes highly valued coastal walking connections, numerous sites of cultural and historic heritage significance and is highly valued by the local community. There have been historic modifications of the coastal areas to both closed landfills and to enable water access. Coastal protection structures armour many sections of this coastal stretch. As well as having high social and cultural values, this stretch also includes ecological values and environments and is both low lying and more exposed to coastal processes than other areas of the shoreline within this unit. Maintain is identified to enable the maintenance of risk to Council assets, primarily walking connections. Maintain supports the management of risk through design and location and the continued maintenance of coastal structures in some areas. Adaptation priority under a high change scenario is identified due to the low-lying nature of the land and the exposure of coastal connections and the values of the coastal area in relation to ecology and cultural features, landscape and systems.		
Implementation Notes		

Scenarios for change		
Low	Moderate	High
• Maintain supports the continued maintenance of existing structures at Kelvin Strand and Chapman Strand and the highly valued coastal walkways which connect and provide access along coastal areas of the peninsular. • The closed landfill at Kelvin Strand is subject to management under the Closed Landfill Asset Management Plan. • Adaptation priority will require community, iwi and key stakeholder engagement and should explore nature-based options which support ecological outcomes, including where natural shell banks and coastal structures (groynes) (currently located within the stretch) may provide opportunities to consider nature-based systems to manage coastal hazard risk. • Social context: Where community uses are exposed to coastal hazards under low and moderate climate scenarios, engagement with users is recommended to understand how risk can be managed and an adaptive plan developed.		

12.11: Te Atatū East (Peninsula eastern side)

Stretch 12.11 commences south of Spinnaker Strand, including the coastal areas south to SH16. It includes the coastal reserves of Waimanu Bay and Harbourview – Orangihina, road ends (Harbour View) and water infrastructure (pump stations). Key ecological values and environments and community uses are located within this coastal area, including Te Atatu Pony Club and numerous recreational areas.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Adaptation priority 
Explanation Maintain under low and moderate climate scenarios is identified to support the ecological values and natural character of this coastal stretch and the continued maintenance of assets and uses within coastal areas, including wastewater assets, roading connections, walking access and reserve areas. The considerable set back from the coastal edge provides for natural realignment of ecological values and means that assets are generally set back from coastal hazard exposure areas. Under high climate scenarios, adaptation priority is identified to support proactive engagement and consideration of how the ecological, social and cultural values within this area can be provided for through adaptation actions to manage risks.		
Implementation Notes		

Scenarios for change		
Low	Moderate	High
• Maintain provides for the management of risk to land uses and assets within reserve areas through (landward) location and design. This supports the continued maintenance of existing assets and uses located within this coastal stretch. • The use of hard protection structures to manage risk is not anticipated beyond those which may be required to support linear infrastructure which traverses this stretch. • For Harbourview – Orangihina, DOC administers a section of the coastal marine area within the park, which is a mangrove/wetland area. Additionally, the park’s reserve management plan includes direction for the protection of natural ecosystems and natural coastal landforms and recognises and protects any Māori sites within the park (Waitakere City Council, 2003). Implementation of adaptation strategies will need to respond to these matters. • Social context: Where community uses are exposed to coastal hazards under low and moderate climate scenarios, engagement with users is recommended to understand how risk can be managed and an adaptive plan developed.		

12.12: Whau River Inlet

Commencing south of SH16 including the coastal areas south to Roberts Road. Parks and reserves in the stretch include Te Pae Kawau / Bridge Avenue Reserve, Te Wahapu/ Covil Park, Tūpou / Jaemont Strand, and Hīrere / Tiroroa Esplanade. The Te Atatū Boating Club is located next to the reserve and facilitates access to the Whau River via jetties, boat ramps and mooring sites; this is a private facility. Water infrastructure is located within this stretch and much of the coastal edge is vegetated.

This stretch includes the northern end of the Whau Path which is constructed both on land and in areas located within the CMA.

Scenarios for change		
Low	Moderate	High
No action 	No action 	Maintain 
Explanation The majority of assets allocated within esplanade and other park areas are located back from the coastal edge and coastal hazard exposure areas. Tūpou / Jaemont esplanade is predominantly in a natural state and other coastal areas of this stretch are highly vegetated. Under a high climate change scenario, the need for further management of risk to assets, water and roading infrastructure is likely, noting that this is not precluded by the identification of no action under lower climate scenarios and sea-level rise considerations. The maintenance of Whau Pathway and adaptation of this for sea-level rise, is also not precluded by this strategy, noting a consideration of coastal hazards and climate change will have been integral to the design of this asset.		
Implementation Notes		

Scenarios for change		
Low	Moderate	High
- No active intervention is reflective of the current location of assets and land within this coastal stretch. This does not preclude management of risk to new assets (Whau Pathway) or the need to respond to risks should they arise in areas such as Te Wahapū Covil Park. Cultural: the ancient name for this area is Te Pae Kawau or "The Shags Perch" which is reflective of the historic Māori settlement near here, used up until the mid-1900s by local iwi Te Kawerau ā Maki. No action does not preclude the management of risk to cultural sites and values located within this stretch. - SH16 is operated and managed by NZTA. Auckland Transport operates key transport links which utilise this road and this stretch is traversed by key regional transport routes within western areas of the inlet. Strategies do not preclude the management of risk to these national transport assets. - Te Pae Kawau / Bridge Avenue Reserve contains an area of closed landfill. This is to be managed under the Closed Landfill Asset Management Plan.		

12.13: Te Atatū South (Te Rere and McLeod Park)

Commencing south of Roberts Road end, culminating to the south of McLeod Road end. This stretch includes Horowai / Roberts Field, Tai Mate / McLeod Esplanade and McLeod Park, providing key sporting and recreational uses in proximity to the coast. The stretch is traversed by the Whau Pathway.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation Council land and assets within the northern areas of this stretch are primarily esplanade reserve areas and road ends. Limited assets are in proximity to the coast and coastal edges are vegetated. Maintain provides for the management of risk through design and location of assets. In the southern areas of the stretch, McLeod Park (a closed landfill) is located at a higher elevation which accommodates sports and recreational facilities. Maintain provides for the continued management of risk to assets in response to coastal hazards and climate change.		
Implementation Notes Maintain provides for the management of risk to activities and assets within coastal reserves and (Tai Mate) and McLeods Park including sport field facilities. McLeod Park contains a closed landfill. This is to be managed under the Closed Landfill Asset Management Plan. - Te Whau Pathway, a shared walking and cycling path, is proposed along this area of coastline and is being constructed in sections. Adaptation strategies may need to change in future to facilitate access to and use of this pathway once it is constructed.		

12.14: Glendene

Commencing south of McLeods Road and culminating at the Local Board boundary adjacent to Hepburn Road end. Parks and reserves in the stretch include Marsh Esplanade, Tūhana / Riverglade Esplanade, Kupenga / Meadow Glade, Valron Esplanade, Araara/ Laurieston Park, and Hepburn Esplanade Reserve.

Scenarios for change					
Low		Moderate		High	
No action		Maintain		Maintain	

Explanation

No action is identified under the low climate scenario reflective of the limited Council assets located within hazard exposure areas. **Maintain** under the moderate to high change scenario is reflective of increasing hazard exposure and a need to manage risk to assets and uses within coastal hazard areas, particularly within local park areas and access to the coast.

Implementation Notes

- **No action** does not preclude the management of risk to Council land and assets which are located within this stretch, if required. Development of new assets should be located to avoid coastal hazard exposure and manage risk through design.
 - Te Whau Pathway, a shared walking and cycling path, is proposed along this area of coastline and is being constructed in sections. Adaptation strategies may need to change in future to facilitate access to and use of this pathway once it is constructed.



Unit 13: Whau & Rosebank

Unit 13 is located within the Whau Local Board area. It commences in the west at Glendene and culminates in the east north of Avondale and the Rosebank Peninsula and includes the coastal areas of Kelston, New Lynn, Avondale and Rosebank. Key roading connections traverse this unit in the south providing access to western areas and in the north, SH16 (not Auckland Council-owned), and Rosebank Road. Several catchments within this unit are subject to flood hazards which have impacted land uses in these areas in recent years. Land use is predominantly residential with areas of commercial and industrial use in the Rosebank area and large reserve landholdings in proximity to the coast.

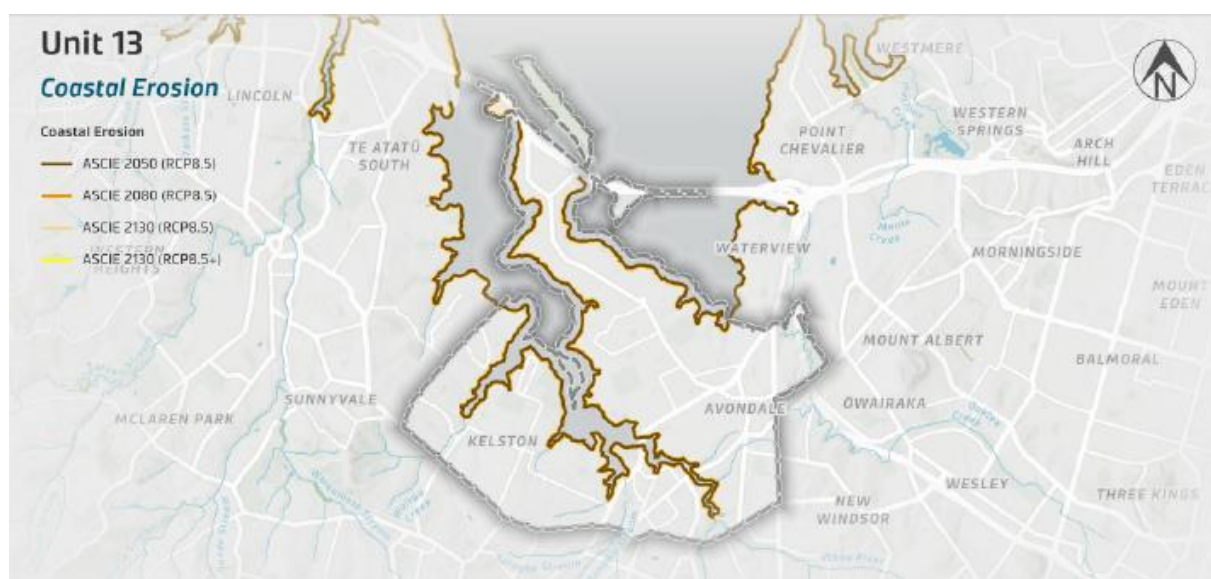
What is happening?

The Whau River shoreline and the embayment to the south of the northwestern motorway causeway is very low energy only being exposed to short fetch distances for local wind wave generation. There are many side inlets branching from the river's main channel. Coastal areas are generally low-energy environments with vegetated coastal edges, mangroves and large intertidal areas.

Coastal erosion and instability

The estuarine shoreline generally has ongoing low risk to coastal erosion due to weathering of the coastal edge because the shoreline is subject to occasional inundation during king tides. Repetitive wetting and drying of the coastal edge will weather exposed soils.

Areas close to the outside meander of the channel will be subject to the highest tidal currents during high tides and peak tidal flows, which have the potential to erode exposed shorelines. Bands of established mangroves are typically wider along the inside bend where current speeds are slower along the inner shoreline.



Existing coastal protection structures can be found along this section of coastline, mainly retaining structures set around reclamation edges. There is rock revetment armouring of the section of Patiki Road on the western side of the motorway. Some of the key features are as follows:

Haukawa / Saunders Reserve has informal rock armouring around the low sealed accessway approach to the timber launching ramp and floating pontoon for West End Rowing Club.



*Saunders Reserve rock armouring fronted by wide mangrove infilled intertidal area
(Source: Auckland Council)*

Archibald Park is an historic closed landfill, with erosion protection works comprising tipped rock armour around the perimeter of the reserve and sections of vertical concrete wall to the north of the boat ramp and floating pontoon. The vegetated coastal margin is fringed with mangroves.



a) Concrete seawall and b) tipped rock armouring, Archibald Park (Source: Auckland Council)

Coastal inundation

Recent events have resulted in coastal inundation of the northwestern motorway. Auckland Council land and assets most exposed to coastal inundation are around the lower-lying vegetated fringe of Archibald Park and Ken Maunder Park. While the greatest impact is predicted for Kanae / Queen Mary Reserve, this area is open grass reserve with no significant infrastructure at risk with only small-scale park amenities (e.g. picnic tables) that can be relocated.



Flooding

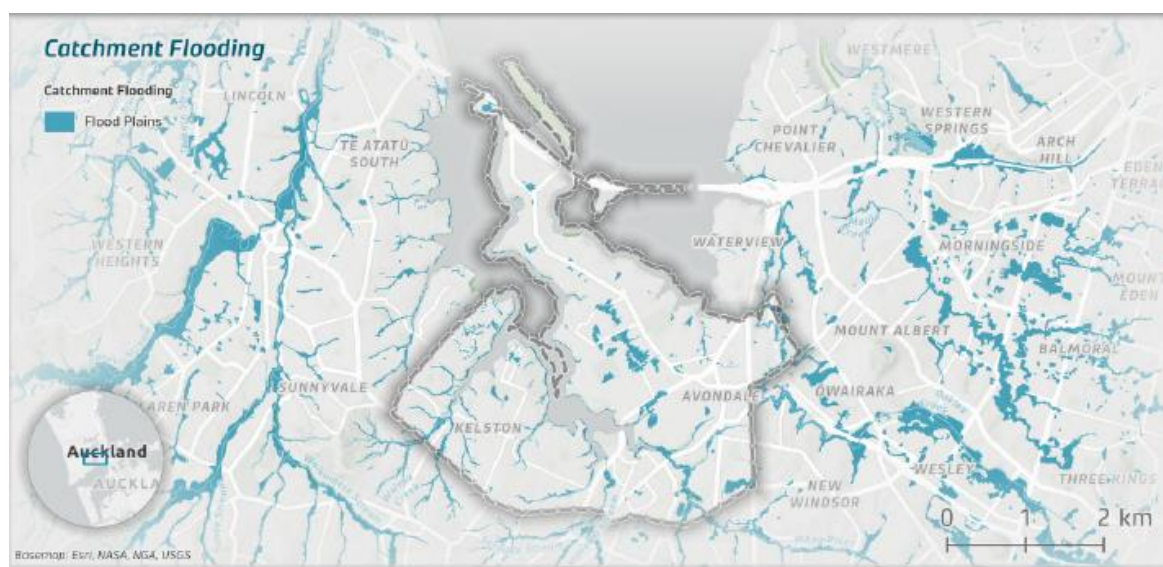
Catchment flooding is an identified hazard for this unit. Several streams feed into the Whau inlet (see figure), which have associated floodplain areas.

The Blockhouse Bay / Linfield Catchment and Porters Stream in Glen Eden are identified under Auckland Council's blue-green network catchment programme.

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.



Whau River Catchments: <https://tewhaupathway.org.nz/events/flow-to-the-whau-2023/>





Risk assessment

The risk table represents key groups of assets (e.g. Auckland Council-owned land, buildings, road extents) which are supported by the regionally consistent data set. The risk assessment provides a regionally consistent method for comparing risk to Auckland Council-owned land and assets allowing for identification of areas with highest risk for potential future assessment (e.g. Series 2).

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

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 (141.3 ha) Buildings, wharves (81 No.)			Park amenity structures, carparks, accessways, buildings (5.6 ha)			AT roads (79.0 km) Bridges (3,730.5 m ²)			Water pipes (578.1 km)		
Short	Medium	Long	Short	Medium	Long	Short	Medium	Long	Short	Medium	Long
Coastal erosion and instability susceptibility											
High	High	High	High	High	High	High	High	High	High	High	High
Coastal inundation											
Moderate	Moderate	High	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 unit that may be impacted by coastal hazards (inclusive of catchment flooding) over changing climate scenarios.



- There are numerous parks and reserves within this unit, with the largest open space reserves adjoining the Whau River being Archibald Park, Ken Maunder Park, Kanae / Queen Mary Reserve, and Saunders Reserve.



- Parks:** Archibald Park on the Kelston Peninsula is valued for views of Whau River and provides a variety of recreational activities. Amenities within the park include multiple sports fields, a large playground, car park, toilets, a flying fox, picnic tables and seating, and boat ramp and floating pontoon jetty.
- Ken Maunder Park has multiple sports fields, club rooms (community lease) and park amenities facilities as well as Ken Maunder Path.



- Wastewater:** There are over 20 wastewater pumping stations located in proximity to the coastal edge within this unit.



- Closed landfills:** Archibald Park; Rerewai Reserve; Span Farm Esplanade; Archibald Park; Kanae / Queen Mary Reserve; Rata St Esplanade; Rewarewa Esplanade; Delta Esplanade; Drury Street Esplanade; Ken Maunder Park; and Portage Rd Esplanade.



- **Key pathway connections:** Whau Pathway traverses a portion of the unit, in places located within the Coastal Marine Area. The northwestern cycleway is a 20.5 km shared path along the northwestern motorway from the city centre to Westgate for cyclists and pedestrians; Archibald Park Path; Ken Maunder Path; Olympic Park Path; Te Atatū to City Path; Tony Segedin Esplanade Reserve walkway and boardwalk.
- **Key regional and local roading:** Northwestern motorway SH16 traverses this unit; Rata Street, Great North Road and Rosebank Road.



- **Harbour access:** There are relatively few suitable public access points for launching small craft into the Whau River due to the estuarine environment (Noting there are numerous privately owned coastal structures along the tidal inlet). Key launching access points include Avondale West Reserve, Archibald Park, and Saunders 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: *Waitemata Harbour West SAP Area Overview*. Guiding objectives and outcomes which have informed the development of adaptation strategies have been identified in Volume 2, with ongoing engagement with local iwi essential for implementation.
- This unit includes an important Māori taonga waka (portage) connecting the Manukau Harbour at Green Bay to the Waitematā Harbour at Te Atatū Peninsula.



- There are three Outstanding Natural Features in Unit 13 including Pollen Island, Traherne Islands and mudflats. Pollen Island is also listed as a Natural Character Area.
- The unit's open spaces are primarily located along the coast and tidal inlets, with several centrally situated recreational parks with sports fields, playgrounds, and public park facilities.
- Notable open spaces include Archibald Park on the Kelston Peninsula, offering views of the Whau River and providing a variety of recreational activities. Te Whau Pathway also runs through this unit, transversing Archibald Park.



- The Whau River, a large estuarine arm of the Waitematā Harbour, is located within this unit. A variety of freshwater fish, including torrentfish, utilise the river habitat. The entire estuarine environment of Whau River is recognised as a Significant Ecological Area in the AUP.
- Motu Manawa-Pollen Island Marine Reserve which is administered by DOC (Department of Conservation, 2024). Pollen and Traherne islands are found within this unit and are classified as terrestrial SEAs and as a joint Biodiversity Focus Area.
- A long chenier-type shell bank is located on the seaward side of Pollen Island.
- There is an intact mangrove forest that grades into a thin strip of coastal broadleaved forest along Saunders Reserve and the Kurt Brehmer Walkway.

- Wetland birds, including banded rail and spotless crane are often found on Pollen and Traherne islands.
- Threatened shorebirds and seabirds are known to roost around the unit's coastal margin.



Who did we hear from

- Feedback was received via Social Pinpoint and 'AK Have Your Say' survey. Events included drop ins at Pt Chevalier and Te Atatū libraries. Presentation sessions took place at Hubwest, Henderson and Cox's Bay ("The Ship"). The Whau River Restoration Trust and Whau WildLink Trust also expressed interest in the coastal adaptation and approaches proposed for Unit 13, noting engagement is ongoing with local community groups.



What is happening?

- Respondents expressed a general concern regarding stormwater outlets and old closed landfills situated along the coastal margin in Unit 13, with stormwater and sewage overflows recorded as impacting residential and public land in the area, along with water quality.
- Concerns were raised over storm damage to valued coastal walkways, impacting function and usability as well as the expansion of mangroves in the Whau Estuary/ River, impacting aesthetics.



Key community uses and values included:

- Being able to utilise coastal walkways (i.e. around Ken Maunder sports park) and nearby paths along the coastal margin; the versatility of coastal spaces (Ken Maunder Park) in the area is highly valued by the local community.
- Water-based sports - kayaking, paddle boarding, boating.
- Using open spaces for recreational purposes - sailing model boats along waterways with family.
- Commuting and exercising using cycleway connections, e.g. Whau pathway.
- Participating in environmental restoration initiatives in the area, reflecting the highly valued, and ecologically significant coastal margins and waterways within this unit.



What can we do about it? Community feedback and aspirations

- Advocating for cleanup of Whau River and mangrove management.
- Improving and maintaining coastal connections and greenways, e.g. Whau pathway.
- Protecting and conserving natural habitats – the coastal area along Unit 13 is recognized as a crucial habitat for birds, including vulnerable seabird species.
- Advocacy and support for a No Action approach for Motu Manawa Pollen Island, Rosebank East, and Traherne Island. These areas are ecologically significant and should be preserved/ supported in their current state, with nature-based solutions where appropriate.
- Advocacy for ongoing restoration work undertaken by community groups (i.e. Whau River Catchment Trust and Whau Wildlink) to provide nature-based solution options such as invasive weed control and native vegetation planting which, together with the existing mangrove forest, should offer a buffer to coastal erosion processes while maintaining the natural character of the area in this unit.

- An interest in being involved in the implementation of coastal adaptation pathways (community-led adaptation).

What can we do about it? Adaptation strategies for Unit 13



13.1: Wairau Creek Glendene

This stretch commences adjacent to Hepburn Road and culminates to the north west of Archibald Park. Hao / Harbour Reserve, Roma / Span Farm Reserve, Kārewa / Harmel Reserve, Rerewai Reserve, Aronui Esplanade, Wairau / Kiernan Esplanade and Cobham Reserve border the estuarine environment and have limited continuous public access. Rerewai Reserve and Roma / Span Farm Esplanade both contain closed landfills.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation A maintain approach under all climate change scenarios identifies a need to manage risk to assets, access and uses within coastal hazard areas including Watercare assets (wastewater pipe bridges and pump stations) and park assets (two smaller lengths of path/pedestrian bridge crossing the narrow upper stream inlet). Continuous public access around existing esplanade reserves is not formalised and is generally not possible due to dense vegetation and private encroachment, however local connections and enjoyment of coastal areas has been identified through community engagement. There are numerous private structures within this stretch that this strategy excludes.		
Implementation Notes • Maintain reflects that targeted maintenance and/or localised realignment may be needed to allow for continued access to wastewater pump stations and wastewater pipeline crossings that bridge side arms of the upper inlet. • Closed landfills: Rerewai Reserve and Roma / Span Farm Esplanade both contain closed landfills. These are managed under the Closed Landfill Asset Management Plan.		

13.2: Kelston Archibald

This stretch begins at Archibald Park including the park and culminating at Titari / Lynwood Esplanade Reserve.

Scenarios for change		
Low	Moderate	High
Protect 	Protect 	Adaptation priority 
Explanation Protect recognises that Archibald Park is highly valued by the community for recreational activities, containing walkways, multiple sports fields, a basketball court, and a toilet block. Coastal infrastructure includes a boat ramp and seawall around the park's coastal perimeter. A completed section of Te Whau Pathway runs through Archibald Park.		

Scenarios for change		
Low	Moderate	High
Implementation Notes - A protect approach under a low to moderate climate change scenario supports maintenance of the coastal edge, including harbour access in the south of the stretch and allows for continued reliance on the existing seawall. Adaptation priority under a high climate change scenario signals the need to manage assets and coastal margins to respond to increasing inundation risk to reserve uses and risk to activities, such as boat trailer parking, and the need to ensure uses remain safe. Closed landfill: Archibald Park contains a closed landfill. This is managed under the Closed Landfill Asset Management Plan.		

13.3: Kelston Lynwood

Commencing at and including Tītari / Lynwood Esplanade Reserve and culminating in the east prior to Kanae / Queen Mary Reserve. There is densely vegetated esplanade reserve along the western half of this stretch, with private property boundaries extending to the Whau River for the remainder of the stretch. Coastal structures are limited while private boat ramps and access structures are located within esplanade reserve areas.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation A maintain approach provides for the management of risk to activities and assets (primarily wastewater pipeline and road ends) within coastal reserves. Any future need for hard protection structures is not envisaged as there are limited assets at risk within this section. Existing esplanade reserve is densely vegetated and inaccessible. Under a high climate change scenario, localised realignment of cul-de-sac road ends at Lynwood and Koromiko may be required.		
Implementation Notes - Management of risk through relocation and design is preferred, keeping a natural coastal edge. - The Te Whau Pathway, a shared walking and cycling path, is proposed along this area and is being constructed in sections. Adaptation strategies may need to change in future to facilitate access to and use of this pathway.		

13.4: Kanae / Queen Mary Reserve

This stretch encompasses the small headland promontory that is Kanae / Queen Mary Reserve (historic closed landfill). This is a relatively flat low-lying open grass reserve fronted by dense mangrove vegetation.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation A maintain approach under all climate change scenarios provides for the management of risk to activities and assets including the pump station within proximity to the reserve within Kanae /Queen Mary Avenue, noting that Kanae /Queen Mary Reserve contains a historic closed landfill.		
Implementation Notes Closed landfill: Queen Mary Reserve contains a closed landfill. This is managed under the Closed Landfill Asset Management Plan. Management: Management of risk to assets and parks uses through relocation and design is preferred, allowing for a natural coastal edge. Mangroves provided a natural coastal buffer for areas of this stretch.		

13.5: New Lynn

This stretch commences south of Kanae / Queen Mary Reserve, including the small coastal inlets south to New Lynn (Great North Road), culminating at the boundary with Ken Maunder Reserve.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation Maintain is preferred as there are walkways developed along esplanade reserves upstream of Rata Street that provide connection to New Lynn. A pedestrian bridge also provides an important local connection across the inlet between Kanae / Queen Mary Reserve and Ken Maunder Park. Wastewater infrastructure (wastewater pipe bridge) also traverses this stretch.		
Implementation Notes		

Scenarios for change		
Low	Moderate	High
Maintain provides for the management of risk to activities and assets. In the upper reaches of this stretch, flood hazard risk should be considered alongside coastal hazards and management of risk through relocation and resilient design. This strategy also supports maintenance of key roading connections (Great North Road and Rata Street) within this stretch. - Closed landfills within parts of reserves in this area (Rata Street Esplanade and Rewarewa Esplanade) are subject to management through the Closed Landfill Asset Management Plan. - This stretch includes properties, which following the 2023 storm events, are now categorised as high-risk. Decisions on the future use and management of this land are being dealt with separately under Council's storm-affected land use policy. SAPs, as living documents, will be updated as decisions are made on the land.		

13.6: Ken Maunder Park

This stretch encompasses the entirety of Ken Maunder Park that covers the wide promontory between tidal arms of the upper Whau River that branch towards the south and south east. Ken Maunder Park is a closed landfill that contains multiple Council-owned buildings including Western District Hockey Club, a cricket building, and a toilet/indoor training building. Ken Maunder Park also has multiple sports fields and facilities as well as Ken Maunder Path. This is a highly utilised park, valuable to the local community.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Adaptation priority 
Explanation Maintain recognises that Ken Maunder Park is a highly valued recreational destination with sports fields, club rooms and walkways that connect to Queen Mary Avenue (in the west) forming a section of Te Whau Pathway. The reserve also contains a historic closed landfill.		
Implementation Notes Maintain provides for the management of risk to activities and assets in the low to moderate climate change scenarios, including maintenance and localised realignment of pathways and buildings to manage risk. Consideration of asset relocation and design is preferred for assets within this stretch. This strategy also supports maintenance of key roading connections (Rata Street). Adaptation priority in the high change scenario reflects the changing hazardscape with projected sea-level rise and identifies the need to proactively engage with multiple stakeholders to consider options for the management of risk to uses and assets in coastal locations, specifically access along constrained coastal esplanade areas. Closed landfills (Ken Maunder Park) within this area are subject to management through the Closed Landfill Asset Management Plan. Collaboration with community users with interests in Council landholdings will be required when implementing adaptation strategies.		

13.7: Avondale

This stretch commences at the eastern boundary of Ken Maunder Park and includes the Avondale Stream Catchment (suburb of Avondale) and culminates north where Rata Street becomes Ash Street. The stretch encompasses commercial / industrial areas primarily along the western inlet where there are limited sections of unconnected and undeveloped esplanade reserve. The upper inlet and eastern shoreline is largely residential with significant open space areas at Olympic Park and Mōkihi / Wolverton Esplanade. There is a walkway along near continuous esplanade reserve between Great North Road and Sandy Lane, with the adjacent Avondale Racecourse another notable feature within the stretch.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation		
Maintain is preferred because esplanade reserve and parks along the upper Whau River in the Avondale catchment (Olympic Park, Mōkihi / Wolverton Esplanade, Rizel Reserve) are highly valued by the local community. There are several sites of water infrastructure located within this stretch, and a section of Te Whau pathway.		
Implementation Notes		
• Maintain provides for the management of risk to activities and assets. In upper reaches of this stretch, flood hazard risks should be considered alongside coastal hazards. Management of risk through relocation and design is preferred. This strategy also supports maintenance of key roading connections. • Closed landfills within this area are subject to management through the Closed Landfill Asset Management Plan. • This stretch 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. • Te Whau Pathway, a shared walking and cycling path, is proposed along this area of coastline and is being constructed in sections.		

13.8: Rosebank west

This is a long stretch along the eastern shoreline of Whau River from Ash Street culminating at SH16 to the north of Rosebank Peninsula. The stretch includes Avondale West Reserve and Haukawa / Saunders Reserve and the Rangimatariki / Rosebank Park Domain.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation		

Scenarios for change		
Low	Moderate	High
Maintain reflects the maintenance of coastal access and its importance to local communities. Boat launching access via ramps (Avondale West Reserve and Haukawa / Saunders Reserve) along this stretch are highly valued as there are relatively few suitable public access points for launching small craft into the Whau River due to the estuarine environment. This pathway recognises there are existing coastal protection structures at Saunders Reserve that will require maintenance to ensure ongoing safe access to and use of the ramp. There are valued walkways and a boardwalk connecting Ash Street with Tony Segedin Esplanade Reserve, and Kurt Brehmer Walkway that extends along the industrial fringe south of Saunders Reserve.		
Implementation Notes • Maintain reflects the need to manage risk to assets and uses (noting there are limited boat launching facilities within this stretch that serve the wider community) within various unconnected local coastal reserve areas. These reserves provide coastal access and local park facilities to communities and accommodate community lease uses. • Maintain provides for continued management of the land and uses located within this area as well as the infrastructure which serves these uses, such as wastewater. • Risk to road ends and water infrastructure will also require consideration with increasing inundation and coastal instability in the moderate to high change scenarios. • Social: The West End Rowing Club and Power Sports Association operate from buildings within the stretch. Key private landholdings within this stretch have also identified the need for collaboration in responding to climate change and natural hazards. Collaboration with community users with interests in Council landholdings and private land owners will be required when implementing adaptation strategies.		

13.9: Motu Manawa / Pollen Island/ Traherne Island

This stretch encompasses Motu Manawa / Pollen Island, which is a Biodiversity Focus Area. Motu Manawa / Pollen Island is a 13 ha island with a long shell barrier beach around the seaward side. It includes intertidal mudflats, mangrove scrub, saltmarsh, and shell banks that are utilised by threatened wetland birds, shorebirds and seabirds. There is no Auckland Council-owned land infrastructure or assets within the stretch

Scenarios for change		
Low	Moderate	High
No action 	No action 	No action 
Explanation No action has been selected as the islands are not Auckland Council-owned land. Acknowledging the highly valued ecological environments and features within these areas, the strategy does not preclude advocacy in relation to ecological outcomes.		
Implementation Notes • No action reflects the non-Council ownership. • Community feedback, maintaining and supporting a natural coastal edge. This strategy aligns with community values for this section of the coast.		

13.10: Highway

This stretch includes the northwestern motorway that traverses this unit.

Scenarios for change		
Low	Moderate	High
Protect 	Protect 	Protect 
Explanation The northwestern motorway (SH16) is a critical regional connection to the transport network. Similarly to SH1 within the wider Waitematā west SAP area, protect is reflective of the highly modified coastal areas and key transport connections between the west and the central city area. Protection and maintenance of this modified coastline is anticipated over all climate scenarios. Options to manage risk associated with catchment flooding and coastal flooding under a high climate change scenario will be required in relation to both key transport corridors and local roads, which connect to this causeway.		
Implementation Notes • Management: Recognising the significance of this critical transport asset, localised protect-based measures are likely required for the State Highway, reflected in the approach above. Noting that as this is a Waka Kotahi NZTA asset, ongoing engagement with Waka Kotahi NZTA across all climate change scenarios will be required; noting initial engagement has taken place. • Protect confirms the fixed location of the coast in this area and maintenance of key transport activities, noting that the balance of land and assets are not Auckland Council-owned. • The mangroves and other natural features of this harbour environment (see Stretch 13.9) fringing the rock armoured coastal edge may provide an opportunity for nature-based methods for ‘protection’ by reducing wave energy to areas of this stretch.		

13.11: Rosebank East

The stretch extends south from the northwestern motorway, encompassing industrial and commercial areas which are serviced by Rosebank Road and ends adjacent to Eastdale Road end.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation There is near continuous, although undeveloped esplanade reserve along this stretch. Water infrastructure is generally adequately set back and not impacted by coastal inundation or catchment flooding over any scenarios. The biodiversity focus area of Pollen Island is also located in the harbour / estuarine area adjacent to the stretch.		
Implementation Notes		

Scenarios for change		
Low	Moderate	High
Maintain provides for the management of risk to activities and assets within coastal reserves (and road ends) which provide access to and along the coast. Management of risk through relocation and design is preferred.		

13.12: Avondale - Eastdale

This stretch commences adjacent to Eastdale Road end. It continues for a short length of coast, culminating at the Local Board boundary south of Heron Park. It encompasses residential areas of Avondale and Holly Street Esplanade Reserve fronted by wide intertidal flats infilled with dense mangrove vegetation.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation Coastal connections are highly valued by the community in the area, with boardwalk and pathway connections to Heron Park (and connections to Te Auaunga Oakley Creek Walkway). The sports fields, public amenity buildings and park assets within Eastdale Reserve are located inland with appropriate setback from the coast. Their elevation, above mean high water spring, and the setback location of facilities, results in minimal exposure to predicted erosion, coastal inundation or catchment flooding over any climate scenarios.		
Implementation Notes Maintain provides for the management of risk to activities, walkways and assets within coastal reserves (and road ends) which provide access to and along the coast. Management of risk through relocation and design is preferred, and consideration of naturally occurring coastal vegetation may be advantageous to manage risk.		



Unit 14

Waitematā Harbour West



Mōtū Manawa-Pollen Island Marine Reserve and highly valued ecological and natural values to the local community

North-Western Motorway and cycleway



Howlett Reserve



Waterview Reserve
Highly valued community recreational space in a growing area

Heron Park

Important recreational park and walking trails and connection



Davertry St

Oakley Ave

Alford St

Saxon St

Alverston St

Te Auaunga (Oakley Creek)



Carrington Rd

Heron Park

- Unit boundary
- 14.1 14.2 Stretch
- Informal recreation park
- Auckland Council owned land

0 250m 500m

Unit 14: Waterview

Unit 14 includes the coastal area of the Waterview and is located within the Albert Eden Local Board area. It commences in the south at Heron Park and includes the coastal area north to the SH16 causeway. It has park areas of Heron Park, Fairlands, Howlett and Waterview Reserves. Numerous road ends provide access to the coastal edge and piped water infrastructure traverses the unit servicing the residential land uses. Within the eastern area of the unit is the Te Auaunga Oakley Creek catchment.

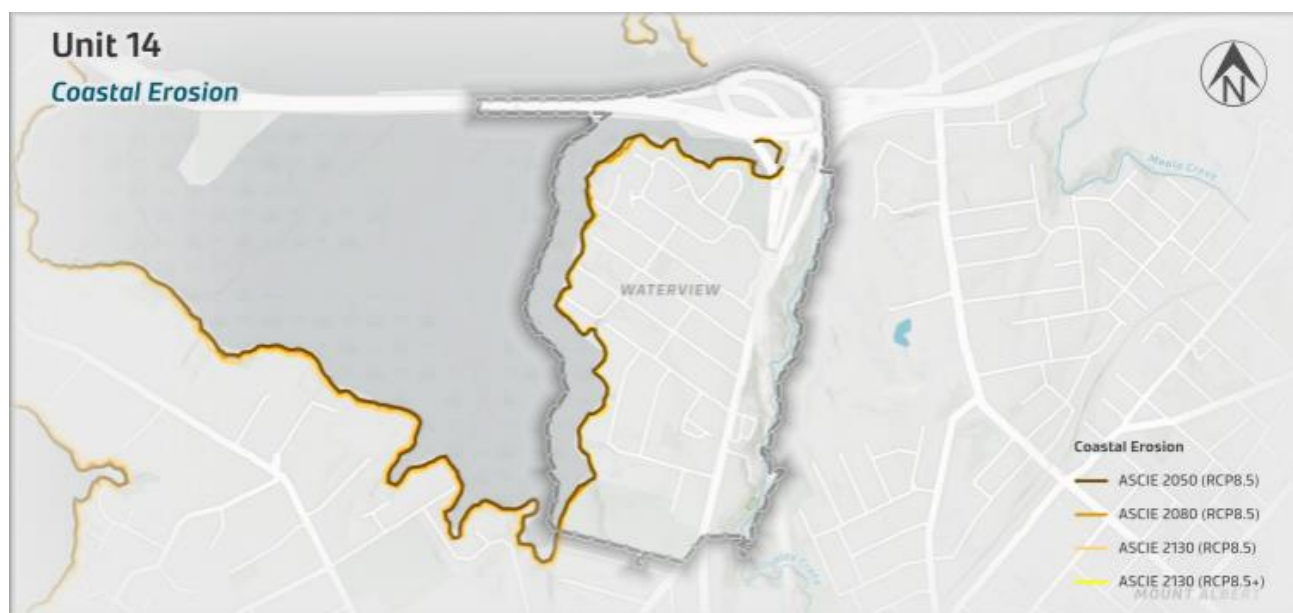
What is happening?

This unit is a very low-energy coastal environment sheltered from the central harbour by the northwestern motorway causeway. The intertidal embayment is infilled with mangroves reflecting the low energy and depositional estuarine environment.

Coastal erosion and instability

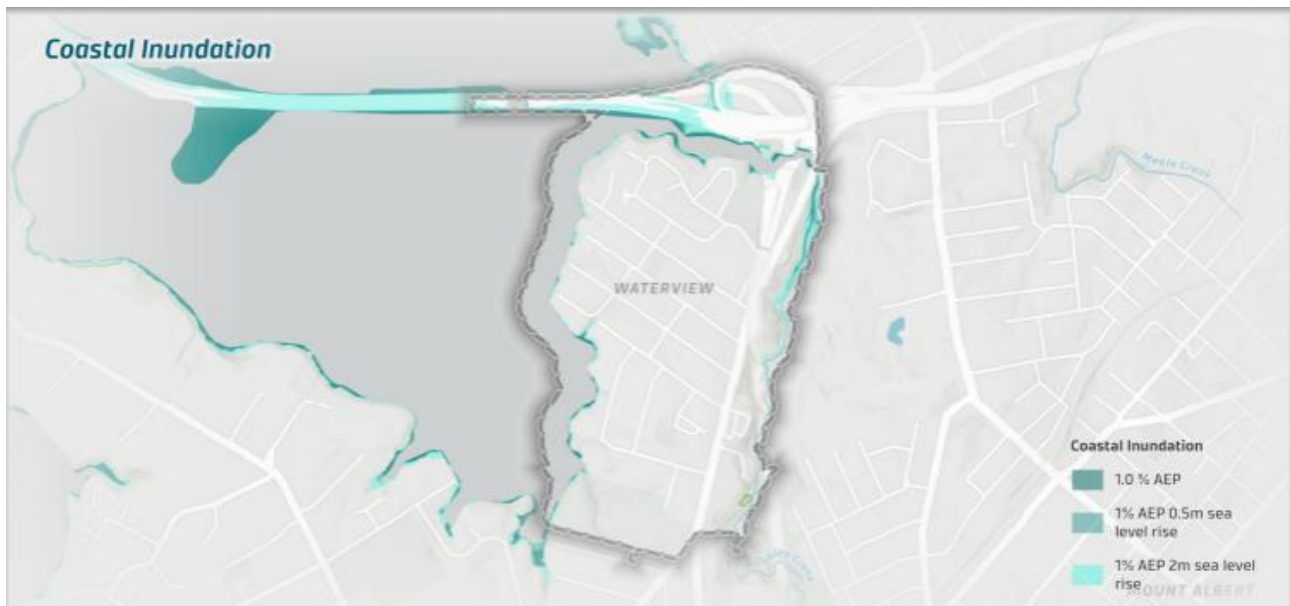
As with other areas of the harbour, there is ongoing low risk to coastal erosion due to weathering of the coastal edge by repetitive wetting and drying.

There are no coastal management structures located along this section of coast and hard structures such as formalised accessways within Heron Park and Howlett Reserve are set back adequately from the coastal edge.



Coastal inundation

Coastal inundation flooding is predicted to impact the fringe of vegetated esplanade reserves along Waterview coastline, and in particular the Te Auaunga Oakley Creek inlet in the northern part of this unit. The natural vegetated margin will be increasingly exposed with future sea-level rise impacting existing low-lying sections of walkways developed along the shoreline (Howlett Reserve).



Flooding

This unit transverses lower reaches of Te Auaunga Oakley Creek. The upstream catchment covers 1,127 ha and is heavily modified; however, there has been extensive native restoration planting in the area immediately surrounding the site. This is a paired water quality and ecology monitoring site.

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 are being dealt with separately under the Council's storm-affected land use policy. SAPs, as living documents, will be updated as decisions are made on the land.





Risk assessment

The risk table represents key groups of assets (e.g. Auckland Council-owned land, buildings, road extents) which are supported by the regionally consistent data set. The risk assessment provides a regionally consistent method for comparing risk to Auckland Council-owned land and assets allowing for identification of areas with highest risk for potential future assessment (e.g. Series 2).

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

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 (31.0 ha) Buildings, wharves (3 No.)			Park amenity structures, carparks, accessways, buildings (0.3 ha)			AT roads (9.1 km) Bridges (2,338.2 m ²)			Water pipes (58.9 km)		
Short	Medium	Long	Short	Medium	Long	Short	Medium	Long	Short	Medium	Long
Coastal erosion and instability susceptibility											
Moderate	Moderate	Moderate	Very low	Very low	Very low	Low	Low	Low	Low	Low	Low
Coastal inundation											
Low	Low	Moderate	Low	Low	Low	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 unit that may be impacted by coastal hazards (inclusive of catchment flooding) over changing climate scenarios.



- **Reserves:** Alverston Street Esplanade Reserve, Fairlands Reserve and Esplanade, Heron Park, Seaside Avenue Esplanade Reserve and Seaside Reserve, Howlett Reserve, Te Auaunga Oakley Creek Walkway, Waterview Reserve.



- Key playground facilities at Waterview playground.



- **Water infrastructure:** Waterbank Crescent Pump Station; water asset networks and pump stations.



- **Key pathway connections:** Heron Park Path; Waterview Heritage Path; Eric Armishaw to Waterview Path; Grey Lynn to Waterview Path; Te Auaunga Oakley Creek Path; Te Atatū to City Path (North – western cycleway).
- **Key regional roading:** Northwestern motorway SH16 connection alongside Te Auaunga Oakley Creek inlet in the north 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: Waitemata Harbour West SAP Area Overview*. Guiding objectives and outcomes which have informed the development of adaptation strategies have been identified in Volume 2, with ongoing engagement with local iwi essential for implementation.



- Waterview Reserve is a popular open space area in the unit, noting that the majority of Auckland Council-owned parks infrastructure within this unit are located here.
- Waterview has a well-connected public transport network, including buses that regularly link to Auckland's central areas. The unit is in close proximity to Great North Road which is a key part of the road network.
- As indicated under walking tracks listed above, this unit has numerous walking paths including the Waterview Heritage Path, a 2.6 km loop path around the coast from Howlett Street Reserve linking up with the Te Atatū to City Path. The north-western cycleway, a 20.5 km path for cyclists and pedestrians, also runs through this unit.



- A section of Te Auaunga Awa/Te Auaunga Oakley Creek is located in this unit. This is the longest urban river within the Auckland isthmus, which is predominately surrounded by planted vegetation, with some areas of regenerating native bush.
- The coastal area surrounding Waterview is predominately covered in mangrove forest (SA1.2) and is included within the boundaries of the Motu Manawa-Pollen Island Marine Reserve. This intertidal habitat is utilised by a variety of avifauna, including seabirds, shorebirds and waders.



Who did we hear from?

- Feedback was received via Social Pinpoint and 'AK Have Your Say' survey. Events local to this area include Pt Chevalier Library drop in, Seddons Fields drop in and Cox's Bay Town Hall style presentation. Critical transport corridors in this unit are managed by NZTA; initial engagement with NZTA has taken place.



Community concerns and experience of hazards

- Respondents expressed concern regarding coastal hazards observed around this unit (i.e. around Howlett Reserve, Waterview Esplanade, Fairlands Reserve, Heron Park and Waterview Reserve on Waterbank Crescent) with restricted access noted (impacts to highly valued walkways –Te Auaunga Oakley Creek, Howlett Reserve pathway)
- Community concern was expressed over mangrove expansion in certain areas, noting the perception that this is progressively limiting public access to waterways.
- Accumulation of sediment around coastal inlets and spaces restricting harbour access. Community feedback highlighted a strong concern for pollution of the coastal environment from runoff post storm events, reducing water quality and biodiversity.

- Concern that archaeological sites (e.g. within the Waterview Heritage area near Waterview Reserve) may be at risk from sea-level rise under a moderate to high climate change scenario.

**What matters most? Community values**

- Kayaking and/or paddle boarding in the harbour; access from Eric Arimshaw Reserve.
- Value of natural landscapes and waterways.
- Coastal walkways and connections, dog walking along the coast. Coastal environments are valued for their natural landscapes and sense of connection to the coast.

**What can we do about it? Community feedback and aspirations**

- Advocating for the cleanup of the stream and mangrove areas at Heron Park to enhance ecological health, with a note that restoring these habitats could significantly increase the presence of bird and marine life that rely on the nutrient-rich mudflats and waterways.
- Supporting and preserving natural habitats which add value to the coastal environment.
- Need for a more holistic approach to catchment management – factoring in the impact of stormwater runoff at the coastal margin, upper catchment management contributing to downstream impacts at the coastal edge.
- Community feedback supported previous initiatives resulting in the daylighting of Te Auaunga Oakley Creek and expressed aspirations for further daylighting and restoring the health of other waterways within the catchment. This community feedback responds to flood hazard risk and supporting environmental outcomes.
- Support the reinstatement and ongoing maintenance of walkways throughout the area, with consideration for relocating walkways/ connections further inland (where possible) to mitigate risks associated with future flooding events.

What can we do about it? Adaptation strategies for Unit 14



14.1: Waterview West

This stretch commences at the southern boundary of Heron Park and extends north to the edge of Howlett Reserve. Heron Park and Fairlands Reserve and several unconnected areas of esplanade reserve are located within this area. Key walking connections traverse this stretch including Heron Park Path (Loop Track) which connects to the pathway (and boardwalk) providing a connection to

the Holly Street Esplanade in the east (within unit 13). Additionally, the Te Auaunga Oakley Creek Path commences at Heron Park and continues toward Waterview.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation Maintain is preferred as this stretch includes relatively sheltered areas of coastal margin. Maintain provides for the management of risk to Council land and assets within coastal reserve areas (Heron Park & Fairlands) and the maintenance of access to the coast including road ends which culminate at the coast. Maintain is applicable to Council land and assets only and is not applicable to privately owned land. Management of risk through design and location of assets is preferred.		
Implementation Notes Maintain reflects the current ability to accommodate existing uses and assets with limited present day coastal hazard risk across the low to moderate change scenario. Maintain in the high change scenario responds to the erosional and increasing inundation risk and includes providing limited protection or redesign of walkways should they be exposed in the future. Opportunities to enhance the park's natural attributes and site's cultural significance are important future considerations. Management: The management plan for Heron Park identifies the opportunity for the park to form part of a green corridor in future, and to extend along to Te Auaunga Oakley Creek. It includes other management objectives of protecting and enhancing the park's natural attributes while providing informal recreation facilities, in addition to protecting sites of cultural heritage significance. When implementing a maintain approach, opportunities to contribute to these management objectives should be considered, particularly with regards to protecting sites of cultural significance and considering potential opportunities to connect Heron Park through to Te Auaunga Oakley Creek.		

14.2: Waterview North

This stretch includes all of Howlett Reserve, and the coastal areas to the east including Waterview Reserve. Howlett Reserve is accessible from multiple entry points at the northern end of the Waterview Community and is a popular walking attraction as the Waterview Heritage Path traverses through it, with further connections north and south.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Adaptation Priority 
Explanation Maintain was selected as there are key Council assets within this stretch including Waterview Heritage Path, a significant/popular public accessway that follows the coastline and connects with other walkways in the north (Eric Armishaw pathways) and south (Te Auaunga Oakley Creek walkway). Water infrastructure (Waterbank Crescent pump		

Scenarios for change		
Low	Moderate	High
station) also requires ongoing maintenance to ensure functionality over climate change scenarios. Under the high change scenario, adaptation priority signals the need for proactive planning.		
Implementation Notes		
• Maintain supports management of risk to park uses and assets, including coastal connections where erosion trends along elevated sections, and inundation risk along lower-lying sections is projected to increase in the moderate to high change scenario. This approach aligns with community values and aspirations for this stretch (i.e. maintaining Howlett Reserve Pathway). • Maintain reflects the need to maintain the path in response to increasing erosion risk over time. • Adaptation priority proactivity identifies that in the high change scenario with sea-level rise and increased erosional trends, further planning to manage risk is signalled to ensure that engagement and exploration of adaptation options can be undertaken.		

14.3: Te Auaunga Oakley Creek

This stretch includes the Te Auaunga Oakley Creek catchment. While this stretch is set back from the coast, this stretch represents the significant community and local board feedback in relation to the management of catchment flood risk associated with Te Auaunga Oakley Creek and the interface between catchment flooding and coastal processes including sea-level rise.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation		
Significant change and modification of this catchment has taken place over many decades and in recent years management and restoration has been carried out in the Te Auaunga Oakley Creek and Waterview area to manage and restore the highly valued Te Auaunga Oakley Creek catchment. Community and local board engagement has outlined high degree of interest in how Te Auaunga Oakley Creek Catchment functions and floods in storm events. Management and restoration of this catchment is subject to multiple actions and aspirations, including voluntary work by Ngā Ringa o Te Auaunga Friends of Te Auaunga Oakley Creek. And is subject to strategic planning including the Te Auaunga Awa (Oakley Creek) He Rautaki Puna Ora o Te Auaunga Vision and Restoration Strategy for the Upper Catchment (Long Term Strategy to 2040 and Implementation Plan 2016-2019 June 2016)		
Implementation Notes		
• Maintain responds to and acknowledges the work being undertaken for this catchment. Maintain also reflects the maintenance and upkeep of paths and walkways including Waterview Heritage Path, Te Auaunga Oakley Creek Walkway, Te Auaunga Oakley Creek Path and the North-Western Path in response to catchment flooding and the impact that climate change and sea-level rise may have on this catchment. • Maintain also supports the management of risk to key transport connections located within this stretch (Auckland Transport). • Collaboration: Engagement with NZTA in implementation will be required.		

14.4: Waterview Reserve North (& transport connections)

This stretch starts on the southern side of the SH16 and extends around the rock revetment armoured bridge abutment of the north western motorway. It includes the causeway and north western cycleway, and an area of Council-owned reserve (Waterview Reserve) adjacent to the motorway.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation This stretch includes highly modified coastal areas and key transport connections between the central city area and west Auckland, including shared infrastructure providing for bus and cycleways alongside the State Highway (Waka Kotahi NZTA asset). Protection and maintenance of this modified coastline and key infrastructure is anticipated over all climate scenarios. Options to manage risk associated with catchment flooding and coastal flooding under high climate change scenarios will be required in relation to both key transport corridors.		
Implementation Notes • Maintain provides for the management of risk to walkway assets within Waterview Reserve through (landward) location and design. This supports the continued maintenance of existing assets and uses located within this coastal stretch. The use of hard protection structures to manage risk to the reserve is not envisaged, with maintain supporting a naturalised coastal edge. • Maintain also supports key transport connections located within this stretch. • Management context: Recognising the significance of this critical transport asset, localised protect-based measures are likely to be required for the State Highway. Noting that as this is a Waka Kotahi NZTA asset, ongoing engagement with Waka Kotahi NZTA across all climate change scenarios will be required; noting initial engagement has taken place. Management of impacts from catchment flooding (as experienced in 2023) will require further consideration to manage risk to acceptable level of service. Engagement with key infrastructure providers, and third-party asset owners will be required to consider the function of key national transport connections in this stretch.		



Unit 15

Waitematā Harbour West



The Point Chevalier Path connects the Harbour View Reserve to Coyle Park and is popular for cycling and walking.



Point Chevalier Beach



Raymond Reserve

Highly valued coastal connections and landscapes, with access to the water & and a sense of connection to the coast. Community feedback expressed a need for prioritising harbour access and improving water quality for a range of recreational land and water based activities. Pt Chev Sailing Club operates from Raymond Reserve



Eric Armishaw Park



This unit features a highly significant biodiversity focus area (Pollen Island BFA) which includes intertidal mudflats, mangroves, saltmarsh and shell barrier banks, an ecosystem recognized as highly valuable habitat for both wetland birds and shorebirds.

Coyle Park

Coyle Park is valued by residents and visitors alike for its panoramic views of the Waitematā Harbour, dog friendly open spaces and versatility of community facilities. Acknowledgment of cultural landscapes around Coyle Park were identified in community feedback.

Importantly this park is used as a venue for Auckland's Pride Festival, "Big Gay Out", making it a highly valued space for the LGBTQ community

Point Chevalier Sailing Club

Selwyn Village

Walker Park

Meola Creek – Community aspiration for daylighting

Pasadena Reserve

Western Springs Park

Premier Reserve

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

0 250m 500m

Unit 15: Point Chevalier

Unit 15 is located within the Albert Eden Local Board area. The unit commences in the west at Eric Armishaw Park north of SH16, including Point Chevalier Peninsular culminating to the west of Meola Reef and Meola Road. This unit includes highly utilised beaches and coastal parks including Point Chevalier Beach, Raymond Reserve, Coyle Park and Eric Armishaw Reserve. The area is traversed by key roading connections and water infrastructure, and also includes a large area of privately-owned coastline with limited public coastal access.

What is happening?

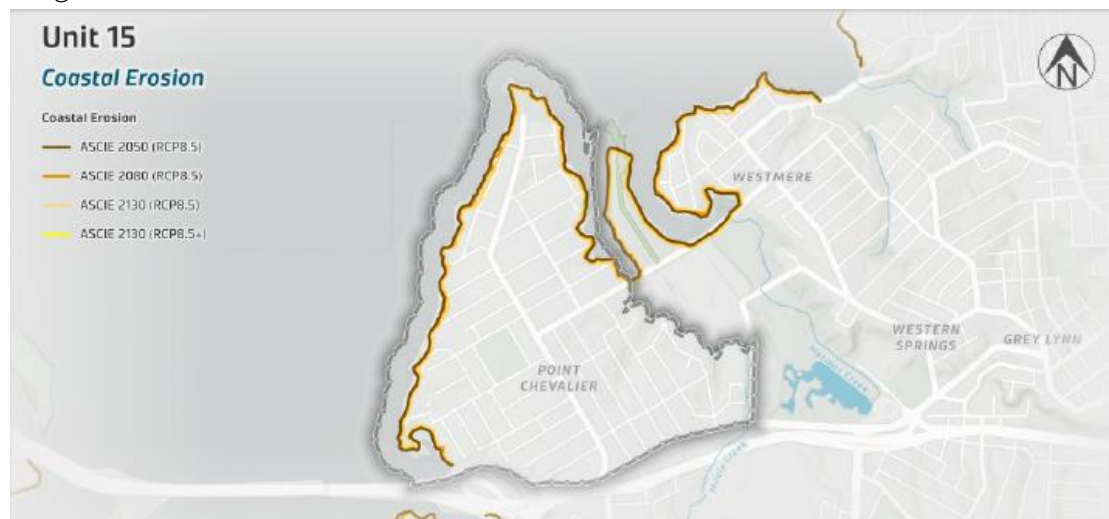
The eastern shoreline of Point Chevalier Peninsula is a sheltered low energy coastal environment. facing Waititiko Meola Creek. The low, vegetated cliff shoreline is fringed with mangroves and fronted by muddy intertidal flats. There are short sections of disconnected road reserve along this shoreline and few developed Auckland Council assets.

The western shoreline from the Point Chevalier headland down to Te Auaunga Oakley Creek entrance is relatively more exposed than the Waititiko Meola Creek shoreline on the opposite side of the peninsula. The limited fetch of only 7 km from the southwest through to the north, and the shallow water depths, restrict wind-wave propagation and the shoreline is exposed to low fetch-limited waves. Point Chevalier Beach is a sandy pocket beach contained between two cliff headlands, fronted by firm muddy intertidal flats overlying a Waitematā sandstone reef extending for much of the mid to low-tide mark.

The southern coastline is typical of the inner Waitematā Harbour with sections of exposed bedrock and vegetated soft cliffs that reduce in height towards Te Auaunga Oakley Creek and transition to a low-lying sand/shell spit and mangrove infilled low-lying saltmarsh at the head of the small embayment.

Coastal erosion and instability

Similar to other areas of sandstone cliff around the Waitematā Harbour, the cliffs within this unit are subject to slow ongoing weathering and erosion. Episodic failures or slips have occurred at Coyle Park during the 2023 storm event. The cul-de-sac road ends at Johnstone Street, Oliver Street, Dignan



Street, Newell Street and Wainui Avenue. Wainui Avenue wastewater pumping station may be impacted in high climate change scenario.

Coastal management approaches in this unit include seawalls armouring the reserve edges, and beach renourishment with imported sand to build a more natural buffer at Point Chevalier Beach. Some of the key features are as follows:

Eric Armishaw Reserve has a wide flat grass reserve that is popular with kite surfers. The coastal edge of the reserve is armouring with two masonry seawalls with short length of concrete aggregate and timber half rounds



Eric Armishaw Reserve armouring with masonry seawalls (Source: Auckland Council)

Raymond Reserve is armouring by rock rip rap seawalls that incorporate two boat launching ramps



Rock revetment adjacent to the southern boat ramp at Raymond Reserve (Source: Auckland Council)

Point Chevalier Beach was extensively modified in the late 1940s with a full-length seawall extending along the main beach. The beach was renourished with imported sand in 2008, and sand redistributed along the beach in 2010 to build a natural buffer along the



reserve edge in front of the backstop seawall.

Point Chevalier Beach Rock revetment seawall, Spinnaker Strand (Source: Auckland Council)

Small road-end reserves on the eastern shoreline of Point Chevalier Peninsula are armoured at the end of Oliver Street and Johnstone Street.



Johnstone Road Reserve seawall and steps (Source: Auckland Council)

Coastal inundation

Coastal inundation is predicted to impact the fringe of esplanade reserves along the Point Chevalier shoreline. The area at greatest risk to coastal inundation flooding in this unit is the low-lying land at Eric Armishaw Reserve.

East of Coyle Park, the shoreline fronting Waititiko Meola Creek will be increasingly exposed with future sea-level rise impacting small road end reserves. Coastal flooding inundation with a 1 m sea-level rise is predicted to impact the lower grass road reserve at end of Johnstone Street utilised for small boat landing. The wastewater pumping station at Oliver Street is elevated above the predicted extent of inundation with 1 m sea-level rise.



Flooding

Flooding in this unit is predominantly isolated to overland paths traversing the coastal margin, noting the catchment flooding is predominantly further inland, as shown in the figure above. Whilst its reaches extend beyond the confines of this catchment, it is worth noting that Melo Creek floods multiple times a year, impacting land uses, public spaces and walkways within and beyond this unit.



Risk assessment

The risk table represents key groups of assets (e.g. Auckland Council-owned land, buildings, road extents) which are supported by the regionally consistent data set. The risk assessment provides a regionally consistent method for comparing risk to Auckland Council-owned land and assets allowing for identification of areas with highest risk for potential future assessment (e.g. Series 2).

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

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 (23.8 ha) Buildings, wharves (18 No.)			Park amenity structures, carparks, accessways, buildings (1.3 ha)			AT roads (22.7 km) Bridges (30.8 m ²)			Water pipes (117.9 km)			
Short	Medium	Long	Short	Medium	Long	Short	Medium	Long	Short	Medium	Long	
Coastal erosion and instability susceptibility												
Moderate	Moderate	Moderate	High	High	High	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	
Coastal inundation												
Moderate	Moderate	Moderate	High	High	High	Low	Low	Low	Low	Low	Low	
Key												
Very Low		Low		Moderate		High		Very High				

What matters most



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



- There are several large well-developed coastal parks and esplanade reserves within this unit (Eric Armishaw Park, Raymond Reserve, Harbourview Reserve (Point Chevalier Beach), Coyle Park).



- Park amenities including playgrounds, carparks, walking trails and buildings at Eric Armishaw Reserve, Raymond Reserve and Coyle Park.
- Point Chevalier Sailing Club building (community lease) at Raymond Reserve.



- **Wastewater:** There are multiple pump stations located in proximity to the coastal edge (Walker Road 1 PS; PS 11 Wright Road; PS 10 Harbour View Road; Joan Street PS; PS 12 Wainui Avenue; PS 5 Oliver Road)



- **Key walking tracks:** Two walking paths including Eric Armishaw Waterview Path which links up to the south with the Te Atatū to City Path and Waterview in Unit 14; and Point Chevalier Path along the coast of Harbour View Reserve looping around to Coyle Park



- **Harbour access:** Boat launching facilities at Raymond Reserve and Eric Armishaw Park; coastal access points along eastern shoreline at road ends (Johnstone and Oliver Streets)

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.



- Sites and places of significance to mana whenua within Coyle Park include: Te Tokaroa headland (Meola Reef Reserve) and Te Ara Whakapekapeka a Ruarangi (Rock outcrop); Rangimatarau (Wahi Tapu). These sites have been identified via the Auckland Unitary Plan CHI (Cultural Heritage Inventory).
- Specific cultural values and outcomes for this unit will be developed through ongoing involvement with local iwi identified in *Volume 2: Waitemata Harbour West SAP Area Overview*. Guiding objectives and outcomes which have informed the development of adaptation strategies have been identified in Volume 2, with ongoing engagement with local iwi essential for implementation.



- Coyle Park is a popular open space with open grassed spaces and mature trees. Facilities at the park include a playground, public toilets and several paths that lead down to the beach and provide access to the coast
- Raymond Reserve and Harbour View Reserve also provide public access to the coast. Beaches and bays in the unit are used for recreational activities such as swimming and picnicking along the esplanade of the afore-mentioned reserves.
- Eric Armishaw Reserve is a popular recreational destination for kite surfers and wing foilers.



- A chenier-type shell bank located adjacent to Eric Armishaw Reserve is surrounded by intact mangrove shrub and saltmarsh is an SEA.
- The southern area of shellbank, intertidal mudflats and mangroves is part of the wider Pollen Island Biodiversity Focus Area, that is recognised as highly valuable habitat and a feeding area for large numbers of wetland and shorebirds including several threatened species, including mātātā/fernbird. The ecosystem objective is to manage critical pressures to restore and maintain their long term viability over the next 50 years.
- Patches of coastal broadleaved forest dominated by pōhutukawa are also throughout the parks and reserves which border the coastline (Harbour View Reserve, Coyle Park).



Who did we hear from?

- Feedback was received via Social Pinpoint and 'AK Have Your Say' survey. Events local to this area include the Pt Chevalier Library drop in, Seddons Fields drop in and Cox's Bay Town Hall style presentation. Additionally, acknowledging their connection to the coast, Pt Chevalier Sailing Club representatives provided submission/ feedback in response to management approaches for Unit 15. St Lukes Environmental Protection Society also expressed an interest in management approaches for this unit.



What is happening?

- Community feedback indicated a high level of concern regarding erosion, coastal accretion, sediment and silt build-up and slips. This has been noted by communities as impacting the usability and function of key coastal walkways. Key areas commented on include but are not limited to: Eric Armishaw Reserve, Pt Chev Beach, Coyle Park.
- Pollution and runoff into the coastal environment was raised as a primary concern, impacting the usability of coastal areas for swimming and harbour access.
- Muddying, sedimentation affecting water quality, reducing opportunities to use the bay, and reducing fish and birdlife. Concern about sediment increase and increase in mangrove cover has been specifically noted in the channel between eastern streets and Meola Reserve, with mangroves noted as impacted the usability of boat ramps in some places (i.e. Oliver Street boat ramp).
- Management (or a need for management) of tree canopy was observed to be contributing to coastal erosion and cliff instability.
- Concern over low-lying road connections and exposure to coastal hazards.
- An observation that heavy rainfall has eroded the channel in multiple locations and has led to increased pollution due to periodic overflows at the pumping stations.



Key community uses and values included:

- Pt. Chevalier Beach, Coyle Park, Raymond Street Reserve, Eric Armishaw Reserve, and Oliver Street Reserve were amongst the most commented on coastal spaces within this unit, highly valued for their access to the coast via boat ramps, dog walking friendly spaces, swimming, walking connections and connections to the coast.
- Coyle Park is noted as an important landmark in the Pride Community, hosting Auckland's Big Gay Out.

**What can we do about it? Community feedback and aspirations**

- Ongoing beach nourishment/ sand top ups at Point Chevalier Beach to maintain the aesthetics and functionality of this sandy beach. Some respondents also expressed an aspiration for beach nourishment at Eric Armishaw Reserve (aspirations for a sandy beach).
- Advocacy for protecting coastal parks from erosion (Coyle Park). A suggestion to support additional coastal plantings and tree protection to help fortify the coastal edge has been noted.
- Supporting natural ecosystems and biodiversity, with shorebird habitats highly valued by the local community.
- Pt Chevalier Sailing Club representatives strongly advocated for tree canopy management at Raymond Reserve to ensure ongoing provision of open spaces, along with the creation of additional area(s) at Raymond Reserve for watersports (advocacy for a concrete beamed footpath/ additional protection where the windsurfers rig up).
- St Lukes Environmental Protection Society expressed a clear interest in daylighting of streams within and beyond this catchment (unit) to help mitigate the downstream impacts of catchment flooding, while improving water quality and as a result improving natural ecosystems and biodiversity in the area.

What can we do about it? Adaptation strategies for Unit 15



15.1: Eric Armishaw Reserve

Commencing north of the north western motorway (SH16) and culminating adjacent to St. Michaels Road end. A path connects Eric Armishaw Reserve to Waterview Reserve. A BFA and a SEA is adjacent to the park.

Scenarios for change			
Low	Moderate		High
Maintain 	Adaptation priority 	Adaptation priority 	
Explanation Maintain is the preferred pathway as Eric Armishaw Reserve is popular with families and groups due to having a large accessible playground, open space, a toilet building and boat ramp and the area is popular for wind and kite surfing. There is water infrastructure (wastewater and a stormwater pump station) within the park that will require ongoing maintenance and adaptation/upgrades for continued functionality in moderate to high climate change scenarios. An adaptation priority approach is identified to allow for the values of highly utilised coastal areas around Point Chevalier to be maintained and risk appropriately managed. It also signals the importance of adjacent high value ecological areas (SEA and wider Pollen Island BFA) and consideration of how impacts of coastal squeeze can be avoided on transitional habitats.			
Implementation Notes • Maintain in the low change scenario reflects current structural interventions for management of hazard risk, through seawall structures, and the design and location of parks assets and uses. • In the moderate to high change scenario, projected sea-level rise will require the consideration of proactive management of uses and assets that can be accommodated within the limited and popular coastal spaces. • Cultural: This coastal stretch and wider coastal landscape is of high cultural significance to local iwi. Ongoing engagement with local iwi identified in Volume 2 will be required to further understand the cultural values associated with this site and how this may impact adaptation strategies.			

15.2: St Michaels to Raymond

This stretch commences adjacent to St Michaels Road end and extends north to Raymond Road end, encompassing residential areas of Selwyn Village / Point Chevalier.

Scenarios for change			
Low	Moderate		High
No action 	No action 	No action 	
Explanation No action was chosen as the length of shoreline predominantly comprises private residential properties, and there is only one Council asset (wastewater pump station) in this stretch.			
Implementation Notes • No action is identified due to an absence of Auckland Council-owned land and assets within this stretch. • This does not preclude the potential need for targeted maintenance or localised relocation of the pump station at Wright Road in response to erosion risk.			

15.3: Raymond Reserve

This stretch commences at Raymonds Road end and includes the entirety of Raymond Reserve, culminating north of the reserve area.

Scenarios for change		
Low	Moderate	High
Protect 	Protect 	Protect 
Explanation This reserve is highly valued and used for informal recreation and sailing activities, and is identified as a key harbour access point. Point Chevalier Sailing Club is located in Raymond Reserve, along with a boat ramp, boat and car parking and there are associated park amenities. The reserve is a highly modified coastal area with large, concreted areas, and the coastal edge is protected with a rock revetment.		
Implementation Notes • Protect confirms the armoured nature of the coastal edge at this location and the use of this stretch for boat launching and harbour access. A protect approach allows for continued defence of Raymond Reserve through coastal protection structures, such that this reserve can continue to be used for boating activities. Under a moderate to high climate change scenario, a protect approach continues to support the management of risk in relation to coastal erosion and reflects the need to consider the location and design of uses within this stretch in response to increase inundation risk. • The efficacy of coastal protection structures at Raymond Reserve may require reassessment in the high change scenario when inundation risk increases, e.g. this includes Point Chevalier Sailing Club and carparking at Raymond Reserve. If existing coastal protection structures are upgraded in the future, consideration of modifications along the landward edge to resilience to wave overtopping scour could also be considered, reflecting community aspirations and land use. • Social: Raymond Reserve is also home to the Pt Chevalier Sailing Club, which has been supporting water-based activities (sports) since the 1920s. Acknowledging the connection that this organisation has to the coast, initial engagement has been undertaken to help inform management approaches for this unit. Ongoing engagement is recommended to understand how implementation of adaptation strategies may impact the operation of these facilities, and how impacts could be managed.		

15.4: Harbour View Road South

This stretch is between the northern end of Raymond Reserve and the southern end of Harbour View Reserve. There is no esplanade reserve along this coastal margin with private properties extending to the coastal edge.

Scenarios for change		
Low	Moderate	High
No action 	No action 	No action 
Explanation No action reflects that this length of shoreline comprises private residential properties, and there is only one Council asset (wastewater pump station).		
Implementation Notes No action is identified due to an absence of Auckland Council-owned land and assets within this stretch. Noting that this does not preclude the management of risk to piped infrastructure within this stretch.		

15.5: Point Chevalier Beach

Commencing in the south at Harbour View Reserve and including the entire reserve beachfront area extending north to cliffs at Coyle Park. Pōhutukawa and other trees provide significant vegetation cover to the adjacent reserve and along the coastal edge.

Scenarios for change		
Low	Moderate	High
Protect 	Protect 	Protect 
Explanation Harbourview Reserve provides highly valued access to the beach and is a popular and well-used recreational destination for the local and wider community with multiple picnic tables, bench seats and a swimming pontoon. Pt Chevalier Path connects Harbour View Reserve to Coyle Park and is popular for cycling and walking. The coastal edge is protected by stone masonry seawalls, and there has been previous nature-based coastal management including beach nourishment with imported sand to build a natural beach buffer fronting the reserve area.		
Implementation Notes Protect refers to the maintenance of the coastal edge along the beach front area (noting this does not apply to privately-owned land to the north of the beach). Maintaining existing coastal defences in this location recognises that Point Chevalier Beach is a highly valued and well-used destination for the local and wider community. - In the high change scenario, sea-level rise may impact public access to the beach. The design and location of access may require further consideration. Cultural: As identified via the Auckland Unitary Plan (CHI) Cultural Heritage Inventory, north of Harbour View Reserve is a site of significance to local iwi, with a Māori Heritage Area – wāhi tapu. Ongoing engagement with local iwi identified in Volume 2 will be required to further understand the cultural values associated with this site and how this may impact adaptation strategies.		

15.6: Coyle Park

This stretch commences at the end of Point Chevalier Beach and includes Coyle Park headland, culminating on the eastern side of the peninsula at Bangor Street and the reserve boundary. There are important beach access points within this stretch, allowing access down the cliff to Point Chevalier Beach and down to the rock platform at the Point.

Scenarios for change					
Low		Moderate		High	
Maintain		Adaptation priority		Adaptation priority	
Explanation					
Maintain was selected as Coyle Park and Point Chevalier are highly valued spaces for the local community with walkway connections and the park is a popular destination with numerous recreational park assets (playground, basketball court, public toilet/changing room) that is also well connected to the wider community via public transport with an adjacent bus stop. Management of risk using further protection structures should be minimised with adaptation priority reflecting a strong emphasis on nature-based solutions that provide space for habitats to shift alongside more active protection of the highly valued facilities and uses.					
Implementation Notes					
• Maintain provides for the management of risk through design and location of activities within the landholdings, this includes potential localised realignment of cliff top fencing, sections of Point Chevalier Path and the carpark at Point Chevalier Beach to reduce risk. • There is opportunity for proactive consideration of the impacts of coastal hazards on ecological systems and cultural values. Implementation of adaptation priority should consider options to mitigate coastal squeeze. • Cultural: As identified via the Auckland Unitary Plan CHI (Cultural Heritage Inventory), this stretch includes multiple sites of significance to local iwi - Te Tokaroa headland (Meola Reef Reserve) and Te Ara Whakapekapeka a Ruarangi. Ongoing engagement with local iwi identified in Volume 2 will be required to further understand the cultural values associated with this site and how this may impact adaptation strategies. • Community: As reflected in community feedback for this unit, Coyle Park is highly valued by the local community. Ongoing collaboration with local community groups under a moderate to high climate change scenario is likely required to ensure that management approaches under adaptation priority align with community values and use of this coastal park.					

15.7: Waititiko Meola Creek West

This stretch commences south of Coyle Park and includes the coastal areas along the eastern side of the Point Chevalier Peninsula to the unit end at Meola Road. There is limited esplanade reserve within this stretch, however several road ends provide access to the Waititiko Meola Creek shoreline.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation		
Maintain brings specific reference to the road end access points to Waititiko Meola Creek and maintenance of small boat launching access ramps and wastewater pumping stations.		
Implementation Notes		
• Maintain is identified for Auckland Council-owned land and access points at road ends including the management of risk to piped infrastructure or road ends in relation to coastal hazard impacts, including Johnstone, Oliver, Dignan, Newell, and Wainui Road ends. • Social: Interventions (if any) relating to road ends from the long term will require engagement with Auckland Transport as manager of these assets, and local communities, to understand how adaptation strategies may impact on operation of the roads.		



Unit 16

Waitematā Harbour West



Cocks Bay Reserve



Herne Bay Beach



Wairangi St Jetty

Marine Parade Beach

Bella Vista Reserve

Rawene Ave coastal connections

Rawene Reserve

Seddon Fields

Coyle Park

Meola Reef Reserve / Te Tokaroa



Crenmore Rd Reserve Access

Jervois Rd

Garret Rd

Hawke Sea Scout Group

Auckland Zoo

Western Springs Park

Great North Rd

16

Saint Lukes Rd

Home Bay Beach Reserve

Shelly Beach Rd

Masefield Beach Reserve

Hamilton Beach Reserve

Victoria Park

Highly valued coastal connections.

Sentinel Rd Beach

Western

West End Rd

Westmere Park

Coastal Connections

Lemington Rd

Westmere

West End Rd

Fife St

Warnock St

Dorset St

Chester Ave

Warwick Ave

Garner Rd

Larchwood Ave

Wellpark Ave

Seddon Fields Sports Grounds

Jaggers Bush Reserve

Meola Rd

Western Springs College

Pasadena Reserve

Sir Keith Park Memorial Airfield

Walmer Rd

Moa Rd

Tui St

Meola Creek/ Waititiko

Auckland Zoo

Motions Creek/ Waiorea

Western Springs Lakeside Park

Unit boundary

16.1 16.2 Stretch

Informal recreation park

Auckland Council owned land

0 0.5km 1km

Unit 16: Westmere & Herne Bay

Unit 16 is located within the Waitematā Local Board area. The unit commences in the west at Meola Road including the coastal areas of the Meola Reef and the coastal areas of Westmere and Herne Bay, culminating at the Harbour Bridge in the east. The unit includes the catchments of Waitītiko Meola Creek and Motions Creek / Waiorea, Opoutukeha Cox's Creek and Edgar's Creek and coastal embayments of Cox's Bay, Home Bay and Herne Bay.

Auckland Council landholdings and interest include Te Tokaroa Meola Reserve, Auckland Zoo and landward areas of Western Springs Park and Seddon Fields.

Coastal reserves at Cox's Bay and smaller local reserves Bella Vista Reserve, Marine Parade Beach, Herne Bay Beach, Cremorne Road Reserve, Wairangi Road Reserve (and wharf), Home Bay Beach Reserve, Sentinel Road Reserve and Hamilton Beach Reserve provide coastal access to the harbour.

The unit is traversed by roading connections with many road ends culminating at the coast within residential areas. Water infrastructure also traverses coastal areas and several Auckland Council-managed closed landfill assets are located within the wider unit area. Mature vegetation lines generally steeper coastal edges, largely in private ownership, and multiple cultural and historic heritage sites are recorded in proximity to the coastal edge.

What is happening?

Meola Reef is a significant feature in this unit, formed from basalt lava flowing in a northerly direction into the Waitematā Harbour from the Three Kings chain of volcanoes. Waitītiko Meola Creek and Motions Creek/Waiorea discharge to the harbour either side of Meola Reef. The tidal creeks and Cox's Bay embayment are more sheltered with wider intertidal flats fringed with mangroves reflecting the lower energy environment.

There are several small beaches along the indented cliff shoreline at Herne Bay. Due to the inner harbour location, the shoreline in this unit is generally considered to be a relatively low energy environment, exposed to locally generated wind waves from the north through west that impact on the toe of the cliff and weathered shore platform.

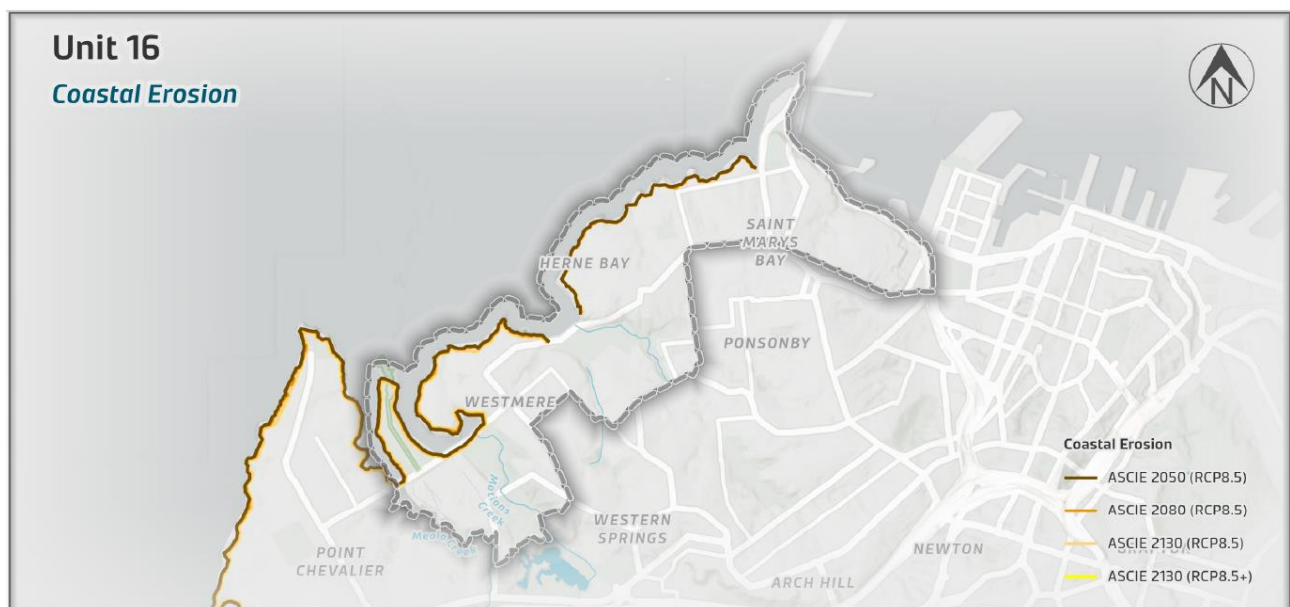
Coastal inundation

Coastal inundation flooding has the greatest predicted impact on low-lying land adjacent to Cox's Creek, Meola Creek / Waitītiko and Motions Creek / Waiorea and the coastal walkways of Weona Reserve & walkway.



Coastal erosion and instability

The coastal cliff margin is generally well vegetated with mature pōhutukawa. The Waitematā sandstone cliffs are subject to slow, ongoing weathering and erosion, and occasional episodic failures or slips.



There are multiple existing coastal protection structures along this section of coastline, some of the key features are as follows:

Meola Reef Reserve is an historic closed landfill with poorly engineered rock armouring around the entire perimeter, and the tidal inlets are fringed with mangroves. The reserve was first developed on the site after the landfill operation closed in 1976.

Extensive modification and reclamation of the upper reaches of Motions Creek was undertaken in the 1950s with the construction of Meola Road while Sports fields at Seddon Reserve are located on an historic closed landfill fill site.

Image right: Westmere - Map 26: Tip site, Proposed road connection with Meola Road, Phelan Street, Garnet Road, West End Road, Motion's Creek. Source: Whites Aviation Collection, Alexander Turnbull Library, acknowledgment Auckland Libraries Heritage Collections 580-ALB22-026



Weona walkway connects Weona Reserve with Lemington Reserve, approximately 1.2 km length of combined path and boardwalk. The walkway was closed after slips occurred at 5 locations in January 2023 that displaced the timber boardwalk into Motions Creek and resulted in a significant amount of debris on the path.

Extensive modification and reclamation was also undertaken in the upper reaches of Cox's Bay, with an historic closed landfill at Cox's Bay Reserve.



Sloped masonry seawall armoured West End Road, Cox's Bay (Source: Auckland Council)

West End Road and Rawene Street are armoured by a basalt masonry seawall.

Figure right: Masonry seawall and steps at Rawene Road Reserve, Cox's Bay (Source: Auckland Council)



The Westmere shoreline; coastal armouring at Garnet Road reserve with a basalt seawall, and at Westmere Park with a seawall and groyne structure.

Figure right: Ramp access at eastern end of Westmere Park Reserve, and low masonry seawall and rock groyne adjacent to the point at the western end of the beach area. (Source: Auckland Council)

Figure left: Garnet Road masonry seawall and steps (Source: Auckland Council)



Masonry rock seawalls armour the following road end reserves along the Herne Bay shoreline: Hamilton Beach Reserve, Sentinel Road Reserve, Home Bay Beach Wallace Street, Herne Bay Beach, Short Street Reserve.



Sentinel Road Reserve Beach, Herne Bay

Beach nourishment was completed in 2008 at Herne Bay Beach, Sentinel Road Reserve Beach and Hamilton Road Reserve Beach (Auckland Council, 2024b).

Figure left below: Wairangi Street jetty, Herne Bay. (Source: Auckland Council) Figure right below: Herne Bay Beach (Source: Auckland Council)



Catchment flooding

Catchment flooding and flood plain areas are primarily identified in relation to the key water courses (Waititiko Meola Creek, Motions Creek / Waiorea and Cox's Creek) which discharge to the coast. Smaller catchments and flood plain areas are identified in the northern areas of the unit.

Primarily in the Grey Lynn area, the upper reaches of Cox Creek, include properties, which following the 2023 storm events, are now [categorised as high-risk](#). Decisions on the future use and management of this land are 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.



Figure left:: Cox's Creek, West End Road, 1926, Winkelmann, Henry, 1860-1931 "Looking west towards Westmere showing West End Road running over Cox's Creek with Fife Street (left to right of centre in distance) and William Denny Avenue (left background)"

Acknowledgements: Auckland Libraries Heritage Collections 1-W0871



Risk assessment

The risk table represents key groups of assets (e.g. Auckland Council-owned land, buildings, road extents) which are supported by the regionally consistent data set. The risk assessment provides a regionally consistent method for comparing risk to Auckland Council-owned land and assets allowing for identification of areas with highest risk for potential future assessment.

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

Unit 16 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 (92.0 ha) Buildings, wharves (30 No.)			Park amenity structures, carparks, accessways, buildings (2.3 ha)			AT roads (31.0 km) Bridges (1,105.4 m ²)			Water pipes (166.2 km)		
Short	Medium	Long	Short	Medium	Long	Short	Medium	Long	Short	Medium	Long
Coastal erosion and instability susceptibility											
Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	High	High	High	Moderate	Moderate	Moderate
Coastal inundation											
Moderate	Moderate	High	Moderate	High	High	High	High	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 unit that may be impacted by coastal hazards (inclusive of catchment flooding) over changing climate scenarios.



- Unit 16 includes 24 reserves and parks, many which are highly used and provide for a range of recreational and sporting pursuits as well as access to the water for water-based recreation.
- Key coastal and adjoining parks include; Meola Reef Reserve, Seddon Fields & Sir Keith Park Mem Airfield Leased Land, Westmere Park, Westmere Lemington Esplanade and Westmere Park Weona Place Access, Cox's Bay Reserve and local coastal connections at Cox's Bay Esplanade, Bella Vita Reserve, Marine Parade Beach, Herne Bay Beach, Cremorne Road Reserve, Wairangi Road Esplanade, Home Bay Beach Reserve, Sentinel Road Reserve, Hamilton Beach Reserve and Masefield Reserve.



- Auckland Council-owned assets include community and sport buildings, parks amenities and facilities. Including facilities at Seddon Fields, provision for community uses and public pool facilities at Point Erin.



- Four **closed landfill** areas are located within this unit including Jaggers Bush; MOTAT, Seddon Fields and Meola Reef Reserve; Cox's Bay Reserve; and Masefield Reserve.



- Wastewater pump stations:** Meola Road pump station; Westmere Park; Masefield Avenue pump station; Sarsfield Avenue pump station
- Stormwater assets and infrastructure are located within the unit.



- Local coastal access reserves, road ends and connections include;** Bella Vista Reserve, Cremorne Road Reserve, Hamilton Beach Reserve, Herne Bay Beach, Home Bay Beach Reserve, Marine Parade Beach, Masefield Reserve, Salisbury Reserve, Sentinel Road Reserve, Wairangi Road Reserve.
- Key pathway connections include:** Meola Reef Path; Weona-Westmere Path; Grey Lynn Greenway Path; Grey Lynn to Pt Erin Path; Ponsonby to Victoria Park Path; Westhaven Path.



- **Coastal access wharves, access structures and hard protection** are located throughout the unit area: including Wairangi Road Reserve, numerous seawalls, boat ramps (Garnet Road, Westmere Park, Cox Esplanade).

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.



- This unit includes multiple sites of significance, heritage sites and cultural landscapes and location which are significant to mana whenua.
- These include but are not limited to Te Rehu (Kāinga); Ōpoutūkeha (Waahi whakahirahira); Tukituki Muka; Te Koraenga Oka (Pā); Te Rōutu o Ureia (Wāhi tapu; Motungaengae (Tauranga waka and wāhi whakahirahira); Nga Kauaewhati; One-Marū; Ko Takerehaea; and Motu Te Kākāwhakaara.
- Specific cultural values and outcomes for this unit may 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.



- Herne Bay, Westmere, and Saint Marys Bay are the main communities within Unit 16. Within inland areas including Grey Lynn, many users of coastal areas access the coast from surrounding suburbs.
- Key social infrastructure includes Seddon Fields (8.8 ha sports park), Auckland Zoo, the Museum of Transport and Technology (MOTAT) Aviation Hall, the Westpoint Performing Arts Centre and the Point Erin Park/Pools.
- Key sporting facilities which serve a wider catchment are located at Seddon Fields and Cox's Bay Reserve.
- The unit features several walking paths, including the Grey Lynn to Pt Erin Path; Westhaven Path; and Weona-Westmere Path.
- Cox's Bay provides coastal access and is home to moored boats as well as the Hawke Sea Scouts.
- Small beaches and bays in the unit are predominately located around the Herne Bay coastal area and are predominantly used for informal recreation by the local community, including swimming, fishing and walking. Wairangi Wharf Reserve hosts a small wharf popular with locals for wharf jumping and fishing.
- There are a number of private boat sheds and boat ramps extending from large waterfront dwellings along this coastline.
- Two outstanding Natural Features including Waititiko Meola Creek and Meola Reef (Te Takaroa) in Stretch 16.1 as well as a High Natural Character Area, "Watchman Island" (Stretch 16.8).



Unit 16 comprises a variety of regionally important and/or vulnerable ecosystems and species. These include:

- Coastal broadleaved forest located along the cliffs of Herne Bay, with particularly ancient pōhutukawa individuals in proximity to the Harbour Bridge.
- A basalt volcanic flow (Meola Reef) that extends over 2 km into the central Waitematā Harbour which includes areas of mangrove forest on the landward edge of the reef. The outer reef is dominated by oysters in the intertidal zone and kelp in the subtidal zone.
- Within coastal intertidal areas (particularly in relation to Meola Reef and Cox Bay) threatened coastal birds, including Caspian tern and white-fronted tern utilise the intertidal areas while South Island pied oystercatchers have identified roosting areas within the unit (including Meola Reef Reserve).



Who have we heard from?

Communities

- Engagement was received through Social Pinpoint and 'AK Have Your Say' as well as in-person events including at Cox Bay Sea Scouts Hall.
- Overall, coastal area, surrounding parks and connections to the harbour are very popular and well used by the community for local recreation and enjoyment. Communities identified the neighbouring areas and coastal connections as being part of their daily lives.
- There is significant concern about pollution and water quality, particularly in relation to Cox's Creek/Bay, erosion, and slips. Advocacy is for better maintenance and access for people and for watercraft.
- Within this area of the Waitematā Harbour, we also heard from ecological groups, sailing clubs and youth groups. A key shared concern for these groups has been the need for an integrated view of catchments and coast, to reduce hazard impacts from flooding and improve water quality.

Local Board

The Waitematā Harbour Local Board has both supported in-person events and expressed feedback through workshops. Key areas of interest to the Board included:

- Consideration and interest in innovation for how closed landfill assets and other legacy land uses which have impacted on environmental outcomes may be managed in response to climate change.
- In the cost and implication for areas where 'protect' is identified. Particularly where areas are low lying and protection in relation to inundation from coastal and catchment sources may be increasingly challenging under moderate and high climate scenarios. For Unit 16 areas this includes Seddon Fields, Cox Bay and Point Erin areas.
- The desire to develop locally relevant signals and triggers which can be used to implement consideration of change to another adaptation pathway.
- Support ongoing conversations about climate change and natural hazard risk.



Community concerns

Community concerns and experience of hazards focused on the impacts of the 2023 storm events. This included the following key observations:

- The impacts of coastal instability and landslides on walking connections (Weona) and the resulting closure of tracks.
- The impact of 'drier and hotter' summers on the coastal edge, the increasing challenge to vegetate coastal areas and the need to manage coastal vegetation, actively, where this could impact on cliff stability.
- Dissatisfaction with the impacts of flooding (smaller more frequent events as well as larger events) on the harbour's water quality and the inability to swim in the harbour due to pollution.
- Structures requiring maintenance; including the seawall at Cox's Bay.
- Further funding and support for unique urban ecosystem which are perceived to be degrading. Areas around Waititiko Meola Creek were identified.
- The need to consider a greater potential rise in sea levels within the next century (3-4 m tidal change) and consider more carefully the choice of protect (hold the line).



What matters most? Community aspirations or outcomes

- Walking on local beaches, exercising, getting fresh air walking on steps / paths. High importance of 'getting back to nature' and view of the water (Westmere/Motions Creek/Waiorea & Meola Reef).
- Value and importance of recreational areas within this urbanised area of the city; Sport facilities within the unit (Seddon Fields and Cox Creek reserve), and opportunities for dog exercise areas.
- Support for youth water-based activities; Cox's Bay - Hawke Sea Scouts provides kayaking and sailing training for large youth membership.
- Herne Bay Beach, Sentinel Beach, Home Beach, Hamilton Beach, beautiful, swimming and walking.
- Bird watching at Cox's Bay and along the Weona Westmere walkway.



What can we do about it? Community feedback and aspirations

- Local board aspirations to ensure that conversations continue and adaptation planning develops to consider local signals, triggers and thresholds for change and challenges the feasibility of different options, considering the investment involved in new structures.
- Aspirations to continue the use of and improve water quality was shared by a number of parties. One example confirmed by many participants was the Hawke Sea Scouts building and uses are part of the European history, the Sea Scout hall and community are almost 100 years old and water quality may have been better in the past.

What can we do about it? Adaptation strategies for Unit 16



16.1: Meola Reef Reserve / Te Tokaroa (Waititiko Meola Creek)

This stretch commences at the eastern side of Waititiko Meola Creek and Meola Road and includes the coastline of Te Tokaroa Meola Reserve. The reserve is a large nature reserve and includes an off-leash dog park. A portion of the park is underlain by a closed landfill. At the coastal edge is a marine SEA and coastal bird habitat. The park and walking tracks are highly valued by the local community. The reserve is subject to a development plan: [Te Tokaroa Meola Reserve development plan](#).

Scenarios for change			
Low		Moderate	
High			
Maintain		Maintain	
Explanation			
Maintain is identified in response to all climate change scenarios. This is to provide flexibility to utilise a range of risk management responses relevant for the various assets (parks and landfill and community use, roading and wastewater network) which utilise design, locations, localised realignment and protection to manage a range of uses and values as well as the associated transport and water networks beyond the Council park areas. Maintain is identified both in relation to coastal hazards and the interface with catchment flooding.			
Implementation Notes			
- The Te Tokaroa Meola Reserve Management Plan includes a detailed set of objectives for the management of this reserve, which should be considered when implementing adaptation strategies. - Under a moderate to high climate scenario, further understanding of options to manage risk to roading connections and water assets such as pump stations, pathway connections, and culturally significant areas will be required. - The closed landfill located within this stretch is subject to the Closed Landfill Asset Management Plan.			

16.2: Motions Creek Waiorea and East (Seddon Fields & Auckland Zoo)

This stretch extends along Meola Road to the east of Meola Reef Reserve and culminates east of Motions Creek / Waiorea where Lemington Reserve turns north from Meola Road and includes key park landholdings of Seddon Fields, Jagers Bush, Old Mill Reserve, Western Springs and the Auckland Zoo and Museum of Transport and Technology MOTAT. Sir Keith Park Memorial Airfield is identified as a leased landholding and several sites of significance to Mana Whenua are identified within this stretch.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation Maintain reflects the significant variation of assets and values located within this stretch, acknowledging that the coastal edge is highly modified due to prior land uses. Design and location of assets, alongside localised protection measures may be required to manage risk and will be subject to asset-specific management and adaptation plans and engagement with leased holders and users. This includes those applicable to closed landfills, major facilities (Auckland Zoo and MOTAT) and areas with numerous values and interests (Old Mill Road, Western Springs).		
Implementation Notes • Collaboration and engagement with organisations and asset owners/managers for major Council-owned facilities (such as Auckland Zoo), will be required through implementation of adaptations strategies. • Closed landfills are located within this stretch; these are subject to the Closed Landfill Asset Management Plan. • Cultural: Numerous sites of significance to mana whenua are located within this stretch. Engagement with mana whenua is required and further consideration of adaptation strategies and actions may be required. • Meola Road traverses the coastal edge of this stretch. It is a key transport connection and localised protection may be required as well as adaptation options to manage risk under a moderate and high climate scenario.		

16.3: Westmere West (Weona-Westmere Path and Garnet Road End)

This stretch commences east of Motions Creek / Waiorea and extends north, including the Weona-Westmere Path and Westmere Park culminating at the eastern side (and including) Garnet Road end. Weona-Westmere Path extends along the coast, beginning at Lemington Reserve and ending adjacent to Westmere Park Avenue. This is a highly important coastal connection for the local community. Some of the walkways at the coast were damaged in the 2023 storm events.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Adaptation priority 
Explanation Maintain is identified in relation to both low and moderate climate change scenarios. This acknowledges risk management via design and location of assets, primarily the Weona-Westmere Path. This is a highly important coastal connection for the local community. Areas of this walking connection were damaged through prior storm events. Areas of the stretch (Garnet Road end and areas of Westmere Park) are armoured. Maintain provides for the maintenance of these existing defences and sees that management of assets landward of these structure may continue to require risk management through design and location of assets and uses. Adaptation priority is identified under the high climate change scenario to reflect the increased exposure to inundation and the need for further engagement and		

Scenarios for change		
Low	Moderate	High
consideration of options to maintain highly valued key coastal connections, uses and assets located in proximity to the coast within this stretch.		
Implementation Notes		
Maintain supports the management of risk utilising existing protection structures, including those at Garnet Road end, and the management of risk through consideration of design and location of assets and uses including coastal walking connections. Adaptation priority in the high change scenario reflects the need to consider risk posed by coastal erosion processes and the increasing inundation risk to coastal accessways and uses within the wider park areas, and the need to ensure activities are safely located in a manner which responds to the values of the local area.		

16.4: Westmere East (Rawene Road to West End Road)

This stretch commences at the eastern side of Garnet Road end and culminates at the end of the private landholdings at West End Road. It includes predominantly privately-owned coastal landholdings except for Rawene Reserve and Rawene Road end.

Scenarios for change		
Low	Moderate	High
No action 	No action 	No action 
Explanation		
Limited Council landholdings and asset are exposed to coastal hazards within this stretch. No action is reflective of the predominant private ownership of this coastal edge. Rawene Road end is armoured for a short section reflective of the reserve extent and provides a highly valued local coastal connection. Rawene Reserve also provides a valued connection to the coast.		
Implementation Notes		
No action is identified due to limited exposure of Auckland Council-owned land and assets to coastal hazards within this stretch. No action does not preclude the management of risk to piped water infrastructure or the continued maintenance of road ends (and any existing protection structures) and reserve areas, that are providing highly valued connections to the coast (Rawene Avenue) within this stretch.		

16.5: Cox's Bay

Commencing at West End Road and culminating in the east where the embayment turns north and West End Road crosses the road bridge, this stretch includes Cox's Bay Reserve, Bayfield Park, and Hukanui Reserve. Cox's Bay Reserve includes reclaimed land (and is underlain by a closed landfill) and contains extensive highly valued sports facilities, buildings and park facilities, sites of significance to mana whenua, historic heritage sites and is traversed by Grey Lynn Greenway Path and the Grey Lynn to Point Erin Path. West End Road, a key transport connection borders Cox's Bay Reserve and provides access to Cox's Bay. The coastal edge adjacent to West End Road is protected by a rock masonry seawall.

Scenarios for change			
Low		Moderate	
High			
Protect		Protect	
		Adaptation priority	
Explanation			
Protect under both a low and moderate climate change scenario reflects the highly modified nature of this stretch, including reclaimed park areas which now accommodate highly valued uses and assets. Protect refers primarily to the coastal edge, maintaining the existing coastline location (and existing protection structures), noting that further consideration of the design and location of assets in relation to catchment flooding hazards may be required, demonstrated by the impacts of recent flood events (2023). Adaptation priority under a high climate change scenario is required to enable further engagement and discussion in relation to how risks are managed and the impact on uses and assets located within this stretch.			
Implementation Notes			
• Protect is reflective of the existing armoured coastal edge and key transport connections. • Risk management, associated with catchment flooding and inundation, within landward reserve areas will continue to require consideration through location and design of assets, including roading and walking connections. • Closed landfill assets are subject to the Closed Landfill Asset Management Plan. • As identified through community and local board engagement, further engagement with iwi, communities and stakeholders will be required to consider options to manage risk and adaptation pathways under all climate scenarios to ensure that signals, triggers and thresholds can be established for highly valued local areas. • This stretch 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.			

16.6: Herne Bay and Home Bay (Cox's Bay Esplanade to Masefield Beach Reserve)

Commencing to the east of Cox's Bay, where the coast turns north away from the West end Road area, and culminating in the west at Masefield Reserve. There are multiple parks and reserves within this stretch including Cox's Bay Esplanade, Bella Vita Reserve, Marine Parade Beach, Herne Bay Beach, Cremorne Road Reserve, Wairangi Road Esplanade, Home Bay Beach Reserve, Sentinel Road Reserve, Hamilton Beach Reserve and Masefield Reserve. This stretch also includes water infrastructure in the form of piped assets and pump stations and a closed landfill is identified within Masefield Reserve.

Scenarios for change		
Low	Moderate	High
Maintain 	Maintain 	Maintain 
Explanation Maintain reflects the numerous coastal access reserves/road ends within this coastal area that are highly valued destinations requiring bespoke consideration of how risk from coastal hazards and climate change over all three scenarios can be responded to. Maintain reflects that the coastline is not fixed and may be realigned to respond to risk, local cultural, ecological and social (recreational and amenity) values while maintain access to the coast for a variety of users. Maintain is identified over all scenarios acknowledging that engagement and further exploration of options and more detailed adaptation pathways will be required to develop locally relevant signals triggers and thresholds for this stretch.		
Implementation Notes • Maintain is applicable to Council land and assets only and is not applicable to privately-owned land located within this extensive coastal stretch. • Maintain provides for maintenance of existing structures to enable public access to the coast located at numerous locations along this stretch. Management of risk from coastal hazards may require localised protection, realignment and considered design of structures (and consideration of uses within reserve areas), over time within these coastal reserve areas to respond to hazard risk over the three climate scenarios. Maintain is reflective of a dynamic coastal edge, acknowledging the high coastal amenity values and ecological resources (significant ecological areas) located within this coastal stretch. Different methods, including nature-based methods, may be applicable to the management of risk and coastal areas, providing for the localised hard protection, coastal access structures and wharves, management actions associated with water infrastructure and closed landfill assets. • Engagement with key community users and lease holders (communities and clubs) will be required and this is supported by local board and community feedback seeking further development of local signals, triggers and thresholds through implementation. • Closed landfill assets are subject to the Closed Landfill Asset Management Plan.		

16.7: Point Erin & Harbour Bridge and SH1 West

This stretch commences in the west at Masefield Reserve and culminates at the eastern boundary of the unit area at the Harbour Bridge. Curran Street follows the coastal edge in this stretch, providing access to Westhaven Marina. Westhaven Shared Path runs between the road and the coast. A rock revetment seawall protects this stretch along its entirety, bordering the Westhaven shared path.

Scenarios for change		
Low	Moderate	High
Protect 	Protect 	Protect 
Explanation This coastal stretch is highly modified by past land use and development including construction of Auckland Harbour Bridge. It includes key transport connections for the Westhaven area and harbour bridge approach. Protect reflects the modification and current armouring of the coastal edge and confirms the importance of these transport connections. Under moderate and high climate scenarios, exposure to inundation from the coast will require further consideration of the options and implications of continued protection for this stretch, including collaboration with other key asset owners. This area is culturally significant and engagement with mana whenua will be required in relation to adaptation strategies.		
Implementation Notes • Protect is reflective of the modified nature of this coastal area and critical roading connections. This strategy reflects the continued protection of the coastal edge in its current alignment. Further consideration of the options available to manage exposure from coastal inundation will be required in future, in addition to maintenance of the coastal edge. This strategy does not preclude other targeted interventions such as design and localised relocation of assets or uses where required to manage risk. • Management: The Waitematā Harbour Connections project is currently investigating the provision of additional transport connections across Waitematā Harbour. Engagement with Waka Kotahi NZTA will be required, and adaptation strategies may be updated to reflect further development of this major infrastructure project. • Cultural: There are several sites of significance to mana whenua within the stretch. Engagement with mana whenua is required in relation to the implementation of adaptation strategies.		

16.8: Te Kākāwhakaara / Watchman Island

This stretch is the Motu/ Island of Te Kākāwhakaara.

Scenarios for change		
Low	Moderate	High
No action 	No action 	No action 
Explanation This is a highly significant cultural site. Kākāwhakaara refers to a fortified site or pā built by the ancestor Kōwhatu ki te Uru, who is significant to the iwi of Te Kawerau ā Maki. It is a place of historical and cultural importance. There are no Auckland Council-owned land and assets within this stretch.		
Implementation Notes No action is reflective of the lack of Auckland Council-owned land and assets located within this stretch and does not preclude actions to manage risk to cultural or ecological values in the future.		

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